817 Political Economy of Agricultural and Trade Policy
Spring. 3(3-0) RB: (EC 805 or EC 812A) and (EC 809 or EC 813A)

818 Introduction to Econometrics
Spring. 3(3-0) Interdepartmental with Economics and Statistics and Probability. Administered by Economics. P:M: STT 430 R: Not open to doctoral students in the Economics major. SA: EC 820
The single equation regression model. Properties of least-squares estimators under various specifications. Multicollinearity, heteroskedasticity, serial correlation, and generalized least squares.

821 Econometrics II
Fall. 3(3-0) Interdepartmental with Economics and Statistics and Probability. Administered by Economics. P:M: EC 820A and EC 820B

822 Econometrics III
Spring. 3(3-0) Interdepartmental with Economics and Statistics and Probability. Administered by Economics. P:M: EC 820A and EC 820B
Dynamic models and time series data. ARMA models. ARCH models. Unit roots, cointegration and error correction. Rational expectations models.

829 The Economics of Environmental Resources
Spring. 3(3-0) Interdepartmental with Community, Agriculture, Recreation and Resource Studies and Economics and Forestry and Fisheries and Wildlife and Park, Recreation and Tourism Resources. Administered by Agricultural Economics. RB: Graduate Status
Economic principles related to environmental conflicts and public policy alternatives. Applications to water quality, land use, fish and wildlife, conservation, development, and global environmental issues.

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

839 Applied Operations Research
Fall. 3(3-0) RB: EC 801 SA: AEC 891B
Linear and nonlinear programming, spatial equilibrium models, and risk programming. Applications in agribusines management and in agricultural, environmental, and natural resource economics.

841 Analysis of Food System Organization and Performance
Spring. 3(3-0)
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.

845 Commodity Market Analysis
Fall. 3(3-0) RB: AEC 835

851 Agribusiness Operations Management
Spring. 3(3-0)

853 Financial Management in Agriculture
Fall. 3(3-0)
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.

855 Agricultural Production Economics
Fall. 3(3-0) RB: (EC 801 and EC 805) and (AEC 835 and EC 823)
Analysis of production models using econometrics, mathematical programming, and simulation. Systems science perspective.

857 Strategic Management in Agribusiness
Fall. 3(3-0) SA: 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)

865 Agricultural Benefit-Cost Analysis
Spring. 3(3-0)
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 Field Data Collection and Analysis in Developing Countries
Summer of odd years. 3(3-0) RB: AEC 861 SA: AEC 891C
Designing and conducting socioeconomic surveys to inform agricultural production, marketing, and environmental/natural resource issues in developing and developing countries. Research proposal preparation, questionnaire design, sampling, data collection, and data processing and analysis using computers.

885 Leadership in Natural Resources and Environmental Management
Fall. 3(3-0) Interdepartmental with Forestry and Fisheries and Wildlife and Park, Recreation and Tourism Resources. Administered by Fisheries and Wildlife. Theory and practice of leadership in natural resource and environmental management. Integration across disciplinary and jurisdictional divisions.

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 only to graduate students in the Department of Agricultural Economics. Approval of department.
Independent study of selected topics in agricultural economics.

891 Topics in Agricultural Economics
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. Selected topics in analytical methods, agrifood 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 9 credits in all enrollments for this course. R: Open only to master's students in the Agricultural Economics major. Approval of department.
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 only to master's students in the Agricultural Economics major. Approval of department.
Master's thesis research.

923 Advanced Environmental and Resource Economics
Fall. 3(3-0) Interdepartmental with Economics and Forestry and Park, Recreation and Tourism Resources and Resource Development. Administered by Agricultural Economics. RB: AEC 829 and EC 812A
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.
Advanced Natural Resource Economics
Spring. 3(3-0) Interdepartmental with Economics and Forestry and Park, Recreation and Tourism Resources and Resource Development. Administered by Agricultural Economics. RB: EC 812A and AEC 829 and FOR 866 SA: AEC 991H
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.

Dynamic Analysis in Agriculture and Natural Resources
Spring. 3(3-0) RB: EC 801 and EC 812A R: Open only to Ph.D. students in the College of Agriculture and Natural Resources or College of Business or College of Social Science or approval of department. SA: AEC 901E
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.

Information Economics and Institutions in Agriculture and Natural Resources
Fall. 3(3-0) RB: (AEC 800 or AEC 810 or AEC 841) and (EC 812A and EC 812B) R: Open only to Ph.D. students in the Colleges of Agriculture and Natural Resources or Business or Social Science.
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.

Professional Practice in Agricultural Economics
Spring. 3(3-0) R: Open only to Ph.D. students in the Department of Agricultural Economics or Department of Economics. SA: AEC 947
Matching appropriate tools to applied problems in agricultural and resource economics. Individual and team preparation, under tight deadlines, of professional analyses and oral presentations for diverse audiences. Use of peer review.

Research Methodologies in Agricultural and Resource Economics
Spring. 3(3-0) R: Open only to Ph.D. students in the College of Agriculture and Natural Resources or College of Business or College of Social Science. SA: AEC 991F

Advanced Topics in Agricultural 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 only to Ph.D. students in the colleges of Agriculture and Natural Resources, Business, and Social Science; or with department approval.
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.

Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to doctoral students in the Department of Agricultural Economics. Approval of department.
Doctoral dissertation research.