Agricultural Economics - Descriptions of Courses

AGRICULTURAL ECONOMICS  AEC

College of Agriculture and Natural Resources

505. Agricultural Production Economics I
Fall. 4(4-0) FSM or PAM 340; not open to students with credit in FSM or PAM 401. Economic principles of production. Industry supply and factor demand analysis. Management concepts and choice criteria. Interrelationships of production and consumption decisions. Welfare economics. Agricultural economics applications.

509. Institutions Behavior and Performance
Fall. 3(3-0) Approval of department. Relationships among institutional structure, behavior, and performance. Concepts of behavioral sciences useful in public policy and program analysis emphasizing interactions of preferences, incentives and institutions.

810. Economics of Public Choice
Winter. 3(3-0) Approval of department. Interdepartmental with the departments of Resource Development and Economics. Economics of alternative institutions for collective action. Emphasis on property rights and natural resources. Public goods, externalities, non-marginal change, commonwealth, income and power distribution, grants, welfare criteria and market failure.

511. Public Program Analysis
Spring, Summer of odd-numbered years. 3(3-0) FSM 401 or EC 324 or approval of department. Interdepartmental with the departments of Economics and Resource Development. Application of benefit-cost analysis to public programs of resource development. Issues and case studies in budgeting, investment criteria, pricing, externalities, and coordination.

530. Data Generation and Analysis
Winter. 4(4-0) STT 421. Organization of information systems in relation to economics of information. Use of published data and samples. Index numbers, regression, hypothesis testing and decision making. Emphasis on social science applications.

533. Mathematical Programming
Spring. 3(3-0) EC 800 or EC 812A, MTH 334. Interdepartmental with the departments of Economics and Management. Linear programming. Theory of linear economic models. Topics in nonlinear programming.
865. Rural Development Administration

Winter, 3(3-0) Approval of department.

Concepts and principles of development administration and their application in the analysis of the processes and structures through which rural development activities are formulated and implemented in less developed countries.

866. Public Institutions and Rural Development Administration

Spring, 3(3-0) Approval of department.

Application of administrative tools and techniques in organizing and evaluating public institutions. Analysis of institutional effectiveness in implementing rural programs in developed and developing countries. Cross-cultural considerations emphasized.

868. Data Collection in Developing Countries

Spring of even-numbered years, Summer of odd-numbered years, 3(3-0) AEC 826 or STT 825 or approval of department.

Principles for conducting household/village level studies of production and marketing in developing countries. Preparing research proposals, methodologies for data collection, processing and analysis. Field research administration.

876. Statistical Inference in Economics I

Fall, 3(3-0) EC 812A or EC 801; STT 443 or STT 883; or approval of department.


877. Statistical Inference in Economics II

Winter, 3(3-0) EC 876 or approval of department. Interdepartmental with the departments of Economics, and Statistics and Probability administration by the Department of Economics.


878. Statistical Inference in Economics III

Spring, 3(3-0) EC 877 or approval of department. Interdepartmental with the departments of Economics, and Statistics and Probability administration by the Department of Economics.

Validation and application of dynamic econometric models. Bayesian approach to estimation problems. Recent developments in econometric methods and in applied econometric research.

892. Independent and Supervised Study

Fall, Winter, Spring, Summer. 1 to 12 credits. May enroll for a maximum of 12 credits. Approval of department. Arranged seminars initiated by faculty or students, supervised readings, individual study of special problems.

899. Research

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

Food Systems Economics and Management

200. Introduction to Food Systems Management

Fall, 4(4-0)

Organization of modern industrialized food production and distribution systems. Problems faced by managers of firms in food systems. Application of economic and management principles in the solution of these problems.

330. Food Production Management

Fall, 3(3-0)

Description and analysis of problems faced by managers of input supply, farm, and packing and handling firms. Emphasis on planning, organization, adjustment to technological change, growth and personnel management.

335. Food Processing and Distribution Management

Winter, 3(3-0) FSM 200 or MTA 300. Interdepartmental with and administered by the Department of Marketing and Transportation Administration.

Analysis of problems faced in the food processing and distribution system. Includes functional interrelationships, consumer orientation and future development.

340. Managerial Economics

Spring, 3(3-0); EC 201. Interdepartmental with and administered by Public Affairs Management.

Production, consumption decisions and their interrelations. Pricing of market and non-market goods. Effects of monetary and fiscal policies. Applications to problems in food systems or communitry management.

370. Applied Statistics

Winter, 3(3-0) Students may not receive credit in both FSM 370 and AEC 830. One course in statistics, one course in food systems economics and management or public affairs management. Interdepartmental with and administered by Public Affairs Management.

Interpretation and use of statistical results in decision making. Sampling, index numbers, tabular analysis, trend estimation, regression models, decision theory.

401. Production Economics and Management

Fall, 4(4-0) Not open to graduate students in Agricultural Economics, Economics or Resource Development. Interdepartmental with the Department of Resource Development and Public Affairs Management.


412. Financing the Food System

Spring, 3(3-0) FSM 200 or EC 201.

Capital, sources and requirements in the food systems. Sources and terms of credit. Credit instruments. Interest rates. Credit policy issues. Principles of financial management and real estate appraisal.
Agricultural Economics – Descriptions of Courses

417. Land Economics
Fall, Spring. 4(4-0) Interdepartmental with the departments of Resource Development and Economics and Public Affairs Management and administered by the Department of Resource Development.
Factors affecting man’s economic use of land and space resources. Input-output relationships, development, investment, and enterprise location decisions. Land markets, property rights, area planning, zoning and land use controls.

421. Public Policy and the Food System
Winter. 3(3-0) FSM 209 or EC 201, PAM 320 recommended.
Policy issues identified and analyzed in relation to performance goals of society and groups within the food system. Emphasis on price and income policies and regulations affecting the food system.

422. Food System Managers in the Community
Spring. 3(3-0) FSM 421, FSM 430 or FSM 439.
Examination of political and social issues affecting individual participants and businesses in the food sector.

430. Advanced Food Production Management
Fall. 3(3-0) FSM 330.
Management principles and techniques applied to food production firms including farms, input suppliers, packers and handlers. Emphasis on planning, growth, financial and decision processes. Case studies and gaming.

439. Advanced Food Processing and Distribution Management
Fall. 3(3-0) MTA 335. Interdepartmental with and administered by the Department of Marketing and Transportation Administration. Managerial principles and techniques applied to food processing and distribution. Emphasizes adjustment to changing social, economic and internal company environment. Student interaction with industry, labor and government representatives. Field trips, special projects.

443. Group Action in Marketing
Spring. 3(3-0) FSM 200.
Characteristics, problems and strategies of cooperative, unions, bargaining groups, trade associations and other voluntary organizations. Effects of group action on farmers, marketing firms and consumers. Legal restraint and facilitation of group action.

460. Regional Economics
Winter. 4(4-0) R D 417 or FSM 401 or EC 214.
Interdepartmental with the departments of Resource Development and Economics, and Public Affairs Management and administered by the Department of Resource Development.
Forces affecting location decisions of firms, households and governments. Applications to agricultural, industrial, and regional developments.

461. Regional Economics Laboratory
Evaluation and use of analytical models designed to solve regional economic problems.

462. Agriculture and Rural Development in Developing Nations
Fall. 3(3-0) PAM 201 or EC 201, PAM 260 recommended. Interdepartmental with Public Affairs Management.

473. Introduction to Systems Analysis
Spring. 3(3-0) MTH 111. Interdepartmental with and administered by Public Affairs Management.
Principles of systems analysis applied to ecological, physical, economic and social phenomena. Case studies. Interpretation and design of systems models. Systems concepts in decision making.

480. Independent and Supervised Study
Fall, Winter, Spring. Summer. 1 to 9 credits. May reenroll for a maximum of 9 credits. Approval of department.

Public Affairs Management

201. Introduction to Community Economics
Fall, Spring. 3(3-0)
Identification and analysis of problems faced by public decision makers in managing public revenues and services and governing private resource use. Impact of political and economic structures on resource use.

260. World Food, Population and Poverty
Winter. 3(3-0)
Description, analysis and alternative solutions of food, population and poverty problems, especially in relation to trade and aid programs. Special emphasis on problems of low income nations.

303. Welfare, Health and Education Policy
Fall. 3(3-0) PAM 201 or EC 200.
Evaluation of selected welfare health and education policies and alternatives. Role of public and private sectors. Impact of values, beliefs, costs, benefit distributions, political power and other factors on policy.

320. Economic Policy Processes I
Fall. 3(3-0) PAM 201 or EC 201.
Analysis of processes by which public economic policy is established at various levels of government. Role of economic interests and pressures. Alternative processes for economic policy formulation. Case studies.

321. Economic Policy Processes II
Winter. 3(3-0) PAM 320 or approval of department.
Analysis of socioeconomic forces as they affect the public decision processes for economic policy. Means of increasing effectiveness of staff persons in the decision process. Case studies.

340. Managerial Economics
Spring. 3(3-0) EC 201. Interdepartmental with Food Systems Economics and Management.
Production, consumption decisions and their interaction. Pricing of market and non-market goods. Effects of monetary and fiscal policies. Applications to problems in food system or community management.

363. Economic Development of Tropical Africa
Spring. 3(3-0) EC 200 and EC 201, or EC 210. Interdepartmental with and administered by the Department of Economics.

370. Applied Statistics
Winter. 3(3-0) Students may not receive credit in both PAM 270 and EEC 10. One course in statistics, one course in food systems economics and management or public affairs management. Interdepartmental with Food Systems Economics and Management.
Interpretation and use of statistical results in decision making. Sampling index numbers, tabular analysis, trend estimation, regression models, decision theory.

401. Production Economics and Management
Fall. 4(4-0) Not open to graduate students in Agricultural, Economics or Resource Development. Interdepartmental with and administered by the Department of Economics.

404. Social Accounts and Community Choice
Winter. 3(3-0) PAM 303 or approval of department.
Social accounting as a framework for public decision making and measurement of policy effectiveness. Conceptualization of social accounts. Use of selected social indicators in policy formulation and decision making.

406. Public Expenditures Theory and Policy
Fall, Spring. 4(4-0) EC 201 or EC 210. Interdepartmental with and administered by the Department of Economics.
Expenditure theory; objectives and rationale of government activity in the market system, efficiency criteria in government decision making; planning programming-budgeting systems and cost-benefit analysis.

417. Land Economics
Fall, Spring. 4(4-0) Interdepartmental with the departments of Resource Development and Economics and Food Systems Economics and Management and administered by the Department of Resource Development.
Factors affecting man’s economic use of land and space resources. Input-output relationships; development, investment, and enterprise location decisions. Land markets; property rights, area planning, zoning and land use controls.

431. Law and Social Change
Fall. 4(4-0) R D 440. Interdepartmental with the departments of Resource Development and Urban and Metropolitan Studies and administered by the Department of Urban and Metropolitan Studies.
Law as applied to urban and rural context of social change. A review of both formal and informal aspects of system accessibility, institutional formation, government, civil rights, and human service.
453. Women and Work Issues and Policy Analysis
Winter, 3(3-0) PAM 201 or EC 290 or EC 201 or approval of department. Interdepartmental with the Department of Economics.
Quantity and quality of labor force participation by women, current status and past trends. Issues analyzed include differential earnings and occupations of men and women, employment discrimination and labor legislation.

460. Regional Economics
Winter, 4(4-0) R D 417 or FSM 401 or EC 324. Interdepartmental with the departments of Resource Development and Economics and Food Systems Economics and Management and administered by the Department of Resource Development.
Forces affecting location decisions of firms, households and governments. Applications to agricultural, industrial, and regional developments.

461. Regional Economics Laboratory
Spring, 1(0-2) R D 460 and approval of department. Interdepartmental with Food Systems Management and the departments of Economics and Resource Development administered by the Department of Resource Development.
Evaluation and use of analytical models designed to solve regional economic problems.

462. Agricultural and Rural Development in Developing Nations
Fall, 3(3-0) PAM 201 or EC 201; PAM 260 recommended. Interdepartmental with Agricultural and Food Systems Economics and Management and administered by Food Systems Economics and Management.
Traditional agricultural systems and the incentive environment for economic growth in rural areas. Adjustment to technological, institutional and human change. Strategies for rapid agricultural transformation.

473. Introduction to Systems Analysis
Spring, 3(3-0) MTH 111. Interdepartmental with Food Systems Economics and Management.
Principles of systems analysis applied to ecological, physical, economic and social phenomena. Case studies. Interpretation and design of systems models. Systems concepts in decision making.

480. Independent and Supercised Study
Fall, Winter, Spring, Summer. 1 to 9 credits. May reenroll for a maximum of 9 credits. Approval of department.

490. Supercised Field Experience
Fall, Winter, Spring, Summer. 3 to 9 credits. May reenroll for a maximum of 9 credits. PAM juniors, approval of department.
Supervised field work in federal, state, or local government or organizations dealing with government.

Agricultural Engineering

College of Agriculture and Natural Resources

132. Introduction to Agricultural Engineering I
(252.) Fall, 1(14)
An introduction to the agricultural engineering profession with an examination of existing problems.

200. Computers and Information Processing in Agriculture and Natural Resources
Spring, 3(3-0)
Evaluation of the present and future role and application of electronic computers in the area of agriculture and natural resources.

202. Agricultural Metalworking
Winter, 3(2-2)
Principles, skills and safety for welding, soldering, brazing, cutting, bench work, metalurgy, fastening and shop tools. Maintenance metalworking for farm and agribusiness shops will be emphasized.

243. Automotive and Recreational Engines Laboratory
Spring, 2(2-0)
The principles and maintenance of engines used in automobiles and recreational vehicles. Fuels, lubricants and emission control. Basic engineering principles are developed in a manner that requires no prior technical training.

324. Automotive and Recreational Engines
Spring, 1(0-2) A E 343 or concurrently.
Laboratory experiences in engine maintenance, ignition principles and testing equipment.

350. Introduction to Agricultural Engineering Problems
Fall, 2(4-2) MTH 214 or concurrently.
Examination and solution of problems chosen from typical areas of agricultural engineering.

352. Physical Principles of Biological Processes
Fall, 3(3-0) CPS 120, MTH 310, CEM 152 or CEM 132.
Basic scientific principles and engineering theory applied to biological systems and products.

353. Physical Principles of Plant Environment
Winter, 3(3-0) A E 352.
Physical processes and properties of the biosphere as related to engineering the plant environment.

354. Physical Principles of Animal Environment
Spring, 3(2-2) A E 352.
Interrelationship of environmental factors and physiological responses of animals for planning, design and control of optimum environmental systems.

356. Electric Power and Control
(471.) Fall, 4(3-2) PHY 268.
Alternating current calculations; sizing conductors of single- and three-phase loads; electric motors, their control and protection; switching logic; microprocessor applications. Examples drawn from agricultural applications.

376. Food Process Engineering
(476.) Spring, 3(2-2) A E 352, C E 321.
Analysis of unit processes involved in handling, processing, and distribution of liquid and solid biological materials. Flow of liquids, heating and cooling, freezing, concentration, dehydration, and separation.

394. Systems of Agricultural Machines
(494.) Winter, 3(3-0) MMM 306.
Functional requirements and operational characteristics of agricultural machines. Engineering principles of machines dealing with soil and plant materials. Aspects of agricultural machinery management and economics.

402. Teaching Agricultural Mechanics
Winter of odd-numbered years. 5(2-6)
Juniors. Teaching theory and developing skills in agricultural mechanics in secondary and vocational schools. School and farm shop planning and management. Emphasis on equipment and material selection, metalurgy, metal work and welding.

IDC. Introduction to Meteorology
For course description, see Interdisciplinary Courses.

IDC. Introduction to Meteorology Laboratory
For course description, see Interdisciplinary Courses.

IDC. Microclimatology
For course description, see Interdisciplinary Courses.

452. Communication Techniques for Agricultural Engineers
Fall, 1(14) Agricultural Engineering
Juniors. The storage, retrieval, and transmission of technical information.

455. Principles of Structures and Machines
(358.) Spring, 3(3-0) MMM 211, MMM 215.
Deflection analysis of machinery structures including plane frames and planar grids.

461. Design of Agricultural Structures
Fall, 3(3-0) MMM 311, MMM 215.
The design of components and connections with examples selected from agricultural machinery and buildings.