

Agricultural Economics

College of Agricultural Sciences
and Technology

Department of Agricultural Economics

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<http://cast.csufresno.edu/agecon/>

B.S. in Agricultural Business

Minor in Agricultural Business

Emphasis in Agricultural Business (Graduate MBA Program)

Agricultural Economics

Join the leader in science, technology, and management. The award-winning Agricultural Business Program at California State University, Fresno is a pacesetter — having been recognized in 1985 as a national model for other colleges and universities by the Agribusiness Education Project, sponsored by the U.S. Department of Agriculture and comprised of agricultural industry leaders and higher education scholars from around the country.

The agricultural business curriculum is a comprehensive and integrative program of economic analysis and business applications with a problem-solving orientation and a practical experience emphasis.

Degree Programs

The B.S. in Agricultural Business combines core undergraduate courses in agricultural economics (AG EC) with basic business management and agricultural science foundation courses. This undergraduate major allows you to emphasize a career specialty, such as agribusiness management, agricultural finance, agricultural marketing, farm management, and food industry management.

Certified Minor Programs. The Minor in Agricultural Business is available for students majoring in agricultural sciences, business, and other fields.

Complementary Fields of Study. Agricultural business students wishing to enhance their major with a technical field should consider a *minor* in such closely allied disci-



plines as Animal Science, Family and Consumer Sciences, Food and Nutritional Sciences, and Plant Science. The supplementary *Minor in General Business* is available through the Sid Craig School of Business.

Ag One Grants for academic fees and books are available. Call (559) 278-2061 for scholarship information and application.

The Master of Business Administration (MBA) has an elective area in agricultural business combining graduate courses in agricultural business (AG BS) with core courses from business. This AACSB accredited degree program is administered by the Craig School of Business. It is designed for individuals seeking to advance their career by enhancing their business management and economic analysis skills with an emphasis on agricultural sector applications. Contact the graduate business adviser at (559) 278-2107.

Instructional Facilities

Modern Computing Facilities. Labs are used to teach students computerized farm accounting systems, agricultural enterprise spreadsheets, agribusiness simulations, commodity trading, and to expose them to planning and decision-making aids as part of their professional expertise.

Marketing News Center. Students have access to a computerized database system through the statewide Advanced Technology Information Network (ATI-NET) established by the college's California Agricultural Technology Institute (CATI).

Center for Agricultural Business (CAB). Organized to promote the economic efficiency, profitability, and competitiveness of California agriculture, CAB uses faculty expertise and student assistance to address problems and opportunities in farm management, agribusiness finance, commodity marketing, agricultural trade, natural resources, and labor management. Seminars are held periodically on topics of concern to farmers and agribusiness managers. An annual Agribusiness Management Conference is co-sponsored with industry to explore current issues and report the economic outlook of the state's agricultural sector.

Career Opportunities

Graduates of the Agricultural Business Program can choose from more than 150 professional occupations in California's agricultural sector and related industries. Ask your faculty adviser for the agricultural business career opportunities list.

Professional Preparation

Students establish credibility with prospective employers by participating in the following occupationally related activities.

- **Agricultural Business Club.** Students plan field trips, invite industry speakers to meetings, organize the annual alumni dinner, hold a newcomer picnic, support a campus job fair, and sponsor career preparation workshops.
- **Industry Internships.** Opportunities exist for many career positions through

management training programs with agricultural business firms and support institutions. The department awards internships on a competitive basis and grants academic credit in the major for this supervised experience (AG EC 194).

- **University Agricultural Laboratory Project.** Students gain farming experience through participation in the faculty supervised, student project program and concurrent enrollment in an Enterprise Management course (PLANT, A SCI, ENOL 196). Such a course is highly recommended and can be used in the major.
- **Solutions Program Team Project.** Students earn academic credit (S C 197) through experiential learning. The team is faculty advised and charged with solving a problem or exploiting an opportunity faced by a real world client. Clients are private businesses or public agencies that have partnered with the College of Agricultural Sciences and Technology.
- **National Agri-Marketing Association (NAMA)** student chapter offers professional contacts with industry leaders, an annual scholarship, and involvement in the annual national marketing competition for academic credit (AG EC 168).

Faculty

John R. Shields, *Interim Chair*

| | |
|------------------|------------------|
| James C. Casey | |
| James H. Cothorn | Dennis L. Nef |
| John W. Hagen | Carl L. Pherson |
| Herbert O. Mason | David K. Smith |
| Dwight D. Minami | R. Lynn Williams |

Faculty members are broadly trained with advanced degrees from top ranked universities across the nation, and are highly experienced as teachers, consultants, and researchers. They bring practical insight to the classroom by being professionally active in service to California farms and agribusinesses, industry organizations, government agencies, and professional associations. Forming a strong advisee/adviser relationship with any one of the faculty can help you match your career goals with appropriate coursework.

Bachelor of Science Degree Requirements

| | |
|---|--------------|
| <i>Agricultural Business Major</i> | <i>Units</i> |
| Major | 60 |
| Agricultural Foundation | (9) |
| (Select three courses from the below areas. No more than 3 units allowed in the | |

AG BS area. No more than 6 units may be taken in any of the remaining areas. Courses listed are recommended.)
 AG BUS: AG EC 5
 A SCI: A SCI 1
 FSC/NUTR: FSC 1, NUTR 54
 ME AG: ME AG 3 or 20
 PLANT: CR SC 1, PLANT 1, OH 1, or PLT H 1
 SW: SW 1 or SW 2
 VIT/ENOL: FR SC 1, ENOL 15

Business Management
Base (18)
 AG EC 2 or ECON 50
 AG EC 28 or B A 18
 AG EC 31 or ACCT 4A
 AG EC 32 or ACCT 4B
 AG EC 71 or DS 73
 or MATH 11
 AG EC 76 or IS 50

Agricultural Economics
Core (21)
 AG EC 100, 110, 120, 130, 150, 160, 170

Career Specialty (12)
 A required concentration of approved courses (including a minimum of 9 upper-division units in agricultural economics) is selected to match the student's career goal in consultation with the student's assigned faculty adviser. (See major program of study advising check sheet for course listings by concentrations in various disciplines.)

Additional requirements **1-2**
 Agricultural Business majors must take the following courses, which also satisfy General Education requirements.

FOUNDATION
 Area B4: DS 71 or MATH 75
 BREADTH
 Area B1: CHEM 3A
 Area B2: BIOL 10, BOT 10, or ZOOL 10
 Area D3: AG EC 1

General Education **51**
 (Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)

Electives and remaining degree requirements **15-16**

Upper-division writing skills by exam or writing course (PLANT 110W, IS 105W, ECON 102W recommended).
 Courses supplementary to the major are strongly recommended.

Total requirements **128**

Advising Notes

1. New students should request the *Advising Information* brochure that includes a program-of-study check sheet and explanatory notes about requirements for the major.
2. All students are assigned a faculty adviser. Consult the department bulletin board for the current listing. Make an appointment each semester to review your academic record and to schedule remaining courses in order to graduate in a timely manner.
3. Prospective transfer students should consult with a community college academic adviser about their program of study to determine which California State University, Fresno AG EC courses are articulated as equivalent for lower-division credit.
4. Credits earned for articulated community college courses do not count toward upper-division units in the major.
5. Students intending to pursue graduate study in agricultural economics or agribusiness should include approved courses in intermediate macroeconomic theory, differential and integral calculus, inferential statistics, and linear regression in their bachelor's degree program.
6. A dual major of agricultural business with animal sciences, food and nutritional sciences, or plant science must have 36 mutually exclusive units (including a minimum of 18 upper division). A dual major requires the approval of the department chairs administering these programs of study. General Education and elective units may be applied (i.e., double counted) toward a second major or a minor. (See *Dual Major* or *Minor* in this catalog and consult with the appropriate department adviser.)

Agricultural Economics

Agricultural Business Minor

This minor field of study is principally designed for agricultural science and business majors. Those students majoring in animal, plant, and food sciences as well as agricultural education may seek to complement their technical knowledge with competencies in agricultural business for professional advancement. Students majoring in one of the business degree options may anticipate staying in the San Joaquin Valley where they will most likely become involved with and require an understanding of the agricultural sector as employees, clients, or customers of agribusiness firms. The minor also provides a foundation for graduate study in agricultural business or agricultural economics.

You should consult with your faculty adviser in the Agricultural Economics Department to plan your program. The adviser and the department chair must approve the minor program of study before it can be filed with the Office of Evaluations, and recorded on your transcript.

The minor consists of 24 units, of which equivalent courses are acceptable for a maximum of 12 units.

Units

Core Requirements

| | |
|--|-----------|
| Intro Microeconomics: AG EC 1 | 3 |
| Financial Accounting: AG EC 31 | 3 |
| Intermediate Microeconomics: AG EC 100 | 3 |
| Production Operations: AG EC 110N/110 or AG EC 124 | 3 |
| Organizational Behavior: AG EC 120 . | 3 |
| Financial Principles: AG EC 130 | 3 |
| Government Policy: AG EC 150 | 3 |
| Agricultural Marketing: AG EC 160 .. | 3 |
| Total | 24 |

Note: The Agricultural Business Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Advising Notes

1. University policy states that courses fulfilling requirements for a minor may be counted toward General Education.
2. Students pursuing a minor are expected to have basic computer competencies (AG EC 76 recommended) and fundamental quantitative reasoning skills (AG EC 78 or DS 71 or MATH 75 recommended) before enrolling in the required upper-division courses.

3. The department waives AG EC 1, 31, 120, and 130 for students who have already received credit for ECON 40, ACCT 4A, MGT 104 or 110, and FIN 120 respectively. Such course waivers correspondingly reduce the unit requirement for the minor from the maximum of 24 to a possible 12 — the minimum allowable under the Title 5 code. This adjustment accommodates the university policy that “courses in a major cannot be applied toward a minor unless designated as ‘additional requirements’ to the major.”
4. Concerning the course selections to satisfy the production operations core requirement, consult with the minor adviser about which choices match your career plans.
5. All courses in the minor must be taken for a letter grade; *CR/NC* grading is not acceptable.

Prerequisite Notice

1. **Agricultural business majors** must complete the lower-division business management base courses (AG EC 2, 28, 31, 32, 71, 76) and the lower-division additional requirements to the major in General Education Foundation Area B4 (DS 71 and MATH 75) and Breadth Area D3 (AG EC 1) before enrolling in upper-division AG EC courses.
2. **Non agricultural business majors** who select the Production Management Option (Animal Sciences Major), the Production Management Emphasis (Plant Science Major), or the Teacher Preparation Option (Agricultural Education Major) must complete AG EC 1, 31, and 76 before enrolling in any upper-division AG EC courses. Permission of instructor may be necessary to register for some upper-division AG EC courses because of the general prerequisite structure indicated in note 1 above for students majoring in agricultural business and the specific prerequisites listed in individual course descriptions.

COURSES

Note: Active immunization against tetanus (available through Student Health Services) is a prerequisite for registration in any laboratory course in agriculture and for any student employment on the University Farm.

Note: Cost to the student of extended field trips will vary each semester depending upon itinerary. The student should ask the course instructor.

Economic Principles (AG EC)

1. Introductory

Agricultural Economics (3)

Microeconomic principles of resource allocation, production, cost, and market price equilibrium with primary application to farms and agribusinesses. Supply and demand in commodity pricing under perfect and imperfect competition. Optimizing single variable input production function; total/marginal approaches to profit maximizing output. G.E. Breadth D3.

2. Agricultural Sector Analysis (3)

Domestic and international forces affecting industry profitability of farm input suppliers, agricultural producers, commodity processors, food marketers; government fiscal, monetary, trade policies interaction with agricultural credit, price support, food subsidy programs; impact on agribusiness asset values, debt accumulation, income levels.

5. Survey of Agricultural Economics and Agribusiness (3)

Orientation to agricultural sector, institutions, and historic farm problems. Basic economic concepts and business principles applied to management, marketing, finance, and trade. Consumer demand and producer supply functions. Competitive market price determination. Overview of resource, environmental, consumer, and farming issues and government policies.

100. Intermediate

Agricultural Economics (3)

Prerequisites: AG EC 1; AG EC 78 or DS 71 or MATH 75. Microeconomic theory of agricultural production in factor-product, factor-factor, product-product decisions; production costs and economies of size; consumer choice theory; price and output determination under imperfectly competitive markets; marginal productivity theory and the derived demand for agribusiness inputs.

Farm Management (AG EC)**110N. Introductory Farm Management (3)**

Prerequisites: AG EC 1, 31, and 76. Survey course for non-agricultural business majors. Introduction to applied economics and farm business management topics: farm accounting, financial statement analysis, management principles, computer assisted decision aids, animal and crop enterprise budgeting, farm business planning, tax management, investment analysis, agricultural finance. (2 lecture, 3 lab hours)

110. Farm Management (3)

Prerequisites: AG EC 31, 76, and 100. Production economics and management techniques for analysis of efficient farm resource use, planning and organization; analysis of budgeting and optimization techniques, and computer applications for developing farm management plans. (2 lecture, 3 lab hours)

114. Advanced Farm Management (3)

Prerequisite: AG EC 110. Design, computerization, and analysis of profit maximizing; cost minimizing and multiperiod linear programming models; risk and uncertainty; data and information requirements for decision making; optimizing the level and mix of crop livestock enterprises; development of farm management plans.

117. Agricultural Labor-Management Relations (3)

Prerequisite: AG EC 1. Economic analysis of the farm labor market; labor productivity, agricultural mechanization and farm employment; farm labor laws and government regulations; agricultural labor relations, unionization, and collective bargaining; farm personnel administration practices and supervisory management principles.

Agribusiness Management (AG EC)**28. Introductory Agricultural Law (3)**

Fundamentals of agricultural law including historical sources; legislative laws and business ethics; administrative regulations, judicial decisions affecting agriculture; express and implied contracts with remedies for their breach in agricultural situations; real and personal property law plus secured transactions in agriculture.

120. Agribusiness Management (3)

Prerequisite: AG EC 1. Organizational forms and management functions of agribusiness firms; human resource man-

agement systems; management science principles for optimizing plant location, equipment replacement, inventory control, and sales volume; operations research techniques, including probability-based network and decision models, for solving agribusiness problems.

122. Agricultural Cooperative Management (3)

Prerequisite: AG EC 120. Philosophical, historical, and legislative evolution of U.S. agricultural cooperatives; uniqueness of cooperative organization, planning, direction and control functions vis-a-vis standard corporations; legal, financial, and tax considerations in managing input-supply and marketing cooperatives; case studies and field trips to cooperatives.

124. Food and Fiber Industry Management (3)

Prerequisite: AG EC 1. Production management of farm input manufactures, agricultural commodity processing, food/fiber product distribution; functional approach to transformation/value-added operations including planning, organizing, directing, coordinating, controlling; case applications to materials handling, product development, food packaging, quality control, transportation logistics, inventory management.

128. Advanced Agricultural Law (3)

Prerequisite: AG EC 28 or B A 18. Case applications of agricultural business law; torts covering trespass, negligence, liability for farm livestock and chemicals; surface and mineral property rights; water law; farm labor law; agribusiness firm incorporation; agricultural cooperative regulation; state and federal marketing orders; farm estate taxation.

Financial Planning (AG EC)**31. Farm Accounting (3)**

Basic concepts and principles of financial accounting systems applied to farm operations; mechanics of recording single and double entry transactions under cash and accrual accounting methods; preparation and analysis of enterprise records and financial statements to generate management information.

32. Agribusiness Managerial Accounting (3)

Prerequisite: AG EC 31 or ACCT 4A. Application and analysis of accounting information for farm and agribusiness man-

agement; integration of economic, and financial principles in preparing business plans; equipment cost control and crop enterprise accounting methods; capital investment and profit performance; introduction to computerized farm accounting systems. (2 lecture, 1 arranged)

130. Agricultural Finance (3)

Prerequisites: AG EC 31 or ACCT 4A; AG EC 76; AG EC 100 or instructor's permission. AG EC 2, 32 recommended. Analysis of farm financial statements; legal instruments of financial transactions; institutional sources of farm credit; time value of money and capital budgeting for agricultural investment; cost of debt and equity capital; risk management strategies; insurance, tax, and farm estate planning.

131. Agricultural Capital Markets (3)

Prerequisites: AG EC 2, 130. Public and private financial intermediaries as sources of agricultural capital; the Cooperative Farm Credit System; credit management policies and practices; government policy, the regulatory environment, and competitive financial markets; legal requirements of financial instruments; external equity capital; and lease financing. (Formerly AG EC 185T)

136. Farm and Ranch Appraisal (3)

Prerequisites: AG EC 1. AG EC 110 or 110N recommended. Principles of agricultural appraisal; physical and economic factors affecting land values; estimation of real estate value using income, cost, and market data approaches; case studies and field problems involving the valuation of local farm and ranch properties.

Agricultural Development (AG EC)**140. International Development and Agriculture (3)**

Comparative development of low- and high-income countries; policies/programs addressing inequality, poverty, malnutrition, disease, overpopulation, underemployment, pollution, globalization; structural, institutional, technological change; investment, trade, and aid strategies for growth; food production and distribution efficiency; environmentally sustainable, culturally compatible, economically viable agricultural systems.

Agricultural Economics

Public Policy (AG EC)

150. Agricultural and Food Policy (3)

Prerequisite: AG EC 1. AG EC 2 recommended. Analysis of public policies affecting the economics of U.S. and California agriculture; government programs influencing agricultural production, commodity distribution, market prices, farm income; environmental and natural resource issues; nutrition, food safety and biotechnology concerns; food industry regulation; international agricultural trade.

153. Agricultural Trade (3)

Prerequisites: AG EC 2, 150. Comparative advantage, trade models, protectionist barriers and balance of payments; world agricultural trade patterns and international commodity agreements; domestic farm programs and foreign trade policies; surplus food aid and concessionary sales overseas; trade liberalization versus preferences issue and economic development.

155. Environmental and Natural Resource Economics (3)

Prerequisite: AG EC 1 or ECON 40. Economic analysis of public policies governing land use, water management, energy generation, mineral exploitation and forest administration; review of population pressures and resource conservation; examination of externalities, property rights issues, resource use planning, agricultural zoning, environmental regulations, and reclamation law.

Product Marketing (AG EC)

66. Agricultural Communications (3)

Agricultural news and information gathering and dissemination to food producers and consumers through print/broadcast media and computer networks; formulation of promotional programs, advertising campaigns, and public relations for agricultural industries and institutions; mass communications writing, editing; simulated electronic presentations. (Formerly AG EC 166)

160. Agricultural Market Analysis (3)

Prerequisite: AG EC 100 or permission of instructor. Commodity transformation and product flow through processing and distribution channels; market structure, conduct and performance; marketing system efficiency and marketing bill components;



over supply, marketing orders, grading and standards, and price stabilization; price forecasting, futures market trading, and risk management.

162. Commodity Futures Trading (3)

Prerequisite: AG EC 160. Speculation and the price discovery process; fundamental analysis and long-run decisions to hedge; technical analysis and short-run timing of crop/livestock sales; trend line charts utilizing moving averages; trading mechanics, price projection and development of futures trading plans.

163. Agricultural Export Marketing (3)

Prerequisite: AG EC 160 or permission of instructor. Determination of potential overseas markets for U.S. agricultural products through export marketing studies; foreign business environment and distribution channels; product preparation and transportation abroad; cultural-specific promotional and advertising programs; international sales agreements, financial transactions, plus banking and shipping documentation.

164. Agribusiness Sales Management (3)

Prerequisite: AG EC 1. Marketing management strategies for stimulating business and consumer demand for agricultural goods and services; food and fiber merchandising using institutional, functional,

value approaches; sales program organization and staff development for effective communication of product information and timely completion of transactions.

168. Agricultural Marketing

Management Project (1-3; max total 3)

Prerequisites: AG EC 71, 160, 164 and permission of instructor. Marketing management principles in preparing marketing plan for annual National Agri-Marketing Association intercollegiate competition; strategic planning for product development, sales projections, distribution channels, pricing tactics, promotion/advertising, market share analysis; focus group, survey research, oral/audio-visual team presentation. (2 activity hours per unit)

Decision Analysis (AG EC)

71. Agricultural Business Statistics (3)

Prerequisite: ELM requirement met. Study of statistical techniques and formal reasoning applications to management and social and agricultural sciences. Calculation, interpretation, critical evaluation, and historical relevance of quantitative tools, data analysis, and results including graphical presentations, descriptive and inferential statistics, hypothesis formulation and testing, and regression.

76. Agribusiness

Microcomputer Applications (3)

Applied microcomputing for agribusiness management; use of electronic spreadsheet and database management programs in keeping farm records; applications to farm accounting, crop and livestock enterprise management, and business agreements; agricultural financial budgeting, cash flow planning, asset depreciation and tax management. (2 lecture, 3 lab hours)

78. Agribusiness

Quantitative Analysis (3)

Prerequisite: ELM requirement met. Functional relationships, marginal analysis and decision-making models in agribusiness; logic and probability in diagnosing problems, designing operations and achieving objectives; identification of procedures for efficient resource utilization.

170. Advanced Agribusiness Applications (3)

Prerequisites: AG EC 110, 120, 130, 150, 160; upper-division writing skills requirement. Research methods applied to agricultural business; problem definition and solution formulation; data collection and analysis using statistics and other techniques. Culminating activities may include research proposal, feasibility study, project review, business plan, strategic management, case study; written reports and oral presentations.

Special Topics (AG EC)**80. Undergraduate Research (1-4; max total 4)**

Prerequisites: AG EC 1 and permission of instructor. Directed study or research on particular problems in the field of agricultural economics and business. Consult department policies and procedures governing undergraduate research. Approved for *SP* grading.

85T. Topics in Agricultural Business (1-3; max total 6)

Agricultural economics, farm management, agribusiness management, financial planning, agricultural development, public policy, product marketing, and decision analysis. Topics may require lab hours.

180. Undergraduate Research (1-4; max total 4)

Prerequisites: senior standing and permission of instructor. Directed study or research on particular problems in the field of agricultural economics and business. Consult department policies and procedures governing undergraduate research. Approved for *SP* grading.

185T. Topics in Agricultural Business (1-3; max total 9)

Prerequisite: AG EC 1. Agricultural economics, farm management, agribusiness management, financial planning, agricultural development, public policy, product marketing, and decision analysis. Topics may require lab hours.

Industry Relations (AG EC)**192. Agricultural Business Field Studies (2)**

Prerequisite: AG EC 1. Business and economic functions performed by specialized agricultural agencies with emphasis on physical operating patterns. Field trips to production, marketing, and finance firms. Work-

shops with agribusiness managers. (1 lecture, 2 lab hours) (Field trip fee, up to \$75)

194. Agribusiness Internship (1-3; max total 6)

Prerequisites: junior standing. Emphasis on development of decision-making ability through industrial experience integrated with basic principles acquired in the classroom. Only 3 units of internship allowable in the major. *CR/NC* grading only.

GRADUATE COURSES

(See *Course Numbering System and Eligibility*.)

Agricultural Business (AG BS)**200. Seminar in Agricultural Business (1; max total 4)**

Prerequisite: permission of instructor. Review of literature related to current agricultural business problems and issues; examination of economic and management models and techniques; written reports, oral presentations, and seminar discussions.

210. Agribusiness Industry Analysis (3)

Prerequisite: classified standing or permission of instructor. Analysis of characteristics unique to agricultural institutions; practices in financing, producing, and marketing food and fiber products; integration of economic principles with management techniques for optimum decision-making under risk and uncertainty; crop/livestock enterprise budgeting; policy environment impact on agriculture.

220. Food Processing and Distribution Management (3)

Prerequisite: AG BS 210. Classified standing or permission of instructor. Analysis of strategic management decisions involving pricing relationships, processing and packaging systems, supply channel management, transportation modes and distribution logistics for agricultural products in domestic and global markets; applications to food industry case problems including international food marketing firms. (Formerly AG BS 225)

240. Agricultural Sector Planning (3)

Prerequisite: AG BS 210. Classified standing or permission of instructor. Economic policies, incentive structures, and resource constraints affecting agricultural development; rural development theories, growth models and sector strategies for increasing farm productivity; design, implementation, and evaluation of technical assistance pro-

grams; economic and financial appraisal of public and private investment projects.

250. Agricultural Policy Analysis (3)

Prerequisite: AG BS 210. Classified standing or permission of instructor. Examination of policy-making processes; evaluation of government farm and food programs; determination of industry responses and firm adjustments to changing market structures and government policies; urbanization and other land, air, water resource issues impacting agriculture; geopolitics and agricultural trade policy.

260. Commodity and Food Market Analysis (3)

Prerequisite: AG BS 210. Classified standing or permission of instructor. Economic and institutional relationships in food and fiber markets; commodity futures trading and risk management; derived demand by agribusiness for raw commodities; food industry marketing margins and market price determination; distribution and merchandising strategies; spatial and intertemporal price equilibrium models.

280T. Topics in Agricultural Business (3; max total 6)

Prerequisite: AG BS 210. Classified standing or permission of instructor. Fields of study include: farm management, agribusiness management, financial planning, international agriculture, public policy, and product marketing.

290. Independent Study (1-3; max total 6)

See *Academic Placement — Independent Study*. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Agriculture (AGRI)**300. Topics in Agriculture (1-3; max total 6)**

Topics may require lab hours. In-service professional training in selected areas of agriculture.