

AGRICULTURAL ECONOMICS AND AGRICULTURAL BUSINESS

Undergraduate Program Information

The Department of Agriculture Economics and Agricultural Business offers two Bachelor of Science in Agriculture degrees. A Bachelor of Science in Agriculture with a major in Agricultural Economics and Agricultural Business (AEAB) and a Bachelor of Science in Agriculture with a major in Natural Resource Economics and Policy (NREP).

Agricultural Economics and Agricultural Business - Bachelor of Science in Agriculture

The AEAB degree prepares students for leadership positions with companies that operate in the food and fiber supply chain. Positions may focus on areas of agribusiness management, agricultural production, financing, marketing, and economics. Recent AEAB graduates have accepted positions with national and international companies, non-profits, and government agencies. Many graduates are also successful entrepreneurs.

In this program, faculty, students, and industry stakeholders work together to provide students with real-world examples and opportunities to apply their skills and knowledge through departmental course offerings. The curriculum is designed to educate students as business professionals with the necessary skills to succeed in professional positions. Depending on their interest, students can customize their path of study to include additional courses in marketing, finance, or natural resource management.

Natural Resource Economics and Policy - Bachelor of Science in Agriculture

The Department of Agriculture Economics and Agricultural Business offers the Bachelor of Science in Natural Resource Economics and Policy (NREP); an undergraduate degree that trains students on the socio-economic and bio-physical aspects of environmental and natural resource management and policy. With increasing competition for limited land, water, and other natural resources in the U.S. and throughout the world, as well as growing concern about environmental degradation, there is a growing need for professionals who can assist in the process of balancing economic and environmental tradeoffs. The NREP major provides students with knowledge and skills to articulate and apply economic principles to a range of public and private sector issues such as land use, energy, wildlife, climate and air resources, and water. This major prepares students for private and public sector positions in resource assessment, management, or administration.

Graduate Program Information

The Department of Agricultural Economics and Agricultural Business supports six graduate programs. Several of these programs are offered with cooperation from other departments on campus. The six programs supported by AEAB include:

- Masters of Science in Agricultural Economics;
- Masters of Agriculture with a concentration in agribusiness;
- Masters of Business Administration with a concentration in agribusiness;

- Doctorate of Economic Development;
- MS & Ph.D. in Water Science Management; and
- Minor in Agribusiness.

Masters of Science in Agricultural Economics

Master of Science (MS) in Agricultural Economics program provides rigorous training in economic theory, applied economic analysis, and quantitative methods. The degree and curriculum are designed to prepare students for professional careers in business, government, research, and for continued education in pursuit of a Ph.D. The program requires students to complete a Master's thesis working closely with a faculty committee.

Masters of Agriculture with a concentration in Agribusiness

Master of Agriculture (MAG-AB) with a concentration in Agribusiness provides students with backgrounds or interests in agriculture with graduate-level training in agribusiness and applied economics. Students are able to develop knowledge and skills related to applied economics, finance, marketing, management, and quantitative methods and skills commonly used in managing businesses operating within the food and fiber value chain. The degree offers an alternative for individuals holding undergraduate degrees in various agricultural and food science fields to learn and develop skills needed to start or manage an agricultural business. The program requires students to complete a creative component or thesis working closely with a faculty committee. Courses are offered in a hybrid format allowing students not living in or near Las Cruces to participate in the program. This program is also offered online allowing working professionals to participate in it.

Masters of Business Administration with a concentration in Agribusiness

Master of Business Administration with a concentration in Agribusiness (MBA-AB) prepares students for business and public sector careers in agriculture and the food and fiber industry. Graduates from this program are knowledgeable about the U.S. and international food and fiber sectors and hold an AACSB International accredited MBA degree.

Doctor of Economic Development

Doctor of Economic Development (DED) is a professional doctorate designed to provide advanced training for economic development professionals. It is not designed to prepare graduates for academic careers.

Interdisciplinary Masters in Water Science and Management and Ph.D. in Water Science and Management

The Water Science program is an interdisciplinary program supported by AEAB faculty that provides graduate education for the next generation of water resources researchers, educators, and managers. The program provides knowledge and tools that can be used to address state, national, and international water challenges including water quality, quantity, timing/availability, and location of water resources.

Minor in Agribusiness

The graduate minor in Agribusiness provides graduate students training on business and economics methods to analyze agribusiness enterprises.

Degrees for the Department

Bachelor Degree(s)

- Agricultural Economics and Agricultural Business - Bachelor of Science in Agriculture (<https://catalogs.nmsu.edu/nmsu/agricultural-consumer-environmental-sciences/agricultural-economics-business/agricultural-economics-business-bachelor-science-agriculture/>)
- Natural Resource Economics and Policy - Bachelor of Science in Agriculture (<https://catalogs.nmsu.edu/nmsu/agricultural-consumer-environmental-sciences/agricultural-economics-business/natural-resource-economics-policy-bachelor-science-agriculture/>)

Master Degree(s)

- Agricultural Economics - Master of Science (<https://catalogs.nmsu.edu/nmsu/graduate-school/agricultural-economics-ma-science/>)
- Agriculture (Agribusiness) - Master of Agriculture (<https://catalogs.nmsu.edu/nmsu/graduate-school/agriculture-agribusiness-ma-agriculture/>)
- Agriculture (Agribusiness) - Master of Agriculture (Online) (<https://catalogs.nmsu.edu/global/nmsu-global/agriculture-agribusiness-mag-online/>)
- Business Administration (Agribusiness) - Master of Business Administration (<https://catalogs.nmsu.edu/nmsu/graduate-school/business-administration-agribusiness-master-business-administration/>)

Doctoral Degree(s)

- Economic Development - Doctor of Economic Development (<https://catalogs.nmsu.edu/nmsu/graduate-school/economics-doctor-economic-development/>)

Minors for the Department

Undergraduate Minors

- Agricultural Business Management- Undergraduate Minor (<https://catalogs.nmsu.edu/nmsu/agricultural-consumer-environmental-sciences/agricultural-economics-business/agricultural-bus-mgt-undergraduate-minor/>)
- Natural Resource Economics - Undergraduate Minor (<https://catalogs.nmsu.edu/nmsu/agricultural-consumer-environmental-sciences/agricultural-economics-business/natural-resource-econ-undergraduate-minor/>)

Graduate Minors

- Agribusiness - Graduate Minor (<https://catalogs.nmsu.edu/nmsu/graduate-school/agribusiness-graduate-minor/>)

Professor, Carlos E. Carpio Ochoa, Department Head

Professors Acharya, Hurd, Lillywhite, Patrick, Ward

Associate Professors Robinson

Assistant Professors Boufous, Dsouza, Miller, Regmi, Torell

College Professors Townsend

Department of Agricultural Economics and Agricultural Business:

C.E. Carpio Ochoa, Department Head, Ph.D. (North Carolina State University)– food and agricultural economics, applied econometrics/statistics;

Professors R.N. Acharya, Ph.D. (Auburn)– food safety, logistics management, technology adoption, and marketing; B. H. Hurd, Ph.D. (California-Davis)–

*water and natural resource economics; J. Lillywhite, Ph.D. (Purdue)– food and agribusiness management and marketing; M. Patrick, Ph.D. (Michigan State University)– Economic Development; F. A. Ward, Ph.D. (Colorado State)– resource economics, welfare economics; **Associate Professors** C. Robinson, Ph.D. (New Mexico State)- consumer behavior, agricultural production, marketing sales; **Assistant Professors** S. Boufous, Ph.D. (Texas Tech University)- sustainability, production economics, consumer demand analysis, and non-market valuation; A. Dsouza, Ph.D. (Arizona State University)- production economics, food supply chain management, and marketing; F. Miller, Ph.D. (University of Texas-Dallas)- agricultural economics, policy, dairy, range livestock; M. Regmi, Ph.D. (Kansas State University)- agricultural finance, risk management, production economics; G. Torell, Ph.D. (University of Wyoming)- agricultural economics, natural resources, environmental economics; **College Professors** J. Townsend, Ph.D. (Oklahoma State University) commodity risk management, agricultural marketing; **Affiliated Faculty** D. Blayney, Ph.D. (Washington State University) agricultural supply chain; dairy production; **Emeritus Faculty** V. Bullock M.S. (Emeritus) (New Mexico State University) real estate, real estate appraisal; P. Gutierrez, Ph.D. (Emeritus) (Oklahoma State)– extension, ranch economics, economic development; J. D. Libbin, Ph.D. (Emeritus) (Iowa State)– farm management, production economics; R. Skaggs, Ph.D. (Emeritus) (Utah State)– agriculture and natural resource policy*

Department of Economics, Applied Statistics and International Business:

*Y. F. Lee, Ph.D. (Southern Illinois-Carbondale)-international finance and trade, international monetary system, economic development; **Professors** L. Blank, Ph.D. (Tennessee, Knoxville)- microeconomic theory, managerial economics, and regulatory economics; C. Erickson, Ph.D. (Arizona State)- regional (Latin American) economic growth and development; money and banking; R. L. Steiner, Ph.D. (Oklahoma State)-likelihood methods, discrete distributions, and exact tests; B. Widner, Ph.D. (Colorado State)-urban/ regional development, managerial economics, and public finance; D. M. VanLeeuwen, Ph.D. (Oregon State)-statistics; **Associate Professors** J. Caldwell Ph.D. (Illinois)-energy economics, utility rate design, climate policy; C. Gard, Ph.D. (Washington)-biostatistics, and breast cancer risk prediction; L. LaPlue (Tennessee)-international and environmental economics; M. Li, Ph.D. (Pennsylvania State)-labor, urban, and agricultural economics; J. Mamkhezri, Ph.D. (New Mexico)-energy, natural resources, environmental and health economics; C. Sroka (Ohio State)-count data models, and health economics; **Assistant Professors** J. Dawson Ph.D. (UW-Madison)–statistics, biostatistics; S. Jeon Ph.D. (North Carolina)-environmental statistics, extreme value analysis, and spatio-temporal modeling; **College Assistant, Associate, and Full Professors:** (College Associate Prof.) B. Bai, MS (New Mexico State)- applied statistics, behavioral science; (College Assistant Prof.) C. Blume, Master of Accountancy (New Mexico State); (College Full Prof.) M. Downes, Ph.D. (New Mexico)–environmental and natural resources economics, econometrics and quantitative economics; (College Associate Prof.) F. Pallares, DED (New Mexico State)–economic development; (College Full Prof.) L. Vargas, DED (New Mexico State)-international development, institutional economics, and border economics; **Emeritus Faculty** R. V. Adkisson, Ph.D. (Nebraska)-international, public finance, economic development; K. Brook, Ph.D. (Texas-Austin)-macroeconomic theory, monetary policy; D.L. Clason, Ph.D. (Kansas State); D. L. Daniel, Ph.D. (Southern Methodist)-nonparametric, statistical computing, and environmental research; C. Enomoto, Ph.D. (Texas A&M)-econometrics, economic theory; M. Ellis, Ph.D. (California-Riverside)-economic development; D. A. Gegax, Ph.D. (Wyoming)-public utility economics, industrial organization; W. R. Gould, Ph.D. (North Carolina State)-biological sampling, wildlife and fisheries estimation. B. N. Matta, Ph.D. (Texas-Austin); J. T. McGuckin, Ph.D. (Wisconsin-Madison); J. T. Peach, Ph.D. (Texas-Austin)-quantitative economics, border studies, economic*

development; A.V. Popp, Ph.D., (Northern Illinois); D.B. Smith, Ph.D., E. S. Willman, Ph.D. (Indiana).

Agricultural Economics Courses

AEEC 1110. Introduction to Agricultural Economics and Business

3 Credits (3)

This course is an orientation to agricultural economics and business through the discovery process for the consumer in the food, fiber, and natural resource sectors of the global economy. The course discusses the application of micro-and macro-economic principles as they relate to agricultural economics and business. May be repeated up to 3 credits.

Learning Outcomes

1. Gain a broad understanding of the role of the consumer in the market-place for agricultural commodities, producers, agencies and the global market structure.
2. Apply introductory economic principles to applied global situations.
3. Employ economic concepts in the application of production level decision making.
4. Employ economic principles to the basic and global agricultural community.
5. Understand relationships that exist between producers and consumers.

AEEC 1120. Careers in Food and Agribusiness

1 Credit (1)

This course provides an orientation to careers in agricultural economics and agricultural business. Students will learn about the agricultural supply chain in New Mexico, the United States, and the world. Students will be introduced to faculty and staff within the department, learn about career opportunities available to AEAB graduates, and develop a greater appreciation of current agricultural issues. Freshman status or consent of instructor required. May be repeated up to 1 credit.

Learning Outcomes

1. Become familiar with career opportunities in agricultural economics and agricultural business
2. Understand knowledge and skills desired by employers
3. Become acquainted with faculty and staff in the Department of Agricultural Economics and Agricultural Economics and resources available to students within the Department
4. Refine written and verbal communication skills

AEEC 2110. Principles of Food and Agribusiness Management

3 Credits (3)

This course introduces business management theory and application of theory related to businesses within the food and fiber supply chain. Topics include management and financial principles, market planning, and organization theory. May be repeated up to 3 credits.

Learning Outcomes

1. Demonstrate, refine and expand written and oral communication skills
2. Develop an understanding of basic financial statements, their use and analysis
3. Understand the roles management and management styles play in modern agribusiness
4. Learn about the history of agribusiness domestically and internationally
5. Integrate the role of technology into modern agribusiness management

AEEC 2120. Introduction to Food and Agribusiness Accounting

3 Credits (3)

This course outlines the purpose and methods of keeping and analyzing farm and ranch records. Course topics include financial statements, efficiency measures, analysis of the business, and tax computations.

Learning Outcomes

1. Understand the terminology and principles used in modern farm and ranch financial management statements.
2. Evaluate capital investments, analyze farm business performance, and develop tools for financial planning and analysis
3. Evaluate farm and ranch cash flows

AEEC 2130G. Survey of Food and Agricultural Issues

3 Credits (3)

Survey of food and agricultural issues, including: geography of food production and consumption; human-agricultural-natural resource relations; agriculture in the United States and abroad; modern agribusiness; food safety; food, agriculture, and natural resources policy; ethical questions; role and impact of technology. Crosslisted with: FSTE 2130G.

Learning Outcomes

1. Understand of global agriculture including production techniques used in various geographical regions, consumption trends, and political and social constraints.
2. Synthesis information about agricultural issues and make informed arguments
3. Articulate modern issues in agriculture
4. Write coherent arguments relative to personal beliefs regarding agricultural issues

AEEC 2140. Technology and Communication for Business Management

3 Credits (2+2P)

This course helps students improve their skills related to data analysis, information management, and communication. Drawing examples from a variety of management, business, technological and research situations, students discover the versatility and functionality of modern computer software. The course emphasizes a 'hands-on' approach. May be repeated up to 3 credits.

Learning Outcomes

1. Demonstrate an understanding of the terminology used to describe common techniques and concepts in business information systems.
2. Demonstrate a mastery of spreadsheet design and use.

AEEC 2996. Special Topics

1-4 Credits

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree. Consent of instructor required.

Learning Outcomes

1. Varies

AEEC 3110V. World Agriculture and Food Problems

3 Credits (3)

This course examines key concepts and issues relevant to the world's food production systems. Topical highlights include the causes and consequences of hunger, agriculture's economic and environmental significance, sustainable development, biotechnology, and globalization of agricultural markets. As students learn about these issues from both local and global perspectives they are engaged in the development of both their literacy of economic concepts and their core research and communication skills. We do this through a combination of relevant

course readings, in-class discussion exercises, and focused writing assignments on current issues of relevance. Same as GEOG 315V. May be repeated up to 3 credits.

Learning Outcomes

1. Demonstrate conceptual and systems thinking and design
2. Assess the nutrition and healthfulness of food choices
3. Describe the structure and function of food and agricultural systems
4. Analyze roles of and relationships between food producers, consumers, and policymakers
5. Apply basic economic concepts to describe and interpret food and agricultural issues
6. Explain the environmental context and role of agriculture
7. Articulate key arguments that favor and oppose food biotechnology
8. Recognize several of the benefits and barriers in international trade of food and agricultural products

AEEC 3120V. Natural Resource Economics

3 Credits (3)

This course helps students gain insight into important natural resource problems of our time. Apply economic principles to problems in the preservation, use, and development of agricultural, range, mineral, water, forestry, fishery, and environmental resources. Understand the use of cost-benefit analysis for government natural-resource projects, policies, and programs. Same as ECON 337V. May be repeated up to 3 credits.

Prerequisite: ECON 1110G or ECON 2120G or ECON 2120H.

Learning Outcomes

1. Demonstrate knowledge of economic principles to better understand natural resource issues
2. Document understanding of current and emerging natural resource issues
3. Apply economic principles to guide selected natural resource policy debates
4. Demonstrate the application of economic principles to inform policy debates addressing current water resources issues

AEEC 3130V. Water Resource Economics

3 Credits (3)

This course uses economic principles to evaluate current and emerging issues in water resources. Applications focus on the use of economic methods of analysis to current policy decisions surrounding agricultural, municipal, industrial, and environmental uses of water. Same as ECON 384V. May be repeated up to 3 credits.

Learning Outcomes

1. Demonstrate knowledge of economic principles to better understand water resource issues
2. Show understanding of current and emerging water issues
3. Apply economic principles to guide selected water resource policy debates
4. Demonstrate the application of economic principles to inform policy debates addressing current water resources issues

AEEC 3140V. Agricultural Policy

3 Credits (3)

This course provides a historical and cultural background of food and agricultural policy in the United States. Analysis of food and agricultural problems, policy-making, and implementation. Economic evaluation of specific U.S. food and agricultural policy instruments, their domestic and international impacts.

Learning Outcomes

1. Apply economic concepts to deepen understanding of agricultural policy, particularly with regard to macroeconomic importance to agriculture
2. Describe inherent tradeoffs and opportunity costs in policy
3. Identify the global impacts of U.S. agricultural policy
4. Explain and describe important agricultural policy issues for a lay audience

AEEC 3210. Marketing and Food Agricultural Products

3 Credits (3)

This course provides a review of marketing principles and techniques used throughout the food and fiber supply chain. The course introduces a broad variety of marketing topics including marketing strategy, consumer behavior, market segmentation, market research, competitive analysis, and the marketing mix. The course serves as a foundation for advanced courses in agricultural marketing. Same as MKTG 305.

Prerequisite: ECON 1110G or ECON 2120G.

Learning Outcomes

1. Articulate how agricultural commodities move through the food and fiber supply chain.
2. Understand the importance of strategic marketing and how organizations within the food and fiber supply chain identify consumers and their preferences.
3. Understand key marketing concepts used by agribusiness marketers, including SWOT analysis, the marketing mix, advertising and public relations.
4. Know the basic outline and components of a marketing plan.

AEEC 3220. Financial Derivative Markets

3 Credits (3)

This course explores the role of financial derivatives in modern business, including income generation, risk management, and price discovery. Derivatives markets covered in the course include futures, options, and swaps. Course content focuses on the fundamentals of trading and hedging in a wide variety of markets, e.g., agriculture, interest rates, exchange rates. Students participate in simulated futures and options trading. Same as AEEC 5220/BFIN 511 with additional coursework required at the graduate level. Cannot receive credit for both AEEC 3220/BFIN 311 and AEEC 5220/BFIN 511. Same as BFIN 311.

Learning Outcomes

1. Understand and explain the concept of risk, list various sources of risks observed in businesses, and identify common methods used to manage risk
2. Demonstrate an understanding of the vocabulary associated with derivatives and derivative markets
3. Articulate the role that derivative markets play in reducing risk and illustrate how they can be used in practice to reduce risk
4. Illustrate how derivative markets can be used to generate income and manage risk through hedging

AEEC 3230. Food and Agricultural Sales

3 Credits (3)

This course reviews the techniques of salesmanship. Course topics include identification and classification of buyer type and different approaches to sales based on client base. Improving oral communication skills through individual and/or group sales presentations. Students must be in Junior or above standing to enroll. May be repeated up to 3 credits.

Learning Outcomes

1. Analyze sales situations and effectively identify pathways to closing the sale.

2. Demonstrate execution of the sales process – prepare, learn, communicate, evaluate.
3. Conduct product and customer analysis to build a sales strategy.
4. Exhibit enhanced relationship management and communication skills.

AEEC 3240. Agricultural and Natural Resource Law

3 Credits (3)

This course discusses the relationship of common-law principles, statutory law and regulatory law to problems involving agriculture with an emphasis on New Mexico issues. Legal problems relevant to agribusiness, torts, fencing laws, liability for agricultural pollution, irrigation water rights, corporations and partnerships, land tenure, farm and ranch tenancy, agricultural labor, farm and ranch management, and taxation. May be repeated up to 3 credits.

Learning Outcomes

1. Understand the complexity of law as it relates to agriculture and natural resources
2. Develop a basic understanding of the legal system in the U.S. including the role of federal and state agencies responsible for agricultural and natural resource regulation
3. Articulate at a layperson's level, the roles of the legislative, judicial, and executive branches of the government as they relate to agriculture and natural resources.

AEEC 3250. Economics of Food and Agricultural Markets

3 Credits (3)

This course focuses on the analysis of supply and demand characteristics of commodities with particular attention to agricultural products. Pays special attention to empirical analysis. Includes institutional aspects of pricing, temporal and spatial price relationships, price forecasting, and the economic consequences of pricing decisions. May be repeated up to 3 credits.

Prerequisite: ECON 2120G, MATH 1430G, and A ST 311 or MATH 1350G.

Learning Outcomes

1. Become familiar with commonly used data analysis methods and tools.
2. Develop an understanding of the factors that influence agricultural prices.
3. Use data to analyze and solve real-world problems related to agricultural prices.

AEEC 3260. Economic Analysis of Food and Agribusiness

3 Credits (3)

This course uses economic and business theory to analyze business decision making. The course includes a discussion of economic, managerial, and financial considerations relevant to modern agribusinesses. May be repeated up to 3 credits.

Prerequisite: ECON 2110G, ECON 2120G.

Learning Outcomes

1. Understand the role of managers within the food and fiber supply chain.
2. Develop an understanding of the applications of managerial economics as they related to businesses within the food and fiber supply chain.
3. Analyze market conditions and assess the position of a business within the market.
4. Identify and articulate optimal business decisions by analyzing economic and business information.

AEEC 3270. Spreadsheet Applications in Food and Agriculture

3 Credits (2+2P)

This course is an advanced course in electronic spreadsheets. Concepts and tools of data analysis and database management within a spreadsheet, emphasizing agricultural applications, are presented. Same as AEEC 5320 with additional work required at the graduate level. Cannot receive credit for both AEEC 3270 and AEEC 5320. May be repeated up to 3 credits.

Prerequisite: AEEC 2140 or consent of instructor.

Learning Outcomes

1. Ability to effectively utilize some of the advanced features in Microsoft Excel by course end.
2. Transforming agricultural and agribusiness problems into spreadsheet models for analysis.
3. Increase critical thinking capacity with respect to solving problems/tasks.
4. Develop creativity in solving problems/tasks.

AEEC 3280. Applied Production Economics

3 Credits (3)

This course introduces students to fundamental economic theories and analytical tools required for managing an agricultural operation. In particular, the principles of microeconomics will be reviewed and applied to the problems faced by farms and ranches. The course focuses only on economic making at the farm or ranch level. May be repeated up to 3 credits.

Prerequisite: (ECON 2120G or ECON 2120H) and (MATH 1430G) and (A ST 311 or MATH 1350G).

Learning Outcomes

1. Analyze production function and calculate the total, average, and marginal products
2. Derive profit-maximizing input and output combinations
3. Evaluate the relationship between production, revenue, and profit functions
4. Analyze crop budgets and determine optimal acreage allocation
5. Measure the impact of risk and uncertainty on agricultural production

AEEC 3998. Internship

1-4 Credits (1-4)

Professional work experience under the supervision of a faculty member. May be repeated up to 6 credits.

Prerequisite: Consent of instructor.

AEEC 4110. Food and Agribusiness Financial Management

3 Credits (3)

This course provides a description and application of techniques and principles of financial management to problem situations faced by agricultural businesses, including financial statement development and analysis, capital budgeting, sources and costs of capital. May be repeated up to 3 credits.

Prerequisite: ECON 2120G or ECON 2120H and ACCT 2110.

Learning Outcomes

1. Understand the time value of money and perform capital investment analysis for agricultural firms
2. Interpret financial statements used by agricultural firms
3. Comprehend farm financial risks and returns
4. Discuss financing options for U.S. farm businesses

AEEC 4410. Senior Seminar

1 Credit (1)

This course focuses on current topics and cases in the agribusiness literature stressing rigorous qualitative analysis of current problems and policy issues. During the course, students provide feedback about their experience within the Department and help identify ways in which the Department can improve. Restricted to: AEAB; NREP majors. Must be Senior standing to enroll. May be repeated up to 1 credit.

Learning Outcomes

1. Illustrate an understanding of economic and business concepts as illustrated and applied in case analyses.
2. Articulate ways in which the Department can improve academically.
3. Prepare future steps in careers, e.g., resumes, cover letters, mock interviews.
4. Develop interpersonal communication skills.

**AEEC 451. Food and Agribusiness Market Assessment
3 Credits (3)**

This course is an application course in which self-managed teams develop and present marketing plans for agribusiness firms. Emphasis on integrating the marketing mix, particularly promotional elements. May be repeated up to 3 credits. Crosslisted with: AEEC 4510.

Prerequisite(s): AEEC 3210 or MKTG 305 or consent of instructor.

Learning Outcomes

1. Identify, organize and conduct market research specific to the project
2. Develop an understanding of primary and secondary research collection and analysis
3. Exhibit enhanced relationship management, communication skills, and team building
4. Develop written communication with final deliverable for implementation into the business world

**AEEC 4510. Food and Agribusiness Market Assessment
3 Credits (3)**

This course is an application course in which self-managed teams develop and present marketing plans for agribusiness firms. Emphasis on integrating the marketing mix, particularly promotional elements. May be repeated up to 3 credits. Crosslisted with: MKTG 451.

Prerequisite(s): AEEC 3210 or MKTG 305 or consent of instructor.

Learning Outcomes

1. Identify, organize and conduct market research specific to the project.
2. Develop an understanding of primary and secondary research collection and analysis.
3. Exhibit enhanced relationship management, communication skills, and team building.
4. Develop written communication with final deliverable for implementation into the business world.

**AEEC 4520. Food and Agribusiness Marketing Plan Development
3 Credits (3)**

This course focuses on learning marketing research methods applicable to developing new food and agricultural products and repositioning existing products for new markets. Students will be required to prepare precise written and oral marketing plans to industry standards and will have opportunities to present written and oral plans at national competitions. May be repeated up to 3 credits.

Learning Outcomes

1. Illustrate abilities to make decisions based on market research and analysis, including financial analysis, analysis of consumer trends, and the business environment.
2. Create professional marketing and business presentation.

3. Build effective teams to analyze and present real-world marketing opportunities.
4. Practice business decision making founded on evidence from market research.

**AEEC 4530. Case Studies in Food and Agribusiness Management
3 Credits (3)**

This course integrates production, marketing, accounting, finance, agricultural policy, human behavior, and business environment concepts in the management of agricultural businesses using a decision case approach. May be repeated up to 3 credits.

Learning Outcomes

1. Exhibit an ability to understand complex and varying business and resource issues, including financial analysis, natural resource issues, and business operations.
2. Provide reasoning and rationale for decision making, identifying the best options from many potential decisions.
3. Practice business writing and communication skills.

**AEEC 4540. Economics of Making and Marketing Wine
3 Credits (3)**

This course is designed to provide a basic knowledge of the principles of winemaking with emphases on wine production and economics for small wineries and home winemaking. The course also focuses on the investment costs of starting small wineries and the costs of making wine and successful market strategies for small wineries. The class includes a hands-on lab that includes selecting, crushing, fermenting grapes, and all the steps required through bottling the wine. Students must be 21 to enroll in the class. Consent of instructor required. May be repeated up to 3 credits.

Learning Outcomes

1. Identify and evaluate production costs, economics, and marketing strategies for small wineries.
2. Identify current technologies used in the production of wine for home and in a small winery.
3. Identify the processes required to make high-quality wine using hands-on winemaking techniques, sensory analysis, and testing.
4. Learn the basics of Viticulture (wine grape growing) practices.

**AEEC 4550. Real Estate Appraisal
3 Credits (2+2P)**

This course addresses issues influencing the value of real estate with some emphasis upon rural properties. Topics include courthouse records, property taxes, appraisal methodology, expert courtroom testimony, condemnation, and legal issues. Students will take field trips and write appraisals. Course material is relevant to students in Finance, Accounting, and Pre-Law, as well as Agriculture. Accredited for hours to apply to both pre-licensing and continuing education requirements of the New Mexico Real Estate Commission for both Appraisers and Real Estate Brokers. Crosslisted with BFIN 470.

Learning Outcomes

1. Distinguish between the Income Approach, Cost Approach, and Sales Comparison Approach.
2. Identify market abstracted influences on value.
3. Apply proper appraisal methodology.
4. Demonstrate appraisal knowledge by writing a residential appraisal and a farm appraisal.

**AEEC 4997. Special Problems
1-3 Credits**

Special problems in agricultural economics or agricultural business of particular interest to the individual student. Maximum of 3 credits per semester. No more than 6 credits toward degree. Consent of instructor required. May be repeated up to 6 credits.

AEEC 4999. Senior Thesis

3 Credits (3)

Develop a thesis project with a faculty advisor. The senior thesis requires students to work creatively to apply business and economic principles to address a problem of concern. May be repeated up to 3 credits. Restricted to AEAB majors.

Prerequisite: consent of department head and have senior standing.

AEEC 5110. Introduction to Quantitative Methods

3 Credits (3)

Introduce students to quantitative tools widely used in applied economic analysis such as regression analysis, statistical tests, and mathematical programming. Restricted to: Agricultural Economics and Business (Masters) majors.

Learning Outcomes

1. Course objectives for the statistics module include helping students master basic statistical tests/methods commonly used in research and business analysis. Specific methods / tests include: One-sample mean hypothesis tests, Two-sample mean hypothesis tests, Analysis of Variance (mean tests for three or more samples), and Nonparametric methods to test proportions.
2. Course objectives for the econometrics/regression module include introducing students to the field of econometrics and helping them master a basic understanding of econometrics and its use in agricultural economics and business. Specific topics that will be covered include: Correlation analysis, Simple least squares regression; and Multiple regression analysis.
3. Course objectives for the math programming module including helping students formulate, specify, build and interpret linear programming models using Microsoft Excel's Solver feature and the specialized software package, GAMS.

AEEC 5120. Microeconomic Theory

3 Credits (3)

A rigorous re-examination of the pricing mechanism in the goods and factor markets. Development of theoretical tools of general applicability. May be repeated up to 3 credits.

Prerequisite: ECON 371 and ECON 457, or consent of instructor.

Learning Outcomes

1. A rigorous re-examination of the structure and function of the price mechanism to guide resource allocation and policy analysis in the goods and factor markets.
2. Introduce the models that economists use to explain the behavior of consumers, firms, and markets.
3. Development of theoretical tools used for economic analysis.

AEEC 5130. Macroeconomic Theory

3 Credits (3)

This course provides contemporary aggregative theory regarding the interrelationships among national income, employment, the price level, money supply and interest rates, and implications of this theory for public policy in a mixed economy. May be repeated up to 3 credits.

Learning Outcomes

1. Develop an in-depth understanding of the IS/LM model.
2. Understand how fiscal and monetary policy affect output, employment, interest rates and prices.
3. Develop and use mathematical models of the economy.

4. Derive the effect of a change in tax rates, government spending, or a change in the money supply, on the nation's output through expenditure multipliers.
5. Understand how fiscal and monetary policy work in an Open economy.
6. Understand the basics of Exogenous and Endogenous Growth Theory.

AEEC 5140. Agricultural Policy

3 Credits (3)

Historical and cultural background of food and agricultural policy in the United States. Analysis of food and agricultural problems, policy-making and implementation. Economic evaluation of specific U.S. food and agricultural policy instruments, their domestic and international impacts. Same as AEEC 3140V with additional work required at the graduate level. Cannot receive credit for both AEEC 3140V and AEEC 5140.

Prerequisite: Consent of instructor.

Learning Outcomes

1. Apply economic concepts to deepen understanding of agricultural policy, particularly regarding the macroeconomic importance to agriculture.
2. Be able to describe inherent tradeoffs and opportunity costs in policy.
3. Acquire an international perspective with respect to food and agricultural policy.
4. Develop an appreciation for history and trajectory of agricultural policy.

AEEC 5150. Economic and Financial Analysis of Agribusiness

3 Credits (3)

This course focuses on common analytical tools used to evaluate the economic and financial performance of businesses operating in the food and fiber supply chain. The course uses a combination of course discussions, assignments, and case studies to present the material critical to the successful management of agribusinesses. Topics include financial statements and analysis, financial planning/modeling, financial risk and risk management, the time value of money, and capital budgeting methods used in agribusiness.

Learning Outcomes

1. Read, understand, and create financial statements used in agribusiness, including income statements, balance sheets, cash flow statements, and owner's equity statements.
2. Describe and conduct financial analysis including comparative analysis, change analysis, and common-size analysis, and ratio analysis.
3. Describe and understand credit in agricultural production and agribusiness.
4. Understand the importance of capital budgeting within agribusiness and be able to conduct capital budgeting.
5. Describe, calculate, and use standard measures of investment return including net present value, internal rate of return, discounted payback period, and simple payback period.

AEEC 5210. International Agricultural Trade Theory and Policy

3 Credits (3)

This course provides a review and analysis of international trade models. Analysis of the effects of trade instruments such as tariffs, quotas, and subsidies on welfare and income distribution. Analysis of bilateral, regional, and multilateral trade agreements and their effect on the agricultural sector from both country-specific and global perspectives. May be repeated up to 3 credits.

Learning Outcomes

1. Understand and be able to describe the importance of international trade to U.S. agriculture.
2. Familiar with commonly used trade models to describe impacts of trade barriers, for example tariffs, quotas, and subsidies.
3. Analyze trade agreements and their impact on economies of different trade partners.

AEEC 5220. Financial Derivative Markets**3 Credits (3)**

This course examines advanced futures and options strategies for income generation and risk management. Coverage includes a variety of markets, e.g., interest rates, stock indexes, metals, currencies, livestock, and grains. Both technical and fundamental trading strategies are identified and discussed. Same as AEEC 3220/BFIN 311 with additional coursework required at the graduate level. Cannot receive credit for both AEEC 3220/BFIN 311 and AEEC 5220/BFIN 511. Taught with BFIN 511.

Learning Outcomes

1. Define risk and identify methods of managing risk.
2. Demonstrate understanding of vocabulary associated with derivatives and derivative markets.
3. Identify the role that derivative markets play in reducing risk.
4. Demonstrate a basic understanding of derivative markets including their use in risk management and income generation.

AEEC 5230. Public Sector Economics**3 Credits (3)**

Introduction to the economic rationale for government intervention in the economy and the effects of that intervention on economic agents and the economy in general. Emphasis on the expenditure side of government policies. Same as POLS 522. May be repeated up to 3 credits.

Learning Outcomes

1. The focus of Public Sector Economics I, which draws on microeconomic theory, concentrates on the development of analytical tools and their application to key issues relating to the spending activities of government.
2. This course aims to provide students with a solid grounding in the analytical methods that are important for studying the role of government in society.
3. Moreover, it will provide students with an economics perspective of that role and when it is appropriate for governments to intervene in an economy.
4. Once established, students will have a practical way to examine a modern government's programs such as social Security and other welfare programs.

AEEC 5240. Econometrics**3 Credits (3)**

An integration of quantitative and statistical techniques for research and management in economics and business. May be repeated up to 3 credits.

Prerequisite: ECON 457 and ECON 405 or A ST 505.

Learning Outcomes

1. This course will cover simple linear regression on cross-sectional data; multiple-regression, data with limited dependent variables (including binary, truncated/censored, and count data); and if time permits, time series econometrics.
2. After this course, you will understand the theories behind these methods, know when to use them, and be able to carry them out in Stata®, a popular commercial software for applied econometricians.

AEEC 5320. Microcomputer Applications in Agriculture**3 Credits (2+2P)**

An advanced course in electronic spreadsheets and the concepts and tools of database management emphasizing agricultural applications. Same as AEEC 3270 with additional work required at the graduate level. Cannot receive credit for both AEEC 3270 and AEEC 5320. May be repeated up to 3 credits.

Prerequisite: AEEC 2140G or consent of instructor.

Learning Outcomes

1. Understand and apply descriptive, predictive, and prescriptive analysis to solve business problems.
2. Use Excel spreadsheet formula in modeling agribusiness problems/solutions.
3. Use basic spreadsheet skills to conduct simple business feasibility analyses.
4. Conceptualize and solve a research problem.

AEEC 5330. Agribusiness Marketing**3 Credits (3)**

Applications course in which self-managed teams apply marketing theory in the development and presentation of marketing plans for food and agribusiness firms. Course includes analysis of marketing problems with emphasis on strategic marketing issues changing trade policies, and global competitiveness. May be repeated up to 3 credits.

Learning Outcomes

1. Estimate consumer demand and supply functions using regression analysis.
2. Measure consumer willingness to pay for food products using conjoint analysis.
3. Evaluate the value of new product attributes using contingent valuation.
4. Conduct market research and present results.

AEEC 5340. Agribusiness Management**3 Credits (3)**

Integration of production, marketing, accounting, finance, agricultural policy, human behavior, and business environment concepts in management of agricultural businesses using a decision case approach. May be repeated up to 3 credits.

Learning Outcomes

1. To provide an integrated approach to marketing, financial, and strategic management problems of agribusiness and commercial farm and ranch businesses.
2. To develop a deeper understanding of the agribusiness system through the investigation of selected U.S. agribusinesses.

AEEC 5350. Economics of Water Resource Management and Policy**3 Credits (3)**

Focuses on issues, approaches and methods used in the assessment of water resource management and policy problems. Extends and further develops student understanding and comprehension of specific economic concepts and methods that are useful in the assessment and management of water resources, including cost-benefit analysis, welfare economics, non-market valuation, watershed management, and consideration of equity and ethical concerns. Students will develop critical reasoning, communication and analytic skills through active class discussions and assignments that emphasize both quantitative and written products.

Learning Outcomes

1. Describe the major categories of water use and explain their role, function, and economic value of water within natural and human systems.
2. Apply basic economic concepts to the assessment of water quantity and quality issues.
3. Analyze impacts of water management and policy decisions on competing water resource users, public interests, and address their potential for conflict.
4. Demonstrate conceptual and systems thinking applied to water resource problems.
5. Apply quantitative and qualitative reasoning, modeling, and decision-support methods to water resource problems, including Integrated Water Resources Management (IWRM), Cost-Benefit Analysis (CBA), and Economic and Environmental Impact Assessment.
6. Compare analytic methods for watershed assessment, including statistical, optimization, and simulation methods applied to watershed assessment.

AEEC 5360. Production Economics**3 Credits (3)**

Application of microeconomic theory to problems and decisions of food and agricultural firms. The theoretical foundation of production economics and the theory of the firm are developed. May be repeated up to 3 credits.

Prerequisite: MATH 1430G, ECON 312, and ECON 457.

Learning Outcomes

1. Students should be able demonstrate an understanding of the microeconomic underpinnings of production economics, as well as how theoretical assumptions are made regarding physical production of agricultural products.
2. Students should be able to examine production decisions by agricultural firms, and determine economically optimal decisions, including under cases of risk and uncertainty.

AEEC 5402. AI Applications in Fiber and Food Systems**3 Credits (3)**

Focusing on food and fiber systems, the course includes applications of AI to food processing, food safety, nutrition, and sustainability. Students in the course will explore demand forecasting, labor management, consumer behavior, and other economic and sociocultural aspects of food and fiber systems. The course will incorporate concepts of equitable access, job quality, transparency, data privacy and security, and responsible and ethical use of AI in fiber and food systems.

Learning Outcomes

1. Identify application areas in food and fiber systems for AI opportunities.
2. Evaluate AI tools for nutrition, food processing, food safety, supply chain management, and sustainability in food and fiber systems.
3. Assess the impact of AI tools on demand forecasting, labor management and consumer behavior in food and fiber systems.
4. Apply machine learning and AI methods to enhance decision-making across food and fiber value chains.
5. Develop and evaluate predictive and classification models using real-world data from food and fiber systems.
6. Discuss and apply ethical and responsible AI frameworks to food and fiber systems.

AEEC 5404. Emerging Topics in AI for Food and Agriculture**3 Credits (3)**

Analyze emerging applications and uses of AI in food systems, agriculture, and the environment. Project impacts of emerging AI topics to agriculture, the environment, and food and fiber industries. Evaluate new developments in AI for application to food, fiber, agriculture, and the environment. Explore ethical dimensions of AI in agriculture.

Learning Outcomes

1. Analyze emerging applications and uses of AI in food systems, agriculture, and the environment.
2. Describe and discuss how emerging developments in AI can impact food, fiber, and agriculture businesses.
3. Describe and discuss impacts of emerging AI technologies to agriculture, the environment, and food and fiber industries.
4. Evaluate new developments in AI for application to food, fiber, agriculture, and the environment.

AEEC 590. Special Topics**3 Credits (3)**

Seminars in selected current topics in the various areas of agricultural economics and economics. Offerings will carry a subtitle.

Prerequisite: consent of instructor.

AEEC 593. Internship**1-6 Credits**

Supervised professional on-the-job training experience in policy analysis.

AEEC 594. Internship**1-6 Credits**

One semester to six months internship with a regulated firm or public utility commission. A faculty member will direct and evaluate the internship. For AEEC regulatory option students only.

AEEC 595. Internship**3 Credits (3)**

Supervised professional on-the-job learning experience.

Prerequisite(s): Consent of instructor.

AEEC 596. Individual Study**1-3 Credits**

Individual study programs. Each offering will carry a subtitle. Maximum of 3 credits in a semester and 6 credits in a program.

Prerequisite: consent of instructor.

AEEC 599. Master's Thesis**1-15 Credits**

Thesis.

AEEC 5991. Non-Thesis Research Project**1-3 Credits (1-3)**

Individual investigations, either analytical or experimental. Maximum of 3 credits per semester. No more than 3 credits toward a degree. May be repeated up to 3 credits.

AEEC 5994. Creative Component Project**3-6 Credits (3-6)**

Individual investigations, either analytical or experimental. A minimum of 3 to 6 credits per semester. No more than 6 credits toward degree. Consent of instructor required. May be repeated up to 6 credits.

Prerequisite: Consent of Instructor.

AEEC 5996. Special Topics**3 Credits (3)**

Seminars in selected current topics in the various areas of agricultural economics and economics. Offerings will carry a subtitle.

Prerequisite: consent of instructor.

AEEC 5997. Individual Study**1-3 Credits**

Individual study programs. Each offering will carry a subtitle. Maximum of 3 credits in a semester and 6 credits in a program.

Prerequisite: consent of instructor.

AEEC 5998. Internship

1-6 Credits

Supervised professional on-the-job training experience in policy analysis.

AEEC 5999. Master's Thesis

1-15 Credits

Thesis.

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