Agricultural and Managerial Economics

See Managerial Economics, on page 415.

Agricultural and Resource Economics

Richard D. Green, Ph.D., Professor
Jens Hilscher, Ph.D., Associate Professor
Lowell J. Jarvis, Ph.D., Professor
Cynthia L. Lowell, Ph.D., Associate Professor
Arthur M. Havenner, Ph.D., Professor
Richard E. Howitt, Ph.D., Professor
Warren E. Johnston, Ph.D., Professor Emeritus
Karen K. Jessoe, Ph.D., Associate Professor
Edward Taylor, Ph.D., Professor
Kevin M. Novan, Ph.D., Assistant Professor
Quirino Paris, Ph.D., Professor
James Wilen, Ph.D., Distinguished Professor
Jeffrey C. Williams, Ph.D., Professor

Emeriti Faculty
Hoy F. Carman, Ph.D., Professor Emeritus
Yoosin Farzin, Ph.D., Professor Emeritus
B. Delworth Gardner, Ph.D., Professor Emeritus
Arthur M. Havenner, Ph.D., Professor Emeritus
Richard E. Howitt, Ph.D., Professor Emeritus
Samuel H. Long, Ph.D., Professor Emeritus
Philip L. Martin, Ph.D., Professor Emeritus
Alexander F. McCollough, Ph.D., Professor Emeritus
Chester O. McCorkle, Jr., Ph.D., Professor Emeritus
Refugio J. Rochin, Ph.D., Emeritus
Lawrence E. Shepard, Ph.D., Senior Lecturer SOE Emeritus

Affiliated Faculty
Leslie J. Butler, Ph.D., Specialist in Cooperative Extension
Robert L. Cook, Ph.D., Specialist in Cooperative Extension
Sherron D. Hardesty, Ph.D., Specialist in Cooperative Extension
Hyoung Lee, Ph.D., Professional Researcher
Gerald T. Lundblad, M.B.A., Lecturer
John Maxey, M.B.A., J.D., Lecturer
Tina L. Saitone, Ph.D., Associate Project Scientist
Stephen A. Vosti, Ph.D., Adjunct Professor
Darnell D. Whitney, Ph.D., Lecturer

Major Program. See the undergraduate program in Managerial Economics, on page 415.

Major Advisers. Contact the Department office.

Related Courses. See courses in Economics and Environmental Science and Policy.

Courses in Agricultural and Resource Economics (ARE)

Lower Division

1. Economic Basis of the Agricultural Industry

Lecture—4 hours. Agriculture and man; the agricultural industry in U.S. and world economies; produc-
tion and supply, marketing and demand; agricultural land, capital and labor markets; economic and social problems of agriculture in an urban and indus-
trialized economy emphasizing California. GE credit: SocSci | SS.

15. Economic Basis of the Agricultural Industry

Lecture—4 hours. Agriculture and man; the agricultural industry in Australia and world economies; pro-
duction and supply, marketing and demand; agricultural land, capital and labor markets; econ-
omic and social problems of agriculture in an urban and industrialized economy emphasizing Aus-
tralia. Taught in Australia under the supervision of a UC Davis faculty member. Not open for credit to stu-
dents who have completed course 1. GE credit: SocSci | SS, WC.

15. Population, Environment and World Agriculture

Lecture—3 hr. Discussion—1 hour. Economic analysis of interactions among population, environ-
ment, natural resources and development of world agriculture. Introduces students to economic thinking about population growth, its causes and con-

18. Business Law

Lecture—4 hours. Prerequisite: sophomore standing. General principles of business law in the areas of contracts, business organization, real property, uni-
form commercial code, sales, commercial paper, employment relations, and creditor-debtor against a back-
ground of the history and functioning of our present legal system. GE credit: SocSci | SS. — F, S, Su. (F, S, Su.)

98. Directed Group Study

Prerequisite: consent of instructor. Offered irregularly. GE credit: SS.

99. Special Study for Undergraduates

Prerequisite: consent of instructor. (P/NP grading only.) GE credit: SS.

Upper Division

100A. Intermediate Microeconomics:
Theory of Production and Consumption

Lecture—3 hours, discussion—1 hour. Prerequisite: Economics 1A, 1B, Mathematics 16C. Pass One open to Managerial Economics (AMGE), Animal Sci-
cence and Management (AANM), and Textiles and Clothing (ATXC) Majors and Agricultural and Resource Economics (GARE), International Agricul-
tural Development (GIAD), Viticulture and Enology (GVOEN) and Transportation Technology and Policy (GTTP) Graduate Majors. Theory of individual con-
sumer and market demand; theory of production and supply of agricultural products, with particular reference to the individual firm, product pricing, and employment of resources under pure competi-
tion. Not open for credit to students who have com-

100B. Intermediate Microeconomics:
 Imperfect Competition, Markets and Welfare Economics

Lecture—3 hours, discussion—1 hour. Prerequisite: course 100A. Pass One open to Managerial Eco-
nomics Majors (AMGE) and Agricultural and Resource Economics (GARE) Graduate Majors. Price determination, and employment of resources under condi-

106. Econometric Theory and Applications

Lecture—3 hours, discussion—1 hour. Prerequisite: course 100A, Statistics 103. Pass One open to Managerial Eco-
nomics Majors (AMGE) and Agricultural and Resource Economics (GARE) Graduate Majors. Statistical methods for analyzing data to solve prob-
lems in managerial economics. Topics include the lin-
ear regression model, methods to resolve data problems, and the economic interpretation of results. Not open for credit to students who have enrolled in or completed Economics 140. GE credit: SocSci | QL, SS. — F, W, S, Su. (F, W, S, Su.)

107. Econometrics for Business Decisions

Lecture—3 hours, discussion—1 hour. Prerequisite: course 106. Pass One open to Managerial Econom-
112. Fundamentals of Organization Management (4)
Lecture—4 hours. Prerequisite: upper division standing or consent of instructor. Open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Role of organizational design and behavior in business and public agencies. Principles of planning, decision making, individual behavior, management, informal groups, conflict and change in the decision-making process. GE credit: SocSci | SS—F, W, S, Su. (F, W, S, Su.)

113. Fundamentals of Management (4)
Lecture—4 hours. Prerequisite: Economics 1A, for non-majors only. Nature of product marketing by the business firm. Customer-product relationships, pricing and demand; new product development and marketing strategy; promotion and advertising; product life cycles; the distribution system; manufacturing, wholesaling, retailing. Government regulation and restraints. Not open for credit to students who have completed course 116. Offered irregularly. GE credit: SocSci | SS—F, W, S, Su.

115A. Economic Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Economics 1A and 1B. Major issues encountered in emerging from international poverty, problems of growth, structural changes, human welfare, population growth and health, labor markets and internal migration. Important issues of policy concerning international trade and industrialization. (Same course as Economics 115G.) GE credit: SocSci, Div | SS, WC—F, W, S, Su. (F, W, S, Su.)

115B. Economic Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Economics 1A and 1B. Macroeconomic issues of developing countries. Issues include problems in generating capital, control of monetary and fiscal policies, foreign aid and investment. Important issues of policy concerning international borrowing and external debt of developing countries. (Same course as Economics 115B.) GE credit: SocSci | SS, WC—F—F, W, S. (F, W, S.)

118. Tax Accounting (4)
Lecture—4 hours. Prerequisite: Management 11A, 11B; course 108 recommended. Development and application of a framework to understand the tax effects of typical management decisions on both entities and their owners. Impacts that different methods of taxation have on business entities with emphasis on the planning of income and deduction strategies, retirement plans, and choices of business entity for tax minimization.

119. Intermediate Managerial Accounting (4)

120. Agricultural Policy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A or consent of instructor. Analytical treatment of the political, economic, and institutional problems that affect the agricultural sector. Impact of public policies on the agricultural sector. GE credit: SocSci | ACGH, SS—S. (S.)

120S. Agricultural Policy (4)
Lecture—4 hours. Prerequisite: course 100A or consent of instructor. Analytical treatment of the political, economic, and institutional problems that affect the agricultural sector. Impact of public policies on the agricultural sector. GE credit: SocSci | SS—F, W, S, Su. (F, W, S, Su.)

121. Economics of Agricultural Sustainability (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Plant Sciences 18; Corequisite: Regional Development 20, Economics 1A; Mathematics 12 or equivalent. Application of economic concepts to agro-environmental issues relevant to agricultural sustainability. Topics include market efficiency, production externalities, government policies, agricultural trade, product differentiation, all linked to sustainability issues. Case studies include biofuels, genetically modified foods and geographically differentiated products. GE credit: SocSci | SS—W. (W.)

130. Agricultural Markets (4)

132. Cooperative Business Enterprises (3)

135. Agribusiness Marketing Plan Development (2)
Lecture/discussion—2 hours. Prerequisite: upper division standing. Fundamental components required to develop a marketing plan. Appreciation of the concept of a marketing plan, appropriate research required, including the use of library and internet, survey and information, government documents, market analysis, business proposition, action planning, financial evaluation and monitoring. (P/N grading only.) GE credit: SocSci | SS—F, W, S, Su. (F, W, S, Su.)

136. Marketing Management (4)
Lecture—4 hours. Prerequisite: course 100A; Statistics 103. Application of economic theory and statistical methods in the study of marketing. Marketing measurement and forecasting, market planning, market development, market development, product market mix, sales and cost analysis, control of marketing research, marketing models and systems. GE credit: SocSci | SS—F, W, S, Su. (F, W, S, Su.)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100B. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Basic nature and scope of international trade in agricultural commodities, agricultural inputs, and natural resources. Market dimensions and policy institutions. Cases studies to illustrate import and export problems associated with different regions and commodities. GE credit: SocSci | SS—F, W, S, Su. (F, W, S, Su.)

139. Futures and Options Markets (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A; Statistics 103. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. History, mechanics, and economic functions of futures and options markets; hedging; theory of inter-temporal price formation and behavior of futures and options prices; pricing of futures and options as policy tools. GE credit: SocSci | SS—F, S, (F, S.)

140. Farm Management (4)
Lecture—4 hours. Prerequisite: Economics 1A. Pass One open to Managerial Economics Majors. Farm organization and resources; economic and technological principles in decision making; analytical techniques and management control problems in organizing and managing the farm business. GE credit: SocSci | SS—W. (W.)

142. Personal Finance (3)
Lecture—3 hours. Prerequisite: Economics 1B. Management of income and expenditures by the household. Use of consumer credit and insurance by households. Principles of tax, retirement, and estate planning. GE credit: SocSci | SS—F, S, Su. (F, S, Su.)

143. Investments (4)

144. Real Estate Economics (3)
Lecture—3 hours. Prerequisite: course 100A. The economic theory, analysis, and institutions of real estate markets and related financial markets. Case studies drawn from the real world, single family, multifamily, industrial and office real estate markets. GE credit: SocSci | SS—S. (S.)

145. Farm and Rural Resources Appraisal (4)

146. Business, Government Regulation, and Society (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100B. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Principles, procedures, and practice of the valuation process with specific emphasis placed on farm real estate. Concepts of value, description of land, identification of the major physical and economic determinants of value, the three primary appraisal approaches to valuation, discussion of appraisal activity and practice. GE credit: SocSci | SS—W. (W.)

147. Resource and Environmental Policy Analysis (3)
Lecture—3 hours; discussion—1 hour. Prerequisite: Economics 1A. Open to non-majors only. Natural resource use problems with emphasis on past and current policies and institutions affecting resource use, determinants, principles, and patterns of natural resource use; property rights; conservation; public and private use problems; and public issues. Students who have had or are taking course 100A, Economics 100, or the equivalent, may receive only 2 units of credit, so must enroll in course 147M instead. GE credit: SocSci | ACGH, SS—S. (S.)

147M. Resource and Environmental Policy Analysis (2)
Lecture—3 hours. Prerequisite: Economics 1A. Open to non-majors only. Natural resource use problems with emphasis on past and current policies and institutions affecting resource use, determinants, principles, and patterns of natural resource use; property rights; conservation; public and private use problems; and public issues. Students who have had or are taking course 100A, Economics 100, or the equivalent, may receive only 2 units of credit, so must enroll in course 147M instead. GE credit: SocSci | ACGH, SS—S. (S.)
155. Operations Research and Management Science (4)  

156. Introduction to Mathematical Economics (5)  
Lecture—4 hours; discussion—1 hour. Prerequisite: course 100B, 155. Pass One open to Managerial Economics (AMGE) Major and Agricultural and Resource Economics (GARE) Graduate Majors. GE credit: SocSci | SS. — F. (W.)

165. Emerging Economies and Globalization (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 100A, 115A, 115B; completion of course 106 and Economics 162 strongly recommended. Pass One open to Managerial Economics and graduate majors. Application of economic theory and quantitative methods to analyze operations and production management problems including process strategy, quality management, location and plant layout, and inventory management. GE credit: SocSci | SS.—F. (F. W.)

167. Analysis for Operations and Production Management (4)  
Lecture—4 hours; discussion—1 hour. Prerequisite: course 155. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Application of economic theory and quantitative methods to analyze operations and production management problems including process strategy, quality management, location and plant layout, and inventory management. GE credit: SocSci | SS.—F. (F. W.)

171A. Financial Management of the Firm (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: course 106, Management 11A:1B. Financial analysis at the firm level: methods of depreciation; influence of the tax structure; inventory, cash, and accounts receivable management; sources of short-term and long-term financing, and financial planning and problem solving using a computer spreadsheet program. Not open for credit to students who have completed Economics 134. GE credit: SocSci | SS.—F. (F. W.)

171B. Financial Management of the Firm (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: course 171A. Financial analysis at the firm level: methods of capital budgeting; calculating the cost of capital; dividend policies; mergers and acquisitions; and special current topics in finance. GE credit: SocSci | SS.—F. (F. W.)

175. Natural Resource Economics (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100B or Economics 100 or the equivalent. Economic concepts and policy issues associated with natural resources, renewable resources, (ground water, forests, fisheries, and wildlife populations) and non-renewable resources (minerals and energy resources, oil). GE credit: SocSci | SS.—S. (F.)

176. Environmental Economics (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100B or Economics 100 or the equivalent. Role of the environment in economic activity and methods for protecting and enhancing environmental quality; implications of market failures for public policy; design of environmental policy; theory of welfare measurement; measuring benefits of environmental improve- ment. GE credit: SocSci | SS.—F. (W.)

190. Topics in Managerial Economics (3)  
Lecture—3 hours; discussion—1 hour. Prerequisite: passing grades in course 100A and Statistics 103; consent of instructor. Selected topics in Managerial Economics. GE credit: SocSci | SS.—F. (W.)

191. Internship (1-6)  
Lecture—3-18 hours. Internship experience off and on campus in all subject areas offered in the Department of Agricultural and Rural Economics. Internships are supervised by a member of the staff. (P/N grading only) GE credit: SS.

194HA. Special Study for Honors Students (4)  
Independent study—3 hours; seminar—1 hour. Prerequisite: minimum GPA of 3.500; course 100B, courses 106 and 155 (may be taken concurrently); major in Agricultural and Managerial Economics; senior standing; consent of instructor. A program of research culminating in the writing of a senior honors thesis under the direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | SS.—SS. (W. S. Su.)

194HB. Special Study for Honors Students (4)  
Independent study—3 hours; seminar—1 hour. Prerequisite: minimum GPA of 3.500; course 100B, courses 106 and 155 (may be taken concurrently); major in Agricultural and Managerial Economics; senior standing; consent of instructor. A program of research culminating in the writing of a senior honors thesis under the direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | SS.—SS. (W. S. Su.)

197T. Tutoring in Managerial Economics (1-3)  
Prerequisite: senior standing in Managerial Economics and consent of Department Chairperson. Under- graduates assist the instructor by tutoring students in one of the department’s regularly scheduled courses. (P/N grading only) GE credit: SS.

198. Directed Group Study (1-5)  
Prerequisite: consent of instructor. (P/N grading only) GE credit: SS.

199. Special Study for Advanced Undergraduates (1-5)  
Prerequisite: consent of instructor. (P/N grading only) GE credit: SS.

Graduate  
200A. Microeconomic Theory (5)  
Lecture—4 hours; discussion—1 hour. Prerequisite: graduate standing. Graduate optimization theory applied to develop the theory of the profit-maximizing firm and the utility-maximizing consumer. (Same course as Economics 200A.)—F. (F.)

200B. Microeconomic Theory (5)  
Lecture—4 hours; discussion—1 hour. Prerequisite: course 200A. Characteristics of market equilibrium under perfect competition, simple monopoly and monopsony. Emphasis on general equilibrium and welfare economics; the sources of market success and market failure. (Same course as Economics 200B.)—W. (W.)

200C. Microeconomic Theory (5)  
Lecture—4 hours; discussion—1 hour. Prerequisite: course 200B. Uncertainty and information economics. Individual decision making under uncertainty. Introduction to game theory with emphasis on applications to markets with firms that are imperfect competitors or consumers that are imperfectly informed. (Same course as Economics 200C.)—S. (S.)

202A. Introduction to Applied Research Methods (3)  
Lecture/discussion—3 hours. Prerequisite: courses 204A and 256, or the equivalent; course 200A concurrently. Study of philosophy and methodology of applied research in agricultural economics. Methods of conceptualization of researchable topics. Method of communication and constructive criticism. —F. (F.)

202B. Applied Microeconomics I: Consumer and Producer Behavior (3)  
Lecture/discussion—3 hours. Prerequisite: courses 200A and 202A; course 200B concurrently. Application of consumer and producer theory in models of individual behavior and market/level phenomena. Implications of consumer and producer theory for specification of empirical models of supply and demand for inputs and outputs and market equilib- rium displacement models. —W. (W.)

202C. Research Design for Applied Microeconomics (3)  
Lecture/Discussion—3 hours. Prerequisite: courses 240A and 202B. Third of these courses in the Ph.D. level applied microeconomics sequence. Examines the design of empirical research and the application of economic theory. —S. (S.)

204A. Microeconomic Analysis I (4)  
Lecture—4 hours. Prerequisite: course 100B or Eco- nomics 100; advanced undergraduates with consent of instructor. Behavior of consumers and producers and their interactions; tools and methods needed to analyze economic behavior in the marketplace. Application of those methods to real-world problems. —F. (F.)

204B. Microeconomic Analysis II (4)  
Lecture—4 hours. Prerequisite: course 204A or con- sent of instructor. Behavior in imperfectly competitive markets-monopoly and price discrimination; oligopo- listy. Introduction to noncooperative game theory. Analysis of decisions made under risk and uncer- tainty and imperfect information. The economics of externalities and public goods. —W. (W.)

214. Development Economics (4)  
Lecture—4 hours. Prerequisite: course 100A, 100B, Economics 101; course 204A and Economics 160A, 160B recommended. Review of the principal theoretical and empirical issues whose analysis has formed development economics. Analysis of eco- nomic development theories and development strat- egies and their application to specific policy issues in developing country contexts. (Same course as Eco- nomics 214.)—F. (F.)

215A. Microdevelopment Theory and Methods I (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A or 204A; course 204A recommended. Agricultural development theory, with a focus on microeconomics. Agricultural household behavior with and without imperfections and uncertainty. Analysis of rural land, labor, credit and insurance markets, institutions, and contracts. (Same course as Economics 215A.)—F. (F.)

215B. Open Macroeconomics of Development (4)  
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 200A or 204A; 200D or 205, and 214 or 215A. Models and policy approaches regarding
trade, monetary and fiscal issues, capital flows and debt are discussed in the macroeconomic framework of global developing country. The basic analytical focus is real exchange rate and its impact on sectoral allocation of resources. (Same course as Economics 215B.)—W (W).

215C. Microdevelopment Theory and Methods II (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 215A. Extension of development theory and microeconomic methods. Agricultural growth and technological change, poverty and income inequality; multinational, including village and regional models. Computable general equilibrium methods and applications. (Same course as Economics 215C.)—S (S).

215D. Environment and Economic Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A, 204A or 275. Interdisciplinary course drawing on theoretical and empirical interactions between environmental resource use and economic development processes. Analysis of issues emerging at the interface of environmental and development economics. (Same course as Economics 215D.)—I (S).

222. International Agricultural Trade and Policy (4)
Lecture—4 hours. Prerequisite: course 100B or 204A and 240A or the equivalent. Analysis of country interdependence through world agricultural markets. Partial equilibrium analysis is used to study the impacts of national intervention on world markets, national policy choice in an open economy and multinational policy issues. —F (F).

223. Economics of Agriculture (4)
Lecture—4 hours. Prerequisite: courses 204A and 256A or equivalent completed or concurrent required. Open to MS students in Agricultural and Resource Economics, Ph.D. students in Agricultural and Resource Economics and qualified students from other UC Davis graduate groups/programs. Analytic treatment of the historical development and contemporary role of agriculture in the global, U.S. and California economies. Uses economic reasoning and evidence to develop historical and conceptual understandings of the economics of agriculture, agricultural issues, and related government policies. —F (F).

Alston

231. Supply and Demand for Agricultural Products (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 200A, 202A, and 240A or consent of instructor. Analysis of supply and demand for agricultural commodities emphasizing the effective use of microeconomic theory with econometric methods, and other empirical procedures, in conducting applied analysis of supply and demand at the firm and industry level. —F (F).

232. Agricultural Commodity Markets (4)
Lecture—4 hours. Prerequisite: courses 200A, 202A, and 240A or consent of instructor. Economic analysis of industries that produce, market, transport, store, and process basic commodities. Spot and futures market equilibrium under perfect and imperfect competition, with and without government involvement. —W (W).

233. Agricultural Policy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 200A, 202A, and 240A or consent of instructor. Nature, formation, evolution, and institutions of economic policy applied to food, agricultural, and rural issues. Examples for detailed consideration: agricultural trade, food aid, poverty and inequality, food scarcity issues, and trade policy. Analytical approaches include static and dynamic welfare analysis, policy design, and political-economic analysis. —S (S).

239. Econometric Foundations (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: grade point average or consent of instructor. The course will prepare students for econometric theory and empirical work by examining the statistical foundation of econometrics. Special attention is paid to problems specific to non-experimental data common to social sciences. Topics from matrix algebra are also covered. (Same course as Economics 239.)—F (F).

240A. Econometric Methods (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Statistics 10A or 20A or the equivalent. Least squares, instrumental variables, and maximum likelihood estimation and inference for single equation linear regression model; linear restrictions; heteroskedasticity and autocorrelation- lagged dependent variables. (Same course as Economics 240A.)—W (W).

240B. Econometric Methods (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240A. Topics include asymptotic theory and instrumental variables, pooled time-series cross-section estimation, seemingly unrelated regression, classical hypothesis tests, identification and estimation of simultaneous equations, specification, error-correction models, and qualitative and limited dependent variable models. (Same course as Economics 240B.)—S (S).

240C. Time Series Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240B or consent of instructor. Probability theory; estimation, inference and forecasting of time series models; trends and non-standard asymptotic theory; vector autoregressive models; time series models for higher order moments and transition data; state-space modeling; the Kalman filter. (Same course as Economics 240C.)—W (W).

240D. Cross Section Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240B or consent of instructor. Modern econometric techniques for time series data. Expand on topics covered in Economics 240A, 240B and 240C. Contents may vary from year to year. (Same course as Economics 240D.)—F (F).

240E. Topics in Time Series Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240C or consent of instructor. Modern econometric techniques for time series data. Expand on topics covered in Economics 240A, 240B and 240C. Contents may vary from year to year. (Same course as Economics 240E.)—S (S).

240F. Topics in Cross Section Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240D or consent of instructor. Modern econometric techniques for cross-section data. Expand on topics covered in Economics 240A, 240B and 240C. Contents may vary from year to year. (Same course as Economics 240F.)—S (S).

252. Optimization with Economic Applications (4)
Lecture—3 hours; discussion—1 hour. Applied linear programming methods emphasizing uses for business decisions: production, diet, blending, network and related problems. —W (W).

254. Dynamic Optimization Techniques with Economic Applications (4)
Lecture—4 hours. Prerequisite: course 253 and elementary knowledge of ordinary differential equations. Necessary and sufficient conditions in the calculus of variations and optimal control, economic interpretations of the Hamilton-Jacobi-Bellman equation and transversality conditions for finite horizon problems and phase diagrams, local stability and comparative statics of the steady state, comparative dynamics. —F (F).

255. Applied Dynamic Structural Econometric Modeling (4)
Lecture—4 hours. Prerequisite: course 254. Course covers structural econometric models of static games of incomplete information, single-agent dynamic optimization problems, and multi-agent dynamic games, with a focus on applications to issues relevant to the environment, energy, natural resources, agriculture, and development economics. May be repeated 4 times for credit. Offered irregularly.
Agricultural Computing and Information Systems

293. Analysis of California Agriculture and Resources (3)
Lecture—1.5 hours; fieldwork—45 hours total, including one 5-day summer field trip. Review and analysis of production, marketing, and resource issues facing agricultural firms in California. Application of economic theory and measurement to individual firm and industry decisions in an applied setting. (S/U grading only.)—F (F)

298. Directed Group Study (1-5)
Advanced study through special seminars, informal group studies, or group research on problems for analysis and experimentation. Sections: (1) Managerial Economics; (2) Agricultural Policy; (3) Community and Regional Development; (4) Natural Resources; (5) Human Resources; (6) Research Methods and Quantitative Analysis.

299. Individual Study (1-12)
Sections: (1) Managerial Economics; (2) Agricultural Policy; (3) Community and Regional Development; (4) Natural Resources; (5) Human Resources; (6) Research Methods and Quantitative Analysis.

299D. Special Study for Doctoral Dissertation (1-12)
(S/U grading only.)

396. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing. May be repeated for credit. (S/U grading only.)

Agricultural Computing and Information Systems

See Applied Computing and Information Systems, on page 175.

Agricultural Management and Rangeland Resources

[College of Agricultural and Environmental Sciences]
This major was discontinued as of Fall 2008; see Ecological Management and Restoration, on page 250.

Faculty. See Plant Sciences, on page 514.

Courses. See Plant Sciences, on page 514.

Agricultural Systems and Environment

[College of Agricultural and Environmental Science]

Minor Program Requirements:

Agricultural Systems and Environment........................................ 18-20

Preparatory for the major. Course in statistics such as Statistics 13, 32, 100, Plant Sciences 120, Sociology 46B or equivalent. Course in plant science such as Plant Sciences 2, completion of Biological Sciences 2A and 2B and 2C also fulfills this requirement.

Select one of the two following tracks:

Sustainable Agriculture track

Plant Science 100 ..................................... 4
Soil Science 100 ..................................... 4
Plant Sciences 105 or 170 ............................. 5
Entomology 110 ...................................... 3-5
Minimum of six units from the following:
Range and Natural Resources track

Plant Science 130 ..................................... 3
Minimum of 15 units from the following:
Plant Sciences 112, 131, 135, 150, 163, Environmental Science and Policy 125, 172, Wildlife, Fish and Conservation Biology 110, 151

Minor Advisers. T. Gradziel (Plant Sciences)

Advising Center is located in 1220 Plant and Environmental Sciences 530-752-1715.

Agronomy

See Plant Sciences, on page 514.

Agronomy and Range Science

See Plant Sciences, on page 514.

American Studies

[College of Letters and Science]

Department Office. 2134A Hart Hall 530-752-6429; http://ams.ucdavis.edu

Faculty

Javier Arbona, Ph.D., Past Doctoral Scholar
Charlotte Billekoff, Ph.D., Associate Professor
Ryan Cartwright, Assistant Professor
Caren Kaplan, Ph.D., Professor
Eric Smoodin, Ph.D., Professor
Julie Sze, Ph.D., Professor
Carolyn Thomas, Ph.D., Professor
Grace Wang, Ph.D., Associate Professor

Emeriti Faculty

Jay Meachling, Ph.D., Professor Emeritus
Academic Senate Distinguished Teaching Award
Michael L. Smith, Ph.D., Senior Lecturer Emeritus
David Scofield Wilson, Ph.D., Senior Lecturer Emeritus

The Major Program

American Studies explores the cultures of the United States, as well as their transnational exchanges and impact. The discipline’s practitioners seek to understand the historical origins of particular cultures and practices held by individuals and groups within the United States and those values and beliefs that shape social and political realities within and beyond U.S. borders. The approach that American Studies takes is interdisciplinary, meaning that in American Studies we answer these questions using tools developed by numerous disciplines including history, sociology, anthropology, literary criticism, folklore, media and science and technology studies.

American Studies takes as its subject American cultures and provides an excellent, broad education in the liberal arts. Our aim is to make each student a culture critic, a person capable of bringing a thoughtful and humane approach to bear upon our understanding of the varieties of American experience. Making connections is the way we like to think about subject matter beyond U.S. borders. The approach that American Studies takes is interdisciplinary, meaning that in American Studies we answer these questions using tools developed by numerous disciplines including history, sociology, anthropology, literary criticism, folklore, media and science and technology studies.

American Studies majors are good liberal arts students. They have the option of writing a senior thesis within this emphasis. Students discover new career possibilities through their internships in American institutions.

A.B. Major Requirements:

Preparatory Subject Matter .......................................................... 24
American Studies 10 .................................................. 4
One additional lower division American Studies course ........................................... 4
One course from: African American and African Studies 10, Asian American Studies 1, Chicana/o Studies 10, Native American Studies 1, or an equivalent course in racial and ethnic diversity .................................................. 4
One course from: Anthropology 2, Sociology 2, Women’s Studies 50, or an equivalent course in social science approaches to culture .......................................................... 4
One course from: History 17A, 17B, 72A, 72B .................................................. 4
One course from: English 30A, 30B, Film Studies 1, or an equivalent course introducing critical approaches to literary and visual texts within the humanities .................................................. 4

Depth Subject Matter .......................................................... 40
American Studies 100 and 160 .................................................. 8
American Studies Electives: Three additional upper-division American Studies courses .................................................. 12

Emphasis .................................................. 20
In consultation with the American Studies Undergraduate Adviser, the student designs a program of 20 units (typically five courses) of upper division coursework around a unifying theme, period, or subject matter in American cultures. The courses should come from two or more departments or programs and can include up to 8 units of American Studies courses. Only 4 units of course 192 (internship) can be included in the emphasis. The student should consult the senior thesis option (190A-190B) for 8 units of the emphasis and take the remaining 12 units outside the program.

Total Units for the Major .................................................. 64

Recommended

Completion of the college requirement in English composition before enrollment in American Studies 190A.

Minor Program Requirements:

American Studies .................................................. 20

American Studies, upper division courses .................................................. 20

No more than 8 units of course 192 may be counted toward this total.

Fall 2011 and on Revised General Education (GE) Areas: AH=Arts and Humanities; SE=Science and Engineering; SS=Social Sciences; OL=Oral Skills; OL=Oral Quantitative; SL=Scientific; VL=Visual; WC=World Cultures; W=Writing Experience
Pre-Fall 2011 General Education (GE): ArHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; DomDiv=Dominant Diversity; Wrt=Writing Experience
Quarter Offered: F=Fall, W=Winter, S=Spring, Su=Summer; 2017-2018 offering in parentheses