AGRICULTURAL, FOOD, AND RESOURCE ECONOMICS   AFRE

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

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.

821B   Cross Section and Panel Data Econometrics II
Spring. 3(3-0) Interdepartmental with Economics and Finance and Statistics and Probability. Administered by Economics. P: EC 821A
Analyses of quasi-maximum likelihood estimation, count data models, fractional response models, duration models, sample selection and attrition, stratified sampling, estimating treatment effects, stochastic frontier models, and other advanced topics.

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 non-market 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.

853   Financial Management in Agriculture
Spring. 3(3-0) SA: AEC 853
Financial and investment analysis tools and concepts and their application to decisions faced by agricultural, agribusiness, and food industry firms. Financial institutions and instruments, credit programs, and financial sector performance in low-income and high-income countries.

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
Fall. 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
Spring. 3 credits. P: AFRE 900A SA: AEC 900B
Extended empirical analysis of microeconomic problems with emphasis on applications to agriculture, natural resources, and the food sector.

923   Advanced Environmental and Resource 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. Topics in conservation and sustainable economic growth. 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
Spring. 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.