AGRICULTURAL, FOOD, AND RESOURCE ECONOMICS AFRE

Department of Agricultural, Food, and Resource Economics
College of Agriculture and Natural Resources

100 Decision-making in the Agri-Food System
Fall, Spring. 3(3-0) SA: FSM 200, ABM 100
Organization and operation of the agri-food system. Economic analysis of agri-food firms and consumers. Management functions and decision-making of agri-food firms.

130 Farm Management I
Fall, Spring, Summer. 3(3-0) RB: AFRE 100 and AFRE 203 SA: AEC 050, ABM 130
General farm management including record keeping, income tax management, farm finance, and operational management of agricultural resources.

203 Data Analysis for the Agri-Food System
Fall, Spring, Summer. 3(3-0) P: (AFRE 100 or concurrently) or (EC 201 or concurrently) RB: STT 200 or STT 201 or STT 315 SA: ABM 203
Introduction to data analysis tools used in the management of food systems.

206 World Food, Population and Poverty
Fall, Spring. 3(3-0) P: AFRE 100 or AFRE 265 or EC 201 SA: EEP 260, EEM 260
Description and analysis of world food, population and poverty problems. Interrelationships between developed and developing countries.

210 Professional Seminar in Agricultural, Food, and Resource Economics
Spring. 1(1-0) R: Open to students in the Department of Agricultural, Food, and Resource Economics. SA: ABM 210
Industry trends in agribusiness management. Verbal, written, and visual communication techniques applied to professional situations, including professional development and career planning.

222 Agribusiness and Food Industry Sales
Fall, Spring, Summer. 3(3-0) P: AFRE 100 or EC 201 RB: AFRE 240 R: Open to sophomores or juniors or seniors. SA: FSM 320, ABM 222
Selling processes and activities within agribusiness and food firms. Principles and techniques of sales. Operation of sales organizations.

224 Information and Market Intelligence in the Agri-Food Industry
Summer. 3(3-0) SA: FIM 424, FIM 224
Researching agri-food issues, food industry business environments, and agri-food industry trends. Information gathering. Electronic library reference sources. Synthesis of data and information into market intelligence.

232 Commodity Marketing I
Fall. 3(3-0) P: AFRE 100 or EC 201 SA: ABM 225
Commodity markets in the agri-food system. Analysis of supply, demand, and pricing alternatives. Agri-food marketing processes, including marketing cooperatives.

240 Food Product Marketing
Fall, Spring. 3(3-0) P: AFRE 100 or concurrently RB: EC 201 SA: FIM 220
Structure of the food marketing system including food processors, manufacturers, retailers and food service. Impact of consumer behavior and buying patterns. International food product marketing. Strategic planning in food marketing.

265 Ecological Economics
Fall, Spring. 3(3-0) P: (EC 201 or concurrently) or (EC 202 or concurrently) RB: AFRE 203 SA: EEP 255, PRM 255, EEM 255
Relationship between the economy and the natural environment. Economic organization and sustainability. Economic concepts applied to natural resources and agriculture.

300 Public Policy Issues in the Agri-Food System
Spring. 3(3-0) P: (AFRE 100) and (EC 201 or EC 202) RB: (AFRE 203) and AFRE 240 and (AFRE 303 or EC 301) R: Open to juniors or seniors. SA: FSM 421, ABM 400
Objectives, alternatives and consequences of public policy in the agri-food system. Analysis of economic implications for food and agribusiness firms, farmers, consumers and society.

303 Managerial Economics
Fall, Spring. 3(3-0) P: (MTH 124) and AFRE 203 and EC 201 and (STT 200 or STT 201 or STT 315) SA: ABM 303
Managerial economics with applications focusing on agriculture, food, and resources issues.

315 Labor and Personnel Management in the Agri-Food System
Fall, Summer. 3(3-0) P: AFRE 100 or AFRE 130 RB: EC 201 R: Open to juniors or seniors. SA: FSM 325, ABM 337, FIM 415
Human resource management practices and techniques for farms, and agri-food firms: planning, recruiting, training, motivating, and evaluating. Labor regulations, compensation incentive plans, and employee benefits.

322 Organization of the Agri-Food Systems
Spring. 3(3-0) Interdepartmental with Food Industry Management. Administered by Agricultural, Food, and Resource Economics. P: AFRE 100 and EC 201 RB: (AFRE 303) or (AFRE 203 and EC 301) R: Open to juniors or seniors. SA: FSM 443
Analysis of vertical coordination in the industrialized agri-food system. Agricultural cooperatives, contracts, marketing orders, and trade associations. Analysis of imperfect competition and methods of conducting business. Interaction with legal systems and government.

327 Global Agri-Food Industries and Markets
Fall. 3(3-0) P: (AFRE 100) and (AFRE 232 or AFRE 240) and EC 201 and EC 202 RB: (AFRE 303) or (AFRE 203 and EC 301) R: Open to juniors or seniors. SA: ABM 427
Strategic understanding of the international agri-food system. Analysis of global production, marketing, and consumption. Knowledge of changing conditions in international industries and markets. Global trends and opportunities.

330 Farm Management II
Fall. 3(3-0) P: (AFRE 130) and AFRE 203 RB: (AFRE 303) or (AFRE 203 and EC 301) R: Open to juniors or seniors. SA: FSM 330, ABM 430
Advanced management, planning, and control of farm production, marketing, financial activities, economic principles, budgeting and financial statements.

340 Food Marketing Research and Analytics
Fall, Spring. 3(3-0) P: AFRE 203 and AFRE 240 RB: (AFRE 303) or (AFRE 203 and EC 301)} and AFRE 440 R: Open to juniors or seniors. SA: HED 460, RET 460, FIM 460
Information needed to make effective retail decisions. Use of technology in collecting, analyzing, and interpreting retail systems data and in writing and presenting reports.

360 Environmental Economics
Spring. 3(3-0) P: (AFRE 265) and AFRE 203 RB: (AFRE 303 or concurrently) or (EC 301 or concurrently) SA: EEP 320, EEM 320
Analytical methods for evaluating economic impacts of environmental policies and understanding the economic causes of environmental problems.

410 Advanced Professional Seminar in Agricultural Food and Resource Economics
Fall. 1(1-0) P: AFRE 210 R: Open to juniors or seniors in the Department of Agricultural, Food, and Resource Economics.
Advanced professional problems and reestablishment of career planning in the agri-food system. Industry trends, career alternatives, and job search strategies. Enhanced verbal, written, and visual communication techniques.

432 Commodity Marketing II
Fall. 3(3-0) P: (AFRE 232) and (ANS 314 or STT 200 or STT 201 or STT 315 or approval of department) RB: (AFRE 303) or (AFRE 203 and EC 301) R: Open to juniors or seniors. SA: FSM 441, ABM 425
Advanced application of supply, space demand, and prices in commodity markets. Futures and options and their role in forward pricing. Risk management. Agricultural and food markets.

435 Financial Management in the Agri-Food System
Fall, Spring. 3(3-0) P: (AFRE 203) and (AFRE 130 or FI 320 or ACC 201 or ACC 230) and (AFRE 303 or EC 301) R: Open to juniors or seniors. SA: FSM 412, ABM 435
Analysis of agri-food business performance using financial statements. Capital budgeting of durable investments. Risk. Alternative methods to control capital asset services. Financial markets and credit institutions affecting agriculture and food.

440 Food Marketing Management
Fall, Spring. 3(3-0) P: AFRE 203 and AFRE 240 SA: FIM 335
Management decision-making in food industry organizations (processors, wholesalers, retailers). Marketing and sales in response to customer and consumer needs. Distribution and merchandising systems in domestic and international contexts.

445 Strategic Management for Food and Agribusiness Firms (W)
Fall, Spring. 3(4-0) Interdepartmental with Marketing. Administered by Agricultural, Food, and Resource Economics. P: (AFRE 203) and AFRE 240 and (ACC 201 or ACC 230 or AFRE 130 or AFRE 435 or FI 320) and (AFRE 303 or EC 301) R: Open to seniors. SA: FIM 439
Principles and techniques for analyzing and implementing business and strategy. Approaches to identify and manage strategic problems. Application to firms in the food and agribusiness industries. Capstone project.

460 Natural Resource Economics
Fall. 3(3-0) P: (AFRE 265) and AFRE 203 RB: (AFRE 360) and ((AFRE 303 or concurrently) or (EC 301 or concurrently)) R: Open to juniors or seniors. SA: EEP 460, EEM 460
Economic framework for analyzing natural resource management decisions. Spatial and inter-temporal allocation of renewable and nonrenewable resources. Special emphasis on institutions, externalities, and public interests in resource management.

465 Corporate Environmental Management (W)
Spring. 3(3-0) P: (AFRE 203) and AFRE 265 and (ACC 201 or ACC 230 or AFRE 130 or FI 320) and (AFRE 303 or EC 301) R: Open to juniors or seniors. SA: PRM 405, EEM 405
Integration of environmental protection and pollution prevention with business management. Economic and strategic analysis of environmental protection.

490 Independent Study in Agricultural Food and Resource Economics
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 6 credits Students are limited to a combined total of 6 credits in AFRE 490 and AFRE 493. P: AFRE 100 R: Not open to freshmen. Approval of department; application required. SA: FSM 490, ABM 490
Independent supervised study of topics in agricultural food and resource economics.

493 Professional Internship in Agricultural Food and Resource Economics
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. A student may earn a maximum of 6 credits Limited to a total of 6 credits in AFRE 490 and AFRE 493. P: AFRE 100 R: Not open to freshmen. Approval of department; application required. SA: ABM 493
Supervised professional experience in agribusiness management.

801 Mathematical Applications in Economics
Fall. 3(3-0) RB: MTH 124 or MTH 132 R: Open to graduate students. SA: AEC 801, EC 801
Mathematical tools in economic analysis. Matrix algebra, derivatives, partial derivatives, optimization, integration, and linear differential equations.

802 Statistical Methods for Agricultural, Food, and Resource Economists
Fall. 3 credits. SA: AEC 802 C: AFRE 801 concurrently.
Applications of statistical tools for economic analysis.

805 Microeconomic Analysis
Fall. 3(3-0) RB: AFRE 801 or concurrently R: Open to graduate students. SA: AEC 805, EC 805
Microeconomic theory with calculus. Production, costs, demand, markets, general equilibrium, and welfare theory.

810 Institutional and Behavioral Economics
Fall. 3(3-0) Interdepartmental with Economics. Administered by Agricultural, Food, and Resource Economics. RB: EC 301 SA: AEC 810
Relationships among institutions, individual and collective actions, and economic performance. Public choice, property rights, and behavioral theories of firms and bureaucracies.

817 Political Economy of Agricultural and Trade Policy
Spring. 3(3-0) RB: AFRE 805 or EC 812A SA: AEC 817
Concepts of policy analysis and decision. Agricultural sector problems, behavior, and policy in the development process. Macroeconomic and trade impacts. International policies affecting trade and development. Current policy issues.

823 Environmental Economics Methods
Fall of odd years. 3 credits. P: AFRE 805 and AFRE 835 SA: AEC 823
Empirical and econometric methods in environmental economics focusing on theory and application of nonmarket valuation techniques.

829 Economics of Environmental Resources
Spring. 3(3-0) Interdepartmental with Community Sustainability and Economics and Forestry and Fisheries and Wildlife. Administered by Agricultural, Food, and Resource Economics. RB: Undergraduate intermediate microeconomics, calculus, and statistics SA: AEC 829
Economic principles, theoretical models, and empirical methods related to environmental problems and policy interventions. Applications to air, land, water, forests, energy, fish and wildlife, and climate change, including in developing countries.

835 Introductory Econometrics
Spring. 3(3-0) RB: STT 430 SA: AEC 835
Estimation and interpretation of multiple regression models and their modifications when usual assumptions are not valid. Applications focus on problems faced by agricultural economists.

841 Analysis of Food System Organization and Performance
Fall. 3(3-0) SA: AEC 841
Industrial organization, subsector, and transaction cost approaches to analyzing coordination and performance of agricultural markets, contracting, and integration in the food systems of industrialized and developing countries. Applications to issues of organization, control, and public policy.

851 Agribusiness Operations Management
Spring. 3(3-0) SA: AEC 851
Managerial processes for agribusiness operations control. Applications of linear programming. Budgets, simulations, and dynamic programming. Statistical process control. Predictive and prescriptive analysis.

857 Strategic Management in Agribusiness
Fall. 3(3-0) SA: AEC 857, AEC 891A
Managerial problems faced by agribusiness firms. Strategies to interpret and respond to forces affecting the industry. Case study approach.

861 Agriculture in Economic Development
Fall. 3(3-0) RB: Intermediate microeconomics with calculus and introductory econometrics. SA: AEC 861
Theories and role of agriculture in economic development. Effects of policies, institutions, organizations, and technologies.

865 Agricultural Benefit-Cost Analysis
Fall. 3(3-0) SA: AEC 865
Benefit-cost analysis of agricultural and natural resource projects, including financial and economic analysis. Case studies in project design and appraisal in low and high income countries.

874 Empirical Methods for Field Research in Developing Countries
Spring. 3(3-0) RB: AFRE 861 and AFRE 835 SA: AEC 874, AEC 891C
Research design, sampling, questionnaire design, data collection and analysis of multi-topic household surveys for international development issues.

890 Independent Study
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open to graduate students in the Department of Agricultural, Food, and Resource Economics. Approval of department. SA: AEC 890
Independent study of selected topics in agricultural, food, and resource economics.

891 Topics in Agricultural, Food, and Resource Economics
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. SA: AEC 891
Selected topics in analytical methods, agri-food systems economics and management, and agricultural and natural resource development and policy.

898 Master's Research
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to master's students in the Department of Agricultural, Food, and Resource Economics. Approval of department. SA: AEC 898
Master's degree Plan B research.

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open to master's students in the Department of Agricultural, Food, and Resource Economics. Approval of department. SA: AEC 899
Master's thesis research.

900A Applied Microeconomics I
Spring. 3 credits. P: (AFRE 805 or EC 812A) and (AFRE 835 or EC 820A) SA: AEC 900A
Empirical analysis of microeconomic problems with emphasis on applications to agriculture, natural resources, and the food sector.

900B Applied Microeconomics II
Fall. 3 credits. P: (AFRE 805 or EC 812A) and (AFRE 835 or EC 820A) SA: AEC 900B
Extended empirical analysis of microeconomic problems with emphasis on applications to agriculture, natural resources, and the food sector.

923 Advanced Environmental Economics
Fall. 3(3-0) Interdepartmental with Economics and Forestry. Administered by Agricultural, Food, and Resource Economics. RB: (AFRE 829 or concurrently) and EC 812A SA: AEC 923
Advanced economic theory of environmental management and policy. Treatment of externalities and market and non-market approaches to environmental improvement. Applications to research and policy.

925 Advanced Natural Resource Economics
Spring. 3(3-0) Interdepartmental with Economics. Administered by Agricultural, Food, and Resource Economics. RB: EC 812A and AFRE 829 SA: AEC 991H, AEC 925
Economic theory of managing nonrenewable and renewable resources, including optimal use, the incentives for use under decentralized markets, and public policy design. Analysis of the co-evolution of economic and ecological systems.

930 Dynamic Analysis in Agriculture and Natural Resources
Fall. 3(3-0) RB: AFRE 801 and EC 812A R: Open to doctoral students in the College of Agriculture and Natural Resources or in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the College of Social Science or approval of department. SA: AEC 991E, AEC 930
Methods of dynamic optimization and their application to agricultural and natural resources problems. Discrete time dynamic programming, calculus of variations, and discrete time maximum principle.

932 Information Economics and Institutions in Agriculture and Natural Resources
Fall. 3(3-0) RB: (AFRE 810 or AFRE 841) and (EC 812A and EC 812B) R: Open to doctoral students in the College of Agriculture and Natural Resources or in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the College of Social Science. SA: AEC 932
Applications to issues in agriculture, agribusiness, the food system, natural resources, and the environment. Asymmetric information, incomplete markets, principal/agent issues, transaction costs, and the design of contracts and other institutions.

961 Advanced Agricultural Development Economics
Spring. 3 credits. P: EC 812A and EC 812B and EC 820A and EC 820B RB: AFRE 861 SA: AEC 961
Theoretical and empirical models of microeconomics of international agricultural development, with emphasis on household and individual behaviors related to production, investment and marketing decisions.

991 Advanced Topics in Agricultural, Food, and Resource Economics
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to doctoral students in the College of Agriculture and Natural Resources or in the Eli Broad College of Business and The Eli Broad Graduate School of Management or in the College of Social Science. SA: AEC 991
Advanced topics such as price analysis, finance, risk and modeling techniques, agri-food systems, environmental economics and management, and agricultural and natural resource development and policy.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Open to doctoral students in the Department of Agricultural, Food, and Resource Economics or in the Agricultural, Food and Resource Economics Major. Approval of department. SA: AEC 999
Doctoral dissertation research.