

# AGRICULTURAL & RESOURCE ECONOMICS

College of Agricultural & Environmental Sciences

Rachael E. Goodhue, Ph.D., Chair of the Department

## Department Office

1176 Social Sciences & Humanities Building; 530-752-1515;  
Graduate Program (<https://are.ucdavis.edu/phd/>); Faculty (<https://are.ucdavis.edu/people/faculty/>)

## Agricultural & Resource Economics Undergraduate Program in Managerial Economics B.S.

**Major Advisors.** Contact Managerial Economics Student Services at [manecon@primal.ucdavis.edu](mailto:manecon@primal.ucdavis.edu) or 530-754-9536.

### Major Program

See Managerial Economics (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-resource-economics/managerial-economics-bs/>) undergraduate program.

## Graduate Programs

### Graduate Student Information

2121 Social Sciences & Humanities Building; 530-752-6185; Graduate Program (<https://are.ucdavis.edu/phd/>)

- Agricultural & Resource Economics, Master of Science (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-resource-economics/agricultural-resource-economics-ms/>)
- Agricultural & Resource Economics, Master of Science/Master of Business Administration (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-resource-economics/agricultural-resource-economics-ms-mba/>)
- Agricultural & Resource Economics, Doctor of Philosophy (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-resource-economics/agricultural-resource-economics-phd/>)
- Managerial Economics, Bachelor of Science (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-resource-economics/managerial-economics-bs/>)
- Managerial Economics, Minor (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-resource-economics/managerial-economics-minor/>)

## Agricultural & Resource Economics (ARE) ARE 001 – Economic Basis of the Agricultural Industry (4 units)

This version has ended; see updated course, below.

*Course Description:* Agriculture and man; the agricultural industry in U.S. and world economies; production and supply, marketing and demand; agricultural land, capital and labor markets; economic and social problems of agriculture in an urban and industrialized economy emphasizing California.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### ARE 001 – Economic Basis of the Agricultural Industry (4 units)

*Course Description:* Agriculture and man; the agricultural industry in U.S. and world economies; production and supply, marketing and demand; agricultural land, capital and labor markets; economic and social problems of agriculture in an urban and industrialized economy emphasizing California. Not currently offered.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Spring Quarter 2023.

## ARE 001S – Economic Basis of the Agricultural Industry (4 units)

This version has ended; see updated course, below.

*Course Description:* Agriculture and man; the agricultural industry in Australia and world economies; production and supply, marketing and demand; agricultural land, capital and labor markets; economic and social problems of agriculture in an urban and industrialized economy emphasizing Australia. May be taught abroad in Australia under the supervision of a UC Davis faculty member.

*Learning Activities:* Lecture 4 hour(s).

*Credit Limitation(s):* Not open for credit to students who have taken ARE 001.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

### ARE 001S – Economic Basis of the Agricultural Industry (4 units)

*Course Description:* Agriculture and man; the agricultural industry in Australia and world economies; production and supply, marketing and demand; agricultural land, capital and labor markets; economic and social problems of agriculture in an urban and industrialized economy emphasizing Australia. May be taught abroad in Australia under the supervision of a UC Davis faculty member. Not currently offered.

*Learning Activities:* Lecture 4 hour(s).

*Credit Limitation(s):* Not open for credit to students who have taken ARE 001.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Spring Quarter 2023.

**ARE 015 – Population, Environment & World Agriculture (4 units)**

This version has ended; see updated course, below.

*Course Description:* Economic analysis of interactions among population, environment, natural resources and development of world agriculture.

Introduces students to economic thinking about population growth, its causes and consequences for world food demand, and environmental and technological limits to increasing food supplies.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC); Writing Experience (WE).

**ARE 015 – Population, Environment & World Agriculture (4 units)**

*Course Description:* Economic analysis of interactions among population, environment, natural resources and development of world agriculture.

Introduces students to economic thinking about population growth, its causes and consequences for world food demand, and environmental and technological limits to increasing food supplies. Not currently offered.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC); Writing Experience (WE).

This course version is effective from, and including: Spring Quarter 2023.

**ARE 018 – Business Law (4 units)**

*Course Description:* General principles of business law in the areas of contracts, business organization, real property, uniform commercial code, sales, commercial paper, employment relations, and creditor-debtor against a background of the history and functioning of our present legal system.

*Prerequisite(s):* Sophomore standing.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 098 – Directed Group Study (1-5 units)**

*Course Description:* Directed group study.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Enrollment Restriction(s):* Restricted to lower division students.

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

**ARE 099 – Special Study for Undergraduates (1-5 units)**

*Course Description:* Special study for undergraduates.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* .

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

**ARE 100A – Intermediate Microeconomics: Theory of Production & Consumption (4 units)**

This version has ended; see updated course, below.

*Course Description:* Theory of individual consumer and market demand; theory of production and supply of agricultural products, with particular reference to the individual firm; price determination, and employment of resources under pure competition.

*Prerequisite(s):* ((ECN 001A C- or better or ECN 001AV C- or better); ECN 001B C- or better); ((MAT 016A C- or better, MAT 016B C- or better, MAT 016C C- or better) or (MAT 017A C- or better, MAT 017B C- or better) or (MAT 021A C- or better, MAT 021B C- or better)).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM), and Textiles and Clothing (ATXC) Majors and Agricultural and Resource Economics (GARE), International Agricultural Development (GIAD), Viticulture and Enology (GVEN) and Transportation Technology and Policy (GTTP) Graduate Majors.

*Credit Limitation(s):* Not open for credit to students who have completed ECN 100.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

**ARE 100A – Intermediate Microeconomics: Theory of Production & Consumption (4 units)**

*Course Description:* Theory of individual consumer and market demand; theory of production and supply of agricultural products, with particular reference to the individual firm; price determination, and employment of resources under pure competition.

*Prerequisite(s):* ((ECN 001A C- or better or ECN 001AY C- or better) or ECN 001AV C- or better); (ECN 001B C- or better or ECN 001BV C- or better); ((MAT 016A C- or better, MAT 016B C- or better, MAT 016C C- or better) or (MAT 017A C- or better, MAT 017B C- or better) or (MAT 021A C- or better, MAT 021B C- or better)).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM), and Textiles and Clothing (ATXC) Majors and Agricultural and Resource Economics (GARE), International Agricultural Development (GIAD), Viticulture and Enology (GVEN) and Transportation Technology and Policy (GTTP) Graduate Majors.

*Credit Limitation(s):* Not open for credit to students who have completed ECN 100.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

This course version is effective from, and including: Fall Quarter 2022.

### **ARE 100B – Intermediate Microeconomics: Imperfect Competition, Markets & Welfare Economics (4 units)**

This version has ended; see updated course, below.

*Course Description:* Price determination, and employment of resources under conditions of monopoly, oligopoly, and monopolistic competition.

*Prerequisite(s):* ARE 100A C- or better; ((ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better); ECN 001B C- or better); ((MAT 016A C- or better, MAT 016B C- or better, MAT 016C C- or better) or (MAT 017A C- or better, MAT 017B C- or better) or (MAT 021A C- or better, MAT 021B C- or better)); ARE 018 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics Majors (AMGE) and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

### **ARE 100B – Intermediate Microeconomics: Imperfect Competition, Markets & Welfare Economics (4 units)**

*Course Description:* Price determination, and employment of resources under conditions of monopoly, oligopoly, and monopolistic competition.

*Prerequisite(s):* ARE 100A C- or better; ((ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better); ECN 001B C- or better or ECN 001BV C- or better); ((MAT 016A C- or better, MAT 016B C- or better, MAT 016C C- or better) or (MAT 017A C- or better, MAT 017B C- or better) or (MAT 021A C- or better, MAT 021B C- or better)); ARE 018 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics Majors (AMGE) and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

This course version is effective from, and including: Fall Quarter 2022.

### **ARE 106 – Econometric Theory & Applications (4 units)**

*Course Description:* Statistical methods for analyzing data to solve problems in managerial economics. Topics include the linear regression model, methods to resolve data problems, and the economic interpretation of results.

*Prerequisite(s):* ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better; (PLS 021 C- or better or PLS 021V C- or better or ECS 032A C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics Majors (AMGE) and Agricultural & Resource Economics (GARE) Graduate Majors.

*Credit Limitation(s):* Not open for credit to students who have enrolled in or completed ECN 140.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

### **ARE 107 – Econometrics for Business Decisions (4 units)**

*Course Description:* Covers state-of-the art econometric and statistical methods for causal and predictive modeling with applications to finance and marketing.

*Prerequisite(s):* ARE 100A C- or better; ARE 106 C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors; Pass Two open to majors in the College of Agricultural & Environmental Sciences.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 112 – Fundamentals of Organization Management (4 units)**

*Course Description:* Role of organizational design and behavior in business and public agencies. Principles of planning, decision making, individual behavior, management, leadership, informal groups, conflict and change in the organization. May be taught abroad.

*Prerequisite(s):* Upper division standing recommended.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One restricted to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 113 – Fundamentals of Marketing Management (4 units)**

This version has ended; see updated course, below.

*Course Description:* 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.

*Prerequisite(s):* ECN 001A or ECN 001AV; For non-majors only.

*Learning Activities:* Lecture 4 hour(s).

*Credit Limitation(s):* Not open for credit to students who have completed ARE 136.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 113 – Fundamentals of Marketing Management (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ECN 001A or ECN 001AY or ECN 001AV. For non-majors only.

*Learning Activities:* Lecture 4 hour(s).

*Credit Limitation(s):* Not open for credit to students who have completed ARE 136.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 115A – Economic Development (4 units)**

This version has ended; see updated course, below.

*Course Description:* Major issues encountered in emerging from international poverty, problems of growth and structural change, human welfare, population growth and health, labor markets and internal migration. Important issues of policy concerning international trade and industrialization.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 115A.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

**ARE 115A – Economic Development (4 units)**

*Course Description:* Major issues encountered in emerging from international poverty, problems of growth and structural change, human welfare, population growth and health, labor markets and internal migration. Important issues of policy concerning international trade and industrialization.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 115A.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 115B – Economic Development (4 units)**

This version has ended; see updated course, below.

*Course Description:* Macroeconomic issues of developing countries. Issues include problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Important issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 115B.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

**ARE 115B – Economic Development (4 units)**

*Course Description:* Macroeconomic issues of developing countries. Issues include problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Important issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 115B.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 115BY – Economic Development (4 units)**

This version has ended; see updated course, below.

*Course Description:* Macroeconomic issues of developing countries. Problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 1.50 hour(s), Web Virtual Lecture 1.50 hour(s), Term Paper.

*Enrollment Restriction(s):* Pass One open to Economics, Managerial Economics, and International Relations Majors.

*Cross Listing:* ECN 115BY.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

**ARE 115BY – Economic Development (4 units)**

*Course Description:* Macroeconomic issues of developing countries. Problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 1.50 hour(s), Web Virtual Lecture 1.50 hour(s), Term Paper.

*Enrollment Restriction(s):* Pass One open to Economics, Managerial Economics, and International Relations Majors.

*Cross Listing:* ECN 115BY.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 118 – Tax Accounting (4 units)**

This version has ended; see updated course, below.

*Course Description:* 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 tax planning, using income and deduction strategies, retirement plans, and choice of business entity for tax minimization.

*Prerequisite(s):* MGT 011A C- or better; MGT 011B C- or better; ARE 018 recommended.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 118 – Tax Accounting (4 units)**

*Course Description:* 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 tax planning, using income and deduction strategies, retirement plans, and choice of business entity for tax minimization. Irregularly offered.

*Prerequisite(s):* MGT 011A C- or better; MGT 011B C- or better; ARE 018 recommended.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

This course version is effective from, and including: Spring Quarter 2023.

### **ARE 119 – Intermediate Managerial Accounting (4 units)**

*Course Description:* Use of accounting information by managers in decision making, planning, directing and controlling operations. Focuses on managerial/cost accounting theory and practice. Covers costing systems, budgeting, and financial statement analysis.

*Prerequisite(s):* MGT 011A C- or better; MGT 011B C- or better.

*Learning Activities:* Lecture 4 hour(s), Extensive Problem Solving 8 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 120 – Agricultural Policy (4 units)**

*Course Description:* Analytical treatment of historical and current economic problems and governmental policies influencing American agriculture. Uses of economic theory to develop historical and conceptual understanding of the economics of agriculture; how public policy influences the nature and performance of American agriculture.

*Prerequisite(s):* ARE 100A C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 120S – Agricultural Policy (4 units)**

This version has ended; see updated course, below.

*Course Description:* Analytical treatment of historical and current economic problems and governmental policies influencing agriculture. Uses of economic theory to develop historical and conceptual understanding of the economics of agriculture; how public policy influences the nature and performance of agriculture. May be taught abroad in Australia under the supervision of a UC Davis faculty member.

*Prerequisite(s):* ARE 100A; or consent of instructor.

*Learning Activities:* Lecture 4 hour(s).

*Credit Limitation(s):* Not open for credit to students who have taken ARE 120.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

### **ARE 120S – Agricultural Policy (4 units)**

*Course Description:* Analytical treatment of historical and current economic problems and governmental policies influencing agriculture. Uses of economic theory to develop historical and conceptual understanding of the economics of agriculture; how public policy influences the nature and performance of agriculture. May be taught abroad in Australia under the supervision of a UC Davis faculty member. Not currently offered.

*Prerequisite(s):* ARE 100A; or consent of instructor.

*Learning Activities:* Lecture 4 hour(s).

*Credit Limitation(s):* Not open for credit to students who have taken ARE 120.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Spring Quarter 2023.

### **ARE 121 – Economics of Agricultural Sustainability (4 units)**

This version has ended; see updated course, below.

*Course Description:* 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.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AV C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Majors in the College of Agricultural & Environmental Sciences and Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 121 – Economics of Agricultural Sustainability (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AY C- or better. or ECN 001AV C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Majors in the College of Agricultural & Environmental Sciences and Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

### **ARE 130 – Agricultural Markets (4 units)**

This version has ended; see updated course, below.

*Course Description:* Nature, function, organizational structure, and operation of agricultural markets; prices, costs, and margins; market information, regulation, and controls; cooperative marketing.

*Prerequisite(s):* ARE 106 C- or better; ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 130 – Agricultural Markets (4 units)**

*Course Description:* Nature, function, organizational structure, and operation of agricultural markets; prices, costs, and margins; market information, regulation, and controls; cooperative marketing. Irregularly offered.

*Prerequisite(s):* ARE 106 C- or better; ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Spring Quarter 2023.

**ARE 132 – Cooperative Business Enterprises (4 units)**

This version has ended; see updated course, below.

*Course Description:* Study of cooperative business enterprise in the United States and elsewhere; economic theories of behavior, principles of operation, finance, decision-making, and taxation.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AV C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) and Animal Science & Management Majors (AANM) and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 132 – Cooperative Business Enterprises (4 units)**

*Course Description:* Study of cooperative business enterprise in the United States and elsewhere; economic theories of behavior, principles of operation, finance, decision-making, and taxation.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restrictions:* Pass One open to Managerial Economics (AMGE) and Animal Science & Management Majors (AANM) and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 133 – Introduction to Behavioral Economics (4 units)**

This version has ended; see updated course, below.

*Course Description:* Inclusion of non-economic factors such as psychological principles in economic decisions and model predictions. Emphasis on behavioral principles, resulting strategies and implications for diverse market settings.

*Prerequisite(s):* (ECN 001A C- or better or ECN 001AV C- or better); (STA 013 C- or better or STA 013Y C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors.

*Grade Mode:* Letter.

**ARE 133 – Introduction to Behavioral Economics (4 units)**

*Course Description:* Inclusion of non-economic factors such as psychological principles in economic decisions and model predictions. Emphasis on behavioral principles, resulting strategies and implications for diverse market settings.

*Prerequisite(s):* (ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better); (STA 013 C- or better or STA 013Y C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors.

*Grade Mode:* Letter.

This course version is effective from, and including: Fall Quarter 2022.

**ARE 135 – Agribusiness Marketing Plan Development (2 units)**

*Course Description:* Fundamental components required to develop a marketing plan. Appreciation of the concept of marketing plans, appropriate research required, including the use of library, Internet, survey and interview instruments, government documents, market analysis, business proposition, action planning, financial evaluation and monitoring.

*Prerequisite(s):* Upper division standing.

*Learning Activities:* Lecture/Discussion 2 hour(s).

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

**ARE 136 – Managerial Marketing (4 units)**

*Course Description:* Application of economic theory and econometrics to the study of marketing and consumer research. Emphasis on industry structure, history, regulatory aspects, integrated brand promotion, market segmentation, optimal product mix, message placement.

*Prerequisite(s):* ARE 100B C- or better; ARE 106 C- or better; ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 138 – International Commodity & Resource Markets (4 units)**

*Course Description:* Basic nature and scope of international trade in agricultural commodities, agricultural inputs, and natural resources. Market dimensions and policy institutions. Case studies to illustrate import and export problems associated with different regions and commodities.

*Prerequisite(s):* ARE 100A C- or better; ARE 100B C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 139 – Futures & Options Markets (4 units)**

*Course Description:* History, mechanics, and economic functions of futures and options markets; hedging; theory of inter-temporal price formation and behavior of futures and options prices; price forecasting; futures and options as policy tools.

*Prerequisite(s):* ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 140 – Farm Management (4 units)**

This version has ended; see updated course, below.

*Course Description:* Farm organization and resources; economic and technological principles in decision making; analytical techniques and management control; problems in organizing and managing the farm business.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AV C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 140 – Farm Management (4 units)**

*Course Description:* Farm organization and resources; economic and technological principles in decision making; analytical techniques and management control; problems in organizing and managing the farm business.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 140 – Farm Management (4 units)**

*Course Description:* Farm organization and resources; economic and technological principles in decision making; analytical techniques and management control; problems in organizing and managing the farm business. Irregularly offered.

*Prerequisite(s):* ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Spring Quarter 2023.

**ARE 142 – Personal Finance (3 units)**

This version has ended; see updated course, below.

*Course Description:* Management of income and expenditures by the household. Use of consumer credit, savings, and insurance by households. Principles of tax, retirement, and estate planning.

*Prerequisite(s):* ECN 001B.

*Learning Activities:* Lecture 3 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 142 – Personal Finance (3 units)**

*Course Description:* Management of income and expenditures by the household. Use of consumer credit, savings, and insurance by households. Principles of tax, retirement, and estate planning.

*Prerequisite(s):* ECN 001B or ECN 001BV.

*Learning Activities:* Lecture 3 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 143 – Investments (4 units)**

*Course Description:* Survey of investment institutions, sources of investment information, and portfolio theory. Analysis of the stock, bond and real estate markets from the perspective of the investor.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to upper division Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Credit Limitation(s):* Not open for credit to students concurrently enrolled in or have completed ARE 171 or ARE 171A.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 144 – Real Estate Economics (4 units)**

*Course Description:* Economic theory, analysis, and institutions of real estate markets and related financial markets. Techniques for appraising property values. Cases drawn from the raw land, single family, multifamily, industrial and office real estate markets.

*Prerequisite(s):* ARE 100A C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 145 – Farm & Rural Resources Appraisal (4 units)**

*Course Description:* Principles and procedures of the valuation process with emphasis placed on rural real estate. Includes identification of the major physical and economic determinants of value, the three primary appraisal approaches to valuation, discussion of appraisal activity and practice.

*Learning Activities:* Lecture/Discussion 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 146 – Business, Government Regulation, & Society (4 units)**

*Course Description:* Variety, nature and impact of government regulation: anti-trust laws and economic and social regulation. Nature of the legislative process, promulgation of regulations, and their impact, especially as analyzed by economists.

*Prerequisite(s):* ARE 100A C- or better; ARE 100B C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); American Cultures, Governance, & History (ACGH).

**ARE 147 – Resource & Environment Policy Analysis (3 units)**

This version has ended; see updated course, below.

*Course Description:* 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; private and public resource use problems; and public issues.

*Prerequisite(s):* ECN 001A or ECN 001AV.

*Learning Activities:* Lecture 3 hour(s).

*Enrollment Restriction(s):* Open to non-majors only.

*Credit Limitation(s):* Students who have had or are taking ARE 100A, ECN 100, or the equivalent, may receive only 2 units of credit, so must enroll in ARE 147M instead.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 147 – Resource & Environment Policy Analysis (3 units)**

*Course Description:* 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; private and public resource use problems; and public issues.

*Prerequisite(s):* ECN 001A or ECN 001AY or ECN 001AV.

*Learning Activities:* Lecture 3 hour(s).

*Enrollment Restriction(s):* Open to non-majors only.

*Credit Limitation(s):* Students who have had or are taking ARE 100A, ECN 100, or the equivalent, may receive only 2 units of credit, so must enroll in ARE 147M instead.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 147 – Resource & Environment Policy Analysis (3 units)**

*Course Description:* 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; private and public resource use problems; and public issues. Not currently offered.

*Prerequisite(s):* ECN 001A or ECN 001AY or ECN 001AV.

*Learning Activities:* Lecture 3 hour(s).

*Enrollment Restriction(s):* Open to non-majors only.

*Credit Limitation(s):* Students who have had or are taking ARE 100A, ECN 100, or the equivalent, may receive only 2 units of credit, so must enroll in ARE 147M instead.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Spring Quarter 2023.

**ARE 147M – Resource & Environmental Policy Analysis (2 units)**

This version has ended; see updated course, below.

*Course Description:* 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; private and public resource use problems; and public issues.

*Prerequisite(s):* ECN 001A or ECN 001AV.

*Learning Activities:* Lecture 3 hour(s).

*Enrollment Restriction(s):* Open to non-majors only.

*Credit Limitation(s):* Students who have had or are taking ARE 100A, ECN 100, or the equivalent, must enroll in this course for 2 units rather than ARE 147.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 147M – Resource & Environmental Policy Analysis (2 units)**

*Course Description:* 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; private and public resource use problems; and public issues.

*Prerequisite(s):* ECN 001A or ECN 001AY or ECN 001AV.

*Learning Activities:* Lecture 3 hour(s).

*Enrollment Restriction(s):* Open to non-majors only.

*Credit Limitation(s):* Students who have had or are taking ARE 100A, ECN 100, or the equivalent, must enroll in this course for 2 units rather than ARE 147.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ARE 147M – Resource & Environmental Policy Analysis (2 units)**

*Course Description:* 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; private and public resource use problems; and public issues. Not currently offered.

*Prerequisite(s):* ECN 001A or ECN 001AY or ECN 001AV.

*Learning Activities:* Lecture 3 hour(s).

*Enrollment Restriction(s):* Open to non-majors only.

*Credit Limitation(s):* Students who have had or are taking ARE 100A, ECN 100, or the equivalent, must enroll in this course for 2 units rather than ARE 147.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Spring Quarter 2023.

**ARE 150 – Agricultural Labor (4 units)**

*Course Description:* Analysis of labor markets with focus on U.S. and world agriculture. Labor supply, demand, market equilibrium; why farm labor markets are different; global trends in farm labor; U.S. farm labor history; unions and collective bargaining; immigration policy.

*Prerequisite(s):* ARE 100A C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).



### **ARE 155 – Operations Research & Management Science (4 units)**

*Course Description:* Introduction to quantitative methods used to analyze business and economic processes: decision analysis for management, mathematical programming, competitive analysis, and other methods.

*Prerequisite(s):* ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) and Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

### **ARE 156 – Introduction to Mathematical Economics (4 units)**

This version has ended; see updated course, below.

*Course Description:* Linear algebra for economists; necessary and sufficient conditions in static optimization problems; implicit function theorem; economic methodology and mathematics; comparative statics; envelope theorem; Le Chatelier principle; applications to production and consumer models.

*Prerequisite(s):* ARE 100B; ARE 155; ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

### **ARE 156 – Introduction to Mathematical Economics (4 units)**

*Course Description:* Linear algebra for economists; necessary and sufficient conditions in static optimization problems; implicit function theorem; economic methodology and mathematics; comparative statics; envelope theorem; Le Chatelier principle; applications to production and consumer models. Not currently offered.

*Prerequisite(s):* ARE 100B; ARE 155; ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

This course version is effective from, and including: Spring Quarter 2023.

### **ARE 157 – Analysis for Operations & Production Management (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 155 C- or better; ARE 100A C- or better; (STA 013 C- or better or STA 013Y C- or better); STA 103 C- or better.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE), Animal Science & Management (AANM) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 165 – Emerging Economies & Globalization (4 units)**

This version has ended; see updated course, below.

*Course Description:* Economic drivers and policy challenges in the major emerging markets, with an emphasis on the effects of rising incomes, population growth, urbanization, and relative wages on world markets and natural resources.

*Prerequisite(s):* ARE 100A C- or better; ARE 115A; ARE 115B; completion of ARE 106 ECN 162 strongly recommended.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics and graduate majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ARE 165 – Emerging Economies & Globalization (4 units)**

*Course Description:* Economic drivers and policy challenges in the major emerging markets, with an emphasis on the effects of rising incomes, population growth, urbanization, and relative wages on world markets and natural resources. Not currently offered.

*Prerequisite(s):* ARE 100A C- or better; ARE 115A; ARE 115B; completion of ARE 106 & ECN 162 strongly recommended.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics and graduate majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Spring Quarter 2023.

### **ARE 166 – Economics of Global Poverty Reduction: What Works & Why (4 units)**

This version has ended; see updated course, below.

*Course Description:* Application of microeconomic theory and econometrics to understand causes of poverty and critically evaluate poverty alleviation policies in low income countries.

*Prerequisite(s):* (ARE 100B C- or better or ECN 100B C- or better); (ARE 106 C- or better or ECN 140 C- or better); (ARE 115A C- or better or ECN 115A C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) and Economics (LECN) majors only.

*Grade Mode:* Letter.

### **ARE 166 – Economics of Global Poverty Reduction: What Works & Why (4 units)**

*Course Description:* Application of microeconomic theory and econometrics to understand causes of poverty and critically evaluate poverty alleviation policies in low income countries. Irregularly offered.

*Prerequisite(s):* (ARE 100B C- or better or ECN 100B C- or better); (ARE 106 C- or better or ECN 140 C- or better); (ARE 115A C- or better or ECN 115A C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) and Economics (LECN) majors only.

*Grade Mode:* Letter.

This course version is effective from, and including: Spring Quarter 2023.

**ARE 171 – Principles of Finance (4 units)**

*Course Description:* Principles of corporate financial management. Time value of money, interest rates, principles of valuation, NPV, risk and return, and cost of capital.

*Prerequisite(s):* ARE 100A C- or better; ARE 106 C- or better; MGT 011A C- or better; MGT 011B C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics Majors and Agricultural & Resource Economics Graduate Majors.

*Credit Limitation(s):* Not open for credit to students who have completed ECN 134.

*Grade Mode:* Letter.

**ARE 172 – Financial Management of the Firm (4 units)**

*Course Description:* Financial analysis at the firm level: optimizing capital structure; minimizing the cost of capital; dividend policies; mergers and acquisitions; real options; and risk management.

*Prerequisite(s):* ARE 171 C- or better; ARE 106 C- or better; ARE 100A C- or better; MGT 011A C- or better; MGT 011B C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics Majors and Agricultural & Resource Economics Graduate Majors.

*Grade Mode:* Letter.

**ARE 173 – Capital Markets (4 units)**

*Course Description:* Introduction to asset pricing. Valuation and risk characteristics of financial assets, including stocks, bonds, futures, and options. Investors' attitudes toward risk, capital allocation, portfolio selection, the capital asset pricing model, and the efficient market hypothesis.

*Prerequisite(s):* ARE 171 C- or better; ARE 106 C- or better; ARE 100A C- or better; MGT 011A C- or better; MGT 011B C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics majors and Agricultural & Resource Economics Graduate Majors.

*Grade Mode:* Letter.

**ARE 175 – Natural Resource Economics (4 units)**

*Course Description:* 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, soil).

*Prerequisite(s):* ARE 100A C- or better or ECN 100A C- or better or ECN 100 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) and Environmental Policy Analysis & Planning (AEPP) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Cross Listing:* ESP 175.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 176 – Environmental Economics (4 units)**

*Course Description:* 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 the benefits of environmental improvement.

*Prerequisite(s):* ARE 100A C- or better or ECN 100A C- or better or ECN 100 C- or better.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Managerial Economics (AMGE) Majors and Agricultural & Resource Economics (GARE) Graduate Majors.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 190 – Topics in Managerial Economics (3 units)**

*Course Description:* Selected topics in managerial economics, focusing on current research.

*Prerequisite(s):* ARE 100A; STA 103; and consent of instructor.

*Learning Activities:* Lecture 3 hour(s).

*Repeat Credit:* May be repeated 4 time(s) when the topic differs.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ARE 192 – Internship (1-6 units)**

*Course Description:* Internship experience off and on campus in all subject areas offered in the Department of Agricultural & Resource Economics.

Internships are supervised by a member of the staff.

*Learning Activities:* Internship 3-18 hour(s).

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

**ARE 194HA – Special Study for Honors Students (4 units)**

*Course Description:* A program of research culminating in the writing of a senior honors thesis under the direction of a faculty advisor.

*Prerequisite(s):* ARE 100B; ARE 106; ARE 155 (can be concurrent); and consent of instructor; minimum GPA of 3.500; major in Agricultural Managerial Economics or Managerial Economics; senior standing.

*Learning Activities:* Independent Study 3 hour(s), Seminar 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL); Writing Experience (WE).

**ARE 194HB – Special Study for Honors Students (4 units)**

*Course Description:* A program of research culminating in the writing of a senior honors thesis under the direction of a faculty advisor.

*Prerequisite(s):* ARE 100B; ARE 106; ARE 155 (can be concurrent); minimum GPA of 3.500; major in Agricultural Managerial Economics or Managerial Economics; senior standing.

*Learning Activities:* Independent Study 3 hour(s), Seminar 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL); Writing Experience (WE).

### **ARE 197T – Tutoring in Managerial Economics (1-3 units)**

*Course Description:* Undergraduates assist the instructor by tutoring students in one of the department's regularly scheduled courses.

*Prerequisite(s):* Senior standing in Managerial Economics and consent of Department Chairperson.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

### **ARE 198 – Directed Group Study (1-5 units)**

*Course Description:* Directed group study. May be taught abroad.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

### **ARE 199 – Special Study for Advanced Undergraduates (1-5 units)**

*Course Description:* Special study for advanced undergraduates.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

*General Education:* Social Sciences (SS).

### **ARE 200A – Microeconomic Theory (4 units)**

*Course Description:* Linear and non-linear optimization theory applied to develop the theory of the profit-maximizing firm and the utility-maximizing consumer.

*Prerequisite(s):* Graduate standing.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 200A.

*Grade Mode:* Letter.

### **ARE 200B – Microeconomic Theory (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 200A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 200B.

*Grade Mode:* Letter.

### **ARE 200C – Microeconomic Theory (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 200B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 200C.

*Grade Mode:* Letter.

### **ARE 202A – Introduction to Applied Research Methods (3 units)**

This version has ended; see updated course, below.

*Course Description:* Study of philosophy and methodology of applied research in agricultural economics. Methods of conceptualization of researchable topics. Method of communication and constructive criticism.

*Prerequisite(s):* ARE 204A; ARE 200A (can be concurrent); ARE 256A.

*Learning Activities:* Lecture/Discussion 3 hour(s).

*Grade Mode:* Letter.

### **ARE 202A – Introduction to Applied Research Methods (4 units)**

*Course Description:* Study of philosophy and methodology of applied research in agricultural economics. Methods of conceptualization of researchable topics. Method of communication and constructive criticism.

*Prerequisite(s):* ARE 204A; ARE 200A (can be concurrent); ARE 256A.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

This course version is effective from, and including: Spring Quarter 2023.

### **ARE 202B – Applied Microeconomics: Consumer & Producer Behavior (4 units)**

*Course Description:* 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 equilibrium displacement models.

*Prerequisite(s):* ARE 200A; ARE 200B (can be concurrent); ARE 202A.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

### **ARE 202C – Research Design for Applied Microeconomics (4 units)**

*Course Description:* Third of three courses in the Ph.D. level applied microeconomics sequence. Examines the design of empirical research and the application of econometric theory.

*Prerequisite(s):* ARE 202B; ARE 240A.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

### **ARE 204A – Microeconomic Analysis I (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 100B or ECN 100; advanced undergraduates with consent of instructor.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

### **ARE 204B – Microeconomic Analysis II (4 units)**

*Course Description:* Behavior in imperfectly competitive markets—monopoly and price discrimination; oligopoly. Introduction to noncooperative game theory. Analysis of decisions made under risk and uncertainty and imperfect information. The economics of externalities and public goods.

*Prerequisite(s):* ARE 204A; or consent of instructor.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 214 – Development Economics (4 units)**

*Course Description:* Review of the principal theoretical and empirical issues whose analysis has formed development economics. Analysis of economic development theories and development strategies and their application to specific policy issues in developing country contexts.

*Prerequisite(s):* ARE 100A; ARE 100B; ECN 101; ARE 204A and ECN 160A, ECN 160B recommended.

*Learning Activities:* Lecture 4 hour(s).

*Cross Listing:* ECN 214.

*Grade Mode:* Letter.

**ARE 215A – Microdevelopment Theory & Methods I (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 200A or ARE 204A; ARE 240A recommended.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 215A.

*Grade Mode:* Letter.

**ARE 215B – Open Macroeconomics of Development (4 units)**

*Course Description:* Models and policy approaches regarding trade, monetary and fiscal issues, capital flows and debt are discussed in the macroeconomic framework of an open developing country. Basic analytical focus is real exchange rate and its impact on sectoral allocation of resources.

*Prerequisite(s):* (ARE 200A or ARE 204A); (ARE 214 or ARE 215A); (ARE 200D or ARE 205).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 215B.

*Grade Mode:* Letter.

**ARE 215C – Microdevelopment Theory & Methods II (4 units)**

*Course Description:* Extension of development theory and microeconomic methods. Agricultural growth and technological change; poverty and income inequality; multisectoral, including village and regional models. Computable general equilibrium methods and applications.

*Prerequisite(s):* ARE 215A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 215C.

*Grade Mode:* Letter.

**ARE 215D – Environmental & Economic Development (4 units)**

*Course Description:* Interdisciplinary course drawing on theoretical and empirical research on interactions between environmental resource use and economic development processes. Analysis of issues emerging at the interface of environmental and development economics.

*Prerequisite(s):* ARE 200A; (ARE 204A or ARE 275).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 215D.

*Grade Mode:* Letter.

**ARE 222 – International Agricultural Trade & Policy (4 units)**

*Course Description:* 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.

*Prerequisite(s):* (ARE 100B or ARE 204A); ECN 160A; or the equivalent of ECN 160A.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 223 – Economics of Agriculture (4 units)**

*Course Description:* 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 understanding of the economics of agriculture, agricultural issues, and related government policies.

*Prerequisite(s):* ARE 204A (can be concurrent); ARE 256A (can be concurrent); or equivalent course(s) completed or concurrent required.

*Learning Activities:* Lecture 4 hour(s).

*Enrollment Restriction(s):* Open to M.S. students in Agricultural & Resource Economics; Ph.D. students in Agricultural & Resource Economics and qualified students from other UC Davis graduate groups/programs.

*Grade Mode:* Letter.

**ARE 231 – Supply & Demand for Agricultural Products (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 200A; ARE 202A; ARE 240A; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ARE 232 – Agricultural Commodity Markets (4 units)**

*Course Description:* Economic analysis of industries that produce, market, transport, store, and process basic commodities. Analysis of market equilibrium under perfect and imperfect competition, with and without government involvement.

*Prerequisite(s):* ARE 200A; ARE 202A; ARE 240A; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ARE 233 – Agricultural Policy (4 units)**

*Course Description:* Nature, formation, evolution, and institutions of economic policy applied to food, agricultural, and rural issues. Examples for detailed consideration include food security, commodity issues, and trade policy. Analytical approaches include static and dynamic welfare analysis, policy design, and political-economic analysis.

*Prerequisite(s):* ARE 200A; ARE 202A; ARE 240A; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ARE 239 – Econometric Foundations (4 units)**

*Course Description:* Prepares 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.

*Prerequisite(s):* Graduate standing or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 239.

*Grade Mode:* Letter.

**ARE 240A – Econometric Methods (4 units)**

*Course Description:* Least squares, instrumental variables, and maximum likelihood estimation and inference for single equation linear regression model; linear restrictions; heteroskedasticity; autocorrelation; lagged dependent variables.

*Prerequisite(s):* ARE 239; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 240A.

*Grade Mode:* Letter.

**ARE 240B – Econometric Methods (4 units)**

*Course Description:* Topics include asymptotic theory and instrumental variables, pooled time-series cross-section estimation, seemingly unrelated regression, classical hypothesis tests, identification and estimation of simultaneous equation models, cointegration, errorcorrection models, and qualitative and limited dependent variable models.

*Prerequisite(s):* ARE 240A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 240B.

*Grade Mode:* Letter.

**ARE 240C – Time Series Econometrics (4 units)**

*Course Description:* Probability theory; estimation, inference and forecasting of time series models; trends and non-standard asymptotic theory; vector time series methods and cointegration; time series models for higher order moments and transition data; state-space modeling; the Kalman filter.

*Prerequisite(s):* ARE 240B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 240C.

*Grade Mode:* Letter.

**ARE 240D – Cross Section Econometrics (4 units)**

*Course Description:* Estimation and inference for nonlinear regression models for cross-section data; models for discrete data and for limited dependent variables; models for panel data; additional topics such as bootstrap and semiparametric regression.

*Prerequisite(s):* ARE 240B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 240D.

*Grade Mode:* Letter.

**ARE 240E – Topics in Time Series Econometrics (4 units)**

*Course Description:* Modern econometric techniques for time series data. Expand on topics covered in ECN 240A, ECN 240B and ECN 240C. Contents vary from year to year.

*Prerequisite(s):* ARE 240C; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 240E.

*Grade Mode:* Letter.

**ARE 240F – Topics in Cross Section Econometrics (4 units)**

*Course Description:* Modern econometrics techniques for cross-section data. Expand on topics covered in ECN 240A, ECN 240B and ECN 240D. Contents vary from year to year.

*Prerequisite(s):* ARE 240D; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ECN 240F.

*Grade Mode:* Letter.

**ARE 252 – Optimization with Economic Applications (4 units)**

*Course Description:* Microeconomic topics in the framework of mathematical programming.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ARE 254 – Dynamic Optimization Techniques with Economic Applications (4 units)**

*Course Description:* Necessary and sufficient conditions in the calculus of variations and optimal control, economic interpretations, the dynamic envelope theorem and transversality conditions, infinite horizon problems and phase diagrams, local stability and comparative statics of the steady state, comparative dynamics.

*Prerequisite(s):* Elementary knowledge of ordinary differential equations.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 255 – Applied Dynamic Structural Econometric Modeling (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ARE 254.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 256A – Applied Econometrics I (4 units)**

*Course Description:* First of two courses in the Masters-level econometrics sequence. The linear regression model and generalizations are applied to topics in applied economics. Tools for empirical research for problems requiring more sophisticated tools than standard regression models are emphasized.

*Prerequisite(s):* ARE 106 or ECN 140; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ARE 256B – Applied Econometrics II (4 units)**

*Course Description:* Second of two courses in the Masters-level econometrics sequence. The linear regression model and generalizations are applied to a variety of topics in applied economics. Tools for empirical research for problems requiring more sophisticated tools than standard regression models are emphasized.

*Prerequisite(s):* ARE 256A; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ARE 258 – Demand & Market Analysis (4 units)**

*Course Description:* Application of theoretical material covered in ECN 204A and ECN 204B, with particular focus on production theory/factor demand and imperfect competition/market power. Use of theoretical models as a foundation for empirical economic analysis, and empirical exercises. Independent research on chosen topics, with empirical application.

*Prerequisite(s):* ARE 204B; ARE 256B; or consent of instructor.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 271 – Financial Economics (4 units)**

*Course Description:* Risk, aversion, choice under uncertainty. Arrow-Debreu securities. Valuation and risk characteristics of financial assets, capital allocation, portfolio selection, Capital Asset Pricing Model, efficient market hypothesis. Applications to topics in agricultural, resource and development economics.

*Prerequisite(s):* ARE 204A; ARE 256A.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 275 – Economic Analysis of Resource & Environmental Policies (4 units)**

*Course Description:* Development of externality theory, market failure concepts, welfare economics, theory of renewable and non-renewable resource use, and political economic models. Applications to policy issues regarding the agricultural/environment interface and managing resources in the public domain.

*Prerequisite(s):* ARE 204A.

*Learning Activities:* Lecture/Discussion 4 hour(s).

*Cross Listing:* ESP 275.

*Grade Mode:* Letter.

**ARE 276A – Environmental Economics: Externalities (4 units)**

*Course Description:* Introduces fundamental and recent research in environmental economics, focusing on the design, implementation and evaluation of environmental policy instruments to correct market failures. Exposure to economic theories and empirical techniques frequently used in this field.

*Prerequisite(s):* Students should have completed the first year graduate level sequence in microeconomics and econometrics.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 276B – Environmental Economics: Non-Market Valuation (4 units)**

*Course Description:* Second Ph.D. field course in environmental economics, covering theory and econometrics of methods for valuing non-market goods and environmental quality changes. Topics include revealed preference (travel cost, hedonics, sorting equilibrium) and stated preference (contingent valuation, choice experiments, conjoint analysis) techniques.

*Prerequisite(s):* Students should have completed the first year graduate level sequence in microeconomics and econometrics.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 277 – Natural Resource Economics (4 units)**

*Course Description:* Application of capital theory and dynamic methods to issues of optimal use of renewable and nonrenewable resources. Examination of policy issues associated with forests, fisheries, groundwater, energy resources, watersheds, soil, global climate, and wildlife.

*Prerequisite(s):* ARE 254; or consent of instructor.

*Learning Activities:* Lecture 4 hour(s).

*Grade Mode:* Letter.

**ARE 290 – Topics in Agricultural & Resource Economics (3 units)**

*Course Description:* Selected topics in agricultural and resource economics, focusing on current research.

*Learning Activities:* Lecture 3 hour(s).

*Repeat Credit:* May be repeated 4 time(s).

*Grade Mode:* Letter.

**ARE 293 – Analysis of California Agriculture & Resources (3 units)**

*Course Description:* 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. Fieldwork-45 hours total, including one five-day summer field trip.

*Learning Activities:* Lecture 1.50 hour(s), Fieldwork 45 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

**ARE 298 – Directed Group Study (1-5 units)**

*Course Description:* 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 & Regional Development; (4) Natural Resources; (5) Human Resources; (6) Research Methods & Quantitative Analysis.

*Learning Activities:* Variable.

*Grade Mode:* Letter.

**ARE 299 – Individual Study (1-12 units)**

*Course Description:* Sections: (1) Managerial Economics; (2) Agricultural Policy; (3) Community & Regional Development; (4) Natural Resources; (5) Human Resources; (6) Research Methods & Quantitative Analysis; and (7) Dissertation Research Prospectus.

*Learning Activities:* Variable.

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **ARE 299D – Special Study for Doctoral Dissertation (1-12 units)**

This version has ended; see updated course, below.

*Course Description:* Special study for doctoral dissertation.

*Learning Activities:* Variable.

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **ARE 299D – Special Study for Doctoral Dissertation (1-12 units)**

*Course Description:* Special study for doctoral dissertation.

*Learning Activities:* Variable.

*Repeat Credit:* May be repeated.

*Grade Mode:* Satisfactory/Unsatisfactory only.

This course version is effective from, and including: Winter Quarter 2023.

### **ARE 396 – Teaching Assistant Training Practicum (1-4 units)**

*Course Description:* Teaching assistant training practicum.

*Prerequisite(s):* Graduate standing.

*Learning Activities:* Variable 3-36 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Pass/No Pass only.

## **Economics (ECN)**

### **ECN 001A – Principles of Microeconomics (4 units)**

*Course Description:* ECN 001A & ECN 001B may be taken in either order.

Analysis of the allocation of resources and the distribution of income through a price system; competition and monopoly; the role of public policy; comparative economic systems.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); American Cultures, Governance, & History (ACGH); Quantitative Literacy (QL).

### **ECN 001AV – Principles of Microeconomics (4 units)**

*Course Description:* Analysis of the allocation of resources and the distribution of income through a price system; competition and monopoly; the role of public policy; comparative economic systems.

*Learning Activities:* Web Virtual Lecture 3 hour(s), Web Electronic Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students who have taken ECN 001A.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); American Cultures, Governance, & History (ACGH); Quantitative Literacy (QL).

### **ECN 001AY – Principles of Microeconomics (4 units)**

*Course Description:* Analysis of the allocation of resources and the distribution of income through a price system; competition and monopoly; the role of public policy; comparative economic systems.

*Learning Activities:* Web Virtual Lecture 1.5 hour(s), Lecture 1.5 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); American Cultures, Governance, & History (ACGH); Quantitative Literacy (QL).

### **ECN 001B – Principles of Macroeconomics (4 units)**

*Course Description:* ECN 001A & ECN 001B may be taken in either order.

Analysis of the economy as a whole; determinants of the level of income, employment and prices; money and banking, economic fluctuations, international trade, economic development; the role of public policy.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); American Cultures, Governance, & History (ACGH); Quantitative Literacy (QL).

### **ECN 001BV – Principles of Macroeconomics (4 units)**

*Course Description:* Analysis of the economy as a whole; determinants of the level of income, employment and prices; money and banking, economic fluctuations, international trade, economic development; the role of public policy.

*Learning Activities:* Web Virtual Lecture 3 hour(s), Web Electronic Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); American Cultures, Governance, & History (ACGH); Quantitative Literacy (QL).

### **ECN 090X – Lower Division Seminar (1-2 units)**

*Course Description:* Examination of a special topic in Economics through shared readings, discussions, and written assignments.

*Prerequisite(s):* Consent of instructor. Lower division standing.

*Learning Activities:* Seminar 1-2 hour(s).

*Enrollment Restriction(s):* Limited enrollment.

*Grade Mode:* Letter.

### **ECN 092 – Internship & Field Work (1-12 units)**

*Course Description:* Intensive study of practical application of concepts in economics, stressing research methods and empirical analysis.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Internship 3-36 hour(s), Term Paper.

*Grade Mode:* Pass/No Pass only.

### **ECN 098 – Group Study for Undergraduates (1-5 units)**

*Course Description:* Primarily for lower division students.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

### **ECN 099 – Individual Study for Undergraduates (1-5 units)**

*Course Description:* Individual study for undergraduates.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

### **ECN 100A – Intermediate Micro Theory: Consumer & Producer Theory (4 units)**

This version has ended; see updated course, below.

*Course Description:* Consumer and producer theory. Equilibrium and welfare analysis. Topics include competitive markets, consumer and producer surplus at an intermediate level.

*Prerequisite(s):* (ECN 001A C- or better or ECN 001AV C- or better); ECN 001B C- or better; (MAT 016A C- or better or MAT 017A C- or better or MAT 021A C- or better); (MAT 016B C- or better or MAT 017B C- or better or MAT 021B C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students that have taken ARE 100A or ECN 100.

*Grade Mode:* Letter.

### **ECN 100A – Intermediate Micro Theory: Consumer & Producer Theory (4 units)**

*Course Description:* Consumer and producer theory. Equilibrium and welfare analysis. Topics include competitive markets, consumer and producer surplus at an intermediate level.

*Prerequisite(s):* (ECN 001A C- or better or ECN 001AY C- or better or ECN 001AV C- or better); (ECN 001B C- or better, or ECN 001BV C- or better); (MAT 016A C- or better or MAT 017A C- or better or MAT 021A C- or better); (MAT 016B C- or better or MAT 017B C- or better or MAT 021B C- or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students that have taken ARE 100A or ECN 100.

*Grade Mode:* Letter.

This course version is effective from, and including: Fall Quarter 2022.

### **ECN 100B – Intermediate Micro Theory: Imperfect Competition & Market Failure (4 units)**

*Course Description:* Imperfect competition and market failure. Topics include exchange, monopoly, game theory, uncertainty, asymmetric information, and public goods.

*Prerequisite(s):* ECN 100A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students that have taken ARE 100B.

*Grade Mode:* Letter.

### **ECN 101 – Intermediate Macro Theory (4 units)**

This version has ended; see updated course, below.

*Course Description:* Theory of income, employment and prices under static and dynamic conditions, and long term growth.

*Prerequisite(s):* (ECN 001A C- or better or ECN 001AV C- or better); ECN 001B C- or better; ((MAT 016A C- or better, MAT 016B C- or better) or (MAT 021A C- or better, MAT 021B C- or better) or (MAT 017A C- or better, MAT 017B C- or better)).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### **ECN 101 – Intermediate Macro Theory (4 units)**

*Course Description:* Theory of income, employment and prices under static and dynamic conditions, and long term growth.

*Prerequisite(s):* (ECN 001A C- or better or ECN 001AV C- or better); (ECN 001B C- or better, or ECN 001BV C- or better); ((MAT 016A C- or better, MAT 016B C- or better) or (MAT 021A C- or better, MAT 021B C- or better) or (MAT 017A C- or better, MAT 017B C- or better)).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

This course version is effective from, and including: Fall Quarter 2022.

### **ECN 102 – Analysis of Economic Data (4 units)**

This version has ended; see updated course, below.

*Course Description:* Analysis of economic data to investigate key relationships emphasized in introductory micro and macro economics. Obtaining, transforming, displaying data; statistical analysis of economic data; basic univariate and multivariate regression analysis.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B; (STA 013 or STA 013Y or STA 032); (MAT 016A or MAT 017A or MAT 021A); (MAT 016B or MAT 017B or MAT 021B); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ECN 102 – Analysis of Economic Data (4 units)**

*Course Description:* Analysis of economic data to investigate key relationships emphasized in introductory micro and macro economics. Obtaining, transforming, displaying data; statistical analysis of economic data; basic univariate and multivariate regression analysis.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV); (STA 013 or STA 013Y or STA 032); (MAT 016A or MAT 017A or MAT 021A); (MAT 016B or MAT 017B or MAT 021B); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

### **ECN 103 – Economics of Uncertainty & Information (4 units)**

*Course Description:* Optimal decisions under uncertainty, expected utility theory, economics of insurance, asymmetric information, signalling in the job market, incentives and Principal-Agent theory, optimal search strategies and the reservation price principle.

*Prerequisite(s):* (ECN 100 or ECN 100A or (ARE 100A, ARE 100B)), ECN 100B, (MAT 016A or MAT 017A or MAT 021A), (MAT 016B or MAT 017B or MAT 021B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.



### ECN 106 – Decision Making (4 units)

*Course Description:* Descriptive and normative analysis of individual decision making, with applications to personal, professional, financial, and public policy decisions. Emphasis on decision making under uncertainty and over time. Heuristics and biases in the psychology of decisions; overcoming decision traps.

*Prerequisite(s):* ((MAT 016A C- or better, MAT 016B C- or better) or (MAT 017A C- or better, MAT 017B C- or better) or (MAT 021A C- or better, MAT 021B C- or better)); (STA 013 C- or better or STA 013Y C- or better or STA 032 C- or better); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### ECN 107 – Neuroeconomics/Reinforcement Learning & Decision Making (4 units)

*Course Description:* Theoretical and empirical approaches to neuroeconomics (neuroscience of decision making) from psychology, neuroscience, economics, and computer science. Neuroscience of judgment and decision making, behavioral economics, and reinforcement learning.

*Prerequisite(s):* (PSC 100 or PSC 100Y or PSC 135 or ARE 100A or ECN 100A or NPB 162 or NPB 163); (STA 013 or STA 013Y or STA 100 or PSC 103A); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Term Paper.

*Cross Listing:* PSC 133, CGS 107.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Scientific Literacy (SL).

### ECN 110A – World Economic History Before the Industrial Revolution (4 units)

This version has ended; see updated course, below.

*Course Description:* Development and application of analytical models to explain the nature and functioning of economies before the Industrial Revolution. Examples will be drawn from a variety of societies, including England, China, Polynesia, and Pre-Columbian America.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### ECN 110A – World Economic History Before the Industrial Revolution (4 units)

*Course Description:* Development and application of analytical models to explain the nature and functioning of economies before the Industrial Revolution. Examples will be drawn from a variety of societies, including England, China, Polynesia, and Pre-Columbian America.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 100BV).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

### ECN 110B – World Economic History Since the Industrial Revolution (4 units)

This version has ended; see updated course, below.

*Course Description:* Development and application of analytical models to explain the nature and functioning of economies since the Industrial Revolution. Examples will be drawn from a variety of societies, including England, China, Germany, and India.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### ECN 110B – World Economic History Since the Industrial Revolution (4 units)

*Course Description:* Development and application of analytical models to explain the nature and functioning of economies since the Industrial Revolution. Examples will be drawn from a variety of societies, including England, China, Germany, and India.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

### ECN 111A – Economic History (4 units)

This version has ended; see updated course, below.

*Course Description:* Survey of economic change in the United States from Colonial times to 1865; reference to other regions in the Western Hemisphere.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### ECN 111A – Economic History (4 units)

*Course Description:* Survey of economic change in the United States from Colonial times to 1865; reference to other regions in the Western Hemisphere.

*Prerequisite(s):* (ECN 001A or OR ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ECN 111B – Economics History (4 units)**

This version has ended; see updated course, below.

*Course Description:* Survey of economic change in the United States from 1865 to the post World War II era.

*Prerequisite(s):* (ECN 001A or ECN 001AV) or ECN 001B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ECN 111B – Economics History (4 units)**

*Course Description:* Survey of economic change in the United States from 1865 to the post World War II era.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV) or (ECN 001B or ECN 001BV); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

This course version is effective from, and including: Fall Quarter 2022.

**ECN 115A – Economic Development (4 units)**

This version has ended; see updated course, below.

*Course Description:* Major issues encountered in emerging from international poverty, including problems of growth and structural change, human welfare, population growth and health, labor markets and internal migration. Important issues of policy concerning international trade and industrialization.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 115A.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

**ECN 115A – Economic Development (4 units)**

*Course Description:* Major issues encountered in emerging from international poverty, including problems of growth and structural change, human welfare, population growth and health, labor markets and internal migration. Important issues of policy concerning international trade and industrialization.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 115A.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

**ECN 115B – Economic Development (4 units)**

This version has ended; see updated course, below.

*Course Description:* Major macroeconomic issues of developing countries. Issues include problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Important issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 115B.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

**ECN 115B – Economic Development (4 units)**

*Course Description:* Major macroeconomic issues of developing countries. Issues include problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Important issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 115B.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

**ECN 115BY – Economic Development (4 units)**

This version has ended; see updated course, below.

*Course Description:* Macroeconomic issues of developing countries. Problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 1.50 hour(s), Web Virtual Lecture 1.50 hour(s), Term Paper.

*Enrollment Restriction(s):* Pass One open to Economics, Managerial Economics, and International Relations Majors.

*Cross Listing:* ARE 115BY.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

**ECN 115BY – Economic Development (4 units)**

*Course Description:* Macroeconomic issues of developing countries.

Problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Issues of policy concerning international borrowing and external debt of developing countries.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 1.50 hour(s), Web Virtual Lecture 1.50 hour(s), Term Paper.

*Enrollment Restriction(s):* Pass One open to Economics, Managerial Economics, and International Relations Majors.

*Cross Listing:* ARE 115BY.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

### ECN 116 – Comparative Economic Systems (4 units)

*Course Description:* Economics analysis of the relative virtues of capitalism and socialism, including welfare economics. Marxian exploitation theory, the socialist calculation debate (Hayek and Lange), alternative capitalist systems (Japan, Germany, U.S.) and contemporary models of market socialism.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* World Cultures (WC).

### ECN 117 – Economics of International Immigration (4 units)

This version has ended; see updated course, below.

*Course Description:* Introduction to research on the economics of immigration. Immigrant demographics and reasons for migrating. Immigrant success and effects on native populations. Influence of immigrants on those left behind. Discussion of migration policy in the US and other countries.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Lecture 3 hour(s), Discussion/Laboratory 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics majors only.

*Credit Limitation(s):* Not open for credit to students who have previously completed an upper division economics course in international immigration.

*Grade Mode:* Letter.

### ECN 117 – Economics of International Immigration (4 units)

*Course Description:* Introduction to research on the economics of immigration. Immigrant demographics and reasons for migrating. Immigrant success and effects on native populations. Influence of immigrants on those left behind. Discussion of migration policy in the US and other countries.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Lecture 3 hour(s), Discussion/Laboratory 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics majors only.

*Credit Limitation(s):* Not open for credit to students who have previously completed an upper division economics course in international immigration.

*Grade Mode:* Letter.

This course version is effective from, and including: Fall Quarter 2022.

### ECN 121A – Industrial Organization (4 units)

*Course Description:* Appraisal of the role of competition and monopoly in the American economy; market structure, conduct, and economic performance of a variety of industries.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### ECN 121B – Industrial Organization (4 units)

This version has ended; see updated course, below.

*Course Description:* Study of antitrust and economic regulation. Emphasis on applying theoretical models to U.S. industries and case studies, including telecommunications, software, and electricity markets. Topics include natural monopoly, optimal and actual regulatory mechanisms, deregulation, mergers, predatory pricing, and monopolization.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* American Cultures, Governance, & History (ACGH).

### ECN 121B – Industrial Organization (4 units)

*Course Description:* Study of antitrust and economic regulation. Emphasis on applying theoretical models to U.S. industries and case studies, including telecommunications, software, and electricity markets. Topics include natural monopoly, optimal and actual regulatory mechanisms, deregulation, mergers, predatory pricing, and monopolization.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B); ECN 102.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

*General Education:* American Cultures, Governance, & History (ACGH).

This course version is effective from, and including: Fall Quarter 2022.

### ECN 122 – Theory of Games & Strategic Behavior (4 units)

*Course Description:* Introduction to game theory. Explanation of the behavior of rational individuals with interacting and often conflicting interests. Non-cooperative and cooperative theory. Applications to economics, political science and other fields.

*Prerequisite(s):* (MAT 016A, MAT 016B) or (MAT 021A, MAT 021B) or (MAT 017A, MAT 017B); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### ECN 125 – Energy Economics (4 units)

*Course Description:* Application of theoretical and empirical models to examine efficiency in energy production and use. Energy and environmental policy, market structure and power, global climate change, optimal regulation, and real-world applications; e.g., California electricity crisis.

*Prerequisite(s):* ECN 100 or ECN 100A or ARE 100A; consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics Majors, Energy Systems, Transportation Technology & Policy, and Civil & Environmental Engineering Graduate students and Graduate School of Management.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### ECN 130 – Public Microeconomics (4 units)

*Course Description:* Public expenditures; theory and applications. Efficiency and equity of competitive markets; externalities, public goods, and market failures; positive and normative aspects of public policy for expenditure, including benefit-cost analysis. Topics include consumer protection, pollution, education, poverty and crime.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 131 – Public Finance (4 units)**

*Course Description:* Economic burden of taxation; equity and efficiency considerations in tax design; structure and economic effects of the U.S. tax system (including personal income tax, corporation income tax, and property tax); tax loopholes; recent developments; tax reform proposals.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 132 – Health Economics (4 units)**

*Course Description:* The health care market, emphasizing the role and use of economics. Individual demand, provision of services by doctors and hospitals, health insurance, managed care and competition, the role of government access to health care.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 102 or ECN 140 or ARE 106 or STA 108); ECN 100B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 133Y – Poverty, Inequality & Public Policy (4 units)**

This version has ended; see updated course, below.

*Course Description:* Examination of the economics of poverty and inequality in the United States, including measurement, trends, and related policies.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B.

*Learning Activities:* Web Virtual Lecture 2 hour(s), Discussion 2 hour(s).

*Enrollment Restriction(s):* Limited to 99; 3 sections of 33 each.

*Grade Mode:* Letter.

**ECN 133Y – Poverty, Inequality & Public Policy (4 units)**

*Course Description:* Examination of the economics of poverty and inequality in the United States, including measurement, trends, and related policies.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV).

*Learning Activities:* Web Virtual Lecture 2 hour(s), Discussion 2 hour(s).

*Enrollment Restriction(s):* Limited to 99; 3 sections of 33 each.

*Grade Mode:* Letter.

This course version is effective from, and including: Fall Quarter 2022.

**ECN 134 – Financial Economics (4 units)**

*Course Description:* General background and rationale of corporation; finance as resource allocation over time; decision making under uncertainty and the role of information; capital market and interest rate structure; financial decisions.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (STA 013 or STA 013Y); (ECN 100B or ARE 100B).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* No credit for students who have completed ARE 171A.

*Grade Mode:* Letter.

**ECN 135 – Money, Banks, & Financial Institutions (4 units)**

*Course Description:* Banks and the banking system. Uncertainty and asymmetric information in the lending process; efficiency of competitive equilibrium in lending markets. Regulation and the conduct of monetary policy.

*Prerequisite(s):* ECN 101; (STA 013 or STA 013Y).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 136 – Topics in Macroeconomic Theory (4 units)**

*Course Description:* Advanced Topics in macroeconomics theory. Develops the theoretical and empirical analysis of a specific field of macroeconomics. Possible topics include, business cycle theories, growth theory, monetary economics, political economics and theories of unemployment and inflation.

*Prerequisite(s):* ECN 101.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 137 – Macroeconomic Policy (4 units)**

*Course Description:* Theory and practice of macroeconomic policy, both monetary and fiscal.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 100B or ARE 100B); ECN 101; (STA 013 or STA 013Y).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 138 – Public Economics in International Perspective (4 units)**

*Course Description:* Social problems and government responses in developed and developing countries; health, unemployment, informal insurance, poverty, corruption, and public service delivery; emphasis on quantitative and data analysis skills; applications to real world policy problems.

*Prerequisite(s):* (ECN 100A or ECN 100 or ARE 100A); ECN 102.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics majors only.

*Credit Limitation(s):* Not open for credit to students who have previously completed an upper division economics course in international public economics.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); Quantitative Literacy (QL).

**ECN 140 – Econometrics (4 units)**

*Course Description:* Problems of observation, estimation and hypotheses testing in economics through the study of the theory and application of linear regression models. Critical evaluation of selected examples of empirical research and exercises in applied economics.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 102 or STA 108); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics Majors.

*Grade Mode:* Letter.

**ECN 141 – Economic & Financial Forecasting (4 units)**

*Course Description:* Introduction to economics and financial forecasting tools. Econometrics modeling methods and real-world data applications using the computing language R. Time-series techniques including auto-regression, random walk, and volatility forecasting. Financial econometrics topics including yield curve modeling and asset pricing.

*Prerequisite(s):* (ECN 100 or ECN 100A); ECN 101; (ECN 102 or STA 108); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics majors only.

*Grade Mode:* Letter.

### **ECN 142 – Economics & Business Data Analytics (4 units)**

*Course Description:* Introduction to economics and business data analytics. Statistical learning methods to analyze big data in economics and business data analysis. Statistical learning, linear regression, classification, resampling methods, and linear model selection and regularization.

*Prerequisite(s):* (ECN 100 or ECN 100A); (ECN 102 B or better or ECN 140 B or better).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open Economics majors only.

*Credit Limitation(s):* Not open for credit to students who have previously completed an upper division economics course in economics and business data analytics.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

### **ECN 145 – Transportation Economics (4 units)**

*Course Description:* Examination of fundamental problems of planning and financing transportation "infrastructure" (roads, ports, airports). Economics of the automobile industry, as well as the impact of government regulation and deregulation in the airlines and trucking industries. Intended for advanced Economics undergraduates.

*Prerequisite(s):* (ECN 100 or ECN 100A or ARE 100A); (ECN 102 or STA 108); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### **ECN 151A – Economics of the Labor Market (4 units)**

*Course Description:* Theory of labor supply and demand; determination of wages and employment in the labor market. Policy issues: labor force participation by married women; minimum wages and youth unemployment; effect of unions on wages.

*Prerequisite(s):* ECN 100 or ECN 100A or ARE 100A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### **ECN 151B – Economics of Human Resources (4 units)**

*Course Description:* Human resource analysis; introduction to human capital theory and economics of education; the basic theory of wage differentials, including theories of labor market discrimination; income distribution; poverty. Policy issues; negative income tax; manpower training programs; incomes policy.

*Prerequisite(s):* ECN 100 or ECN 100A or ARE 100A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### **ECN 152 – Economics of Education (4 units)**

*Course Description:* Application of theoretical and empirical tools of economics to the education sector. Demand for Education; Education Production and Market Structures in Education. Policy applications: class size reduction, school finance equalization, accountability, and school choice.

*Prerequisite(s):* (ECN 100 C- or better or ECN 100A or ARE 100A C- or better); (ECN 100B or ARE 100B C- or better); ECN 102 C- or better; (STA 013 C- or better or STA 013Y C- or better or STA 032 C- or better); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### **ECN 160A – International Microeconomics (4 units)**

*Course Description:* International grade theory: impact of trade on the domestic and world economies; public policy toward external trade.

*Prerequisite(s):* ECN 100 or ECN 100A or ARE 100A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Only 2 units of credit allowed to students who have completed ECN 162.

*Grade Mode:* Letter.

### **ECN 160B – International Macroeconomics (4 units)**

*Course Description:* Macroeconomic theory of an open economy. Balance of payments adjustment mechanism, international monetary economics issues; international financial institutions and their policies.

*Prerequisite(s):* ECN 101.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Only 2 units of credit allowed to students who have completed ECN 162.

*Grade Mode:* Letter.

### **ECN 162 – International Economic Relations (4 units)**

This version has ended; see updated course, below.

*Course Description:* International trade & monetary relations, trade policy, exchange rate policy, policies toward international capital migration and investment. Emphasis on current policy issues. Intended especially for non-majors.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students who have completed ECN 160A or ECN 160B.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

### **ECN 162 – International Economic Relations (4 units)**

*Course Description:* International trade & monetary relations, trade policy, exchange rate policy, policies toward international capital migration and investment. Emphasis on current policy issues. Intended especially for non-majors.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students who have completed ECN 160A or ECN 160B.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS); World Cultures (WC).

This course version is effective from, and including: Fall Quarter 2022.

**ECN 164 – International Finance (4 units)**

*Course Description:* Advanced international finance. Decision-making processes of large firms, institutional investors and sovereign governments, and their interactions in global financial markets. Pricing of currencies, equities and bonds as well as intermediation and regulation of asset markets. Solving theoretical models, analyzing financial data, and presenting real-life case studies.

*Prerequisite(s):* (ECN 100A or ECN 100 or ARE 100A); ECN 101.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics majors only.

*Credit Limitation(s):* Not open for credit to students who have previously completed an advanced upper division economics course in economic international finance.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ECN 167 – Economic Development in Weak States (4 units)**

*Course Description:* Barriers to economic development in developing countries. Economic and policy tools to address barriers within a functioning, well-intentioned government and non-functioning or ill-intentioned governments. Conflict between the state and other subnational actors for legitimate political control. Field experiments and other methodology to understand the success of economic and policy tools in weak states.

*Prerequisite(s):* ECN 100A; ECN 100B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Enrollment Restriction(s):* Pass One open to Economics majors only.

*Credit Limitation(s):* Not open for credit to students who have previously completed an upper division economics course in economic development in weak states.

*Grade Mode:* Letter.

*General Education:* Social Sciences (SS).

**ECN 171 – Economy of East Asia (4 units)**

This version has ended; see updated course, below.

*Course Description:* Intensive reading, discussion and research on selected topics from the economies of the countries of East Asia. Consult department for course scheduling.

*Prerequisite(s):* (ECN 001A or ECN 001AV); ECN 001B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 171 – Economy of East Asia (4 units)**

*Course Description:* Intensive reading, discussion and research on selected topics from the economies of the countries of East Asia. Consult department for course scheduling.

*Prerequisite(s):* (ECN 001A or ECN 001AY or ECN 001AV); (ECN 001B or ECN 001BV); or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

This course version is effective from, and including: Fall Quarter 2022.

**ECN 190 – Topics in Economics (4 units)**

*Course Description:* Selected topics in economic analysis and public policy. Variable content.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Repeat Credit:* May be repeated when topic differs.

*Grade Mode:* Letter.

**ECN 190X – Upper Division Seminar (1-4 units)**

*Course Description:* In-depth examination at an upper division level of a special topic in Economics. Emphasis on focused analytical work. May not be repeated for credit.

*Prerequisite(s):* (ECN 100 or ECN 100A); ECN 100B; ECN 101; and consent of instructor.

*Learning Activities:* Seminar 1-4 hour(s).

*Enrollment Restriction(s):* Limited enrollment.

*Grade Mode:* Letter.

**ECN 192 – Internship (1-6 units)**

*Course Description:* Internship experience off and on campus in all subject areas offered in the Department of Economics. Supervised by a member of the staff.

*Prerequisite(s):* Consent of instructor; upper division standing.

*Learning Activities:* Internship 3-18 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Pass/No Pass only.

**ECN 194HA – Special Study for Honors Students (4 units)**

*Course Description:* A program of research culminating in the writing of a senior honors thesis under the direction of a faculty advisor.

*Prerequisite(s):* Major in Economics with senior standing; consent of instructor and completion of 135 units with a minimum GPA of 3.500 in courses counted toward the major.

*Learning Activities:* Independent Study 3 hour(s), Seminar 1 hour(s).

*Grade Mode:* Letter.

**ECN 194HB – Special Study for Honors Students (4 units)**

*Course Description:* A program of research culminating in the writing of a senior honors thesis under the direction of a faculty advisor.

*Prerequisite(s):* Major in Economics with senior standing; consent of instructor and completion of 135 units with a minimum GPA of 3.500 in courses counted toward the major.

*Learning Activities:* Independent Study 3 hour(s), Seminar 1 hour(s).

*Grade Mode:* Letter.

**ECN 197T – Tutoring in Economics (1-5 units)**

*Course Description:* Undergraduates assist the instructor by tutoring students in one of the department's regularly scheduled courses.

*Prerequisite(s):* Consent of instructor and chairperson.

*Learning Activities:* Tutorial 3-15 hour(s).

*Repeat Credit:* May be repeated 10 unit(s).

*Grade Mode:* Pass/No Pass only.

**ECN 198 – Directed Group Study (1-5 units)**

*Course Description:* Directed group study.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

**ECN 199 – Special Study for Advanced Undergraduates (1-5 units)**

*Course Description:* Special study for advanced undergraduates.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

**ECN 200A – Microeconomic Theory (4 units)**

*Course Description:* Linear and non-linear optimization theory applied to develop the theory of the profit-maximizing firm and the utility-maximizing consumer.

*Prerequisite(s):* Graduate standing.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 200A.

*Grade Mode:* Letter.

**ECN 200B – Microeconomic Theory (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ECN 200A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 200B.

*Grade Mode:* Letter.

**ECN 200C – Microeconomic Theory (4 units)**

*Course Description:* 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.

*Prerequisite(s):* ECN 200B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 200C.

*Grade Mode:* Letter.

**ECN 200D – Macroeconomic Theory (4 units)**

*Course Description:* Macro static theory of income, employment, and prices.

*Prerequisite(s):* ECN 101; MAT 021A; MAT 021B; MAT 021C; or equivalent courses.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 200E – Macroeconomic Theory (4 units)**

*Course Description:* Macrodynamics theory of income, employment, and prices.

*Prerequisite(s):* ECN 200B (can be concurrent); ECN 200D.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 200F – Macroeconomic Theory (4 units)**

*Course Description:* Interaction between financial markets' frictions and macroeconomic fluctuations. Leverage and the financial accelerator, fire sales, credit booms and busts, liquidity, the role of intermediaries and the risk of bank runs, speculative bubbles, and incomplete markets and precautionary savings.

*Prerequisite(s):* ECN 200A; ECN 200B; ECN 200C { can be concurrent }; ECN 200D; ECN 200E.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 201A – History of Economic Thought (4 units)**

*Course Description:* Economic thought from the classical Greece era to modern times.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 201B – History of Economic Thought II (4 units)**

*Course Description:* Origins and emergence of modern economic analysis.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 203A – Advanced Economic Theory (4 units)**

*Course Description:* Advanced topics in general equilibrium theory and welfare economics: existence, determinateness and efficiency; intertemporal economies; uncertainty.

*Prerequisite(s):* ECN 200A; ECN 200B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 203B – Advanced Economic Theory: Game Theory (4 units)**

*Course Description:* Covers the most recent developments in game theory, with the focus changing from year to year. Main topics are: refinements Nash equilibrium, repeated games, evolution, social situations, bounded rationality, and bargaining theory.

*Prerequisite(s):* ECN 200A; ECN 200B; ECN 200C.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 203C – Topics in Economic Theory (4 units)**

*Course Description:* Selected topics in contemporary microeconomic theory.

*Prerequisite(s):* ECN 200A; ECN 200B; ECN 200C.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Repeat Credit:* May be repeated with the consent of the Graduate Studies Committee.

*Grade Mode:* Letter.

**ECN 210A – Economic History (4 units)**

*Course Description:* Economic history of the eastern hemisphere in the modern period. Medieval Europe or other regions may be studied, depending on student interest.

*Learning Activities:* Lecture/Discussion 4 hour(s).

*Grade Mode:* Letter.

**ECN 210B – Economic History (4 units)**

*Course Description:* The United States from Colonial times to the present. Other areas of the western hemisphere may be studied, according to student interest.

*Learning Activities:* Lecture/Discussion 4 hour(s).

*Grade Mode:* Letter.

**ECN 210C – Economic History (4 units)**

*Course Description:* Selected topics and issues, emphasis on current research. (Quarter offered to be flexible.)

*Prerequisite(s):* A graduate course in economic history.

*Learning Activities:* Seminar 4 hour(s).

*Grade Mode:* Letter.

**ECN 214 – Development Economics (4 units)**

*Course Description:* Review of the principal theoretical and empirical issues whose analysis has formed development economics. Analysis of economic development theories and development strategies and their application to specific policy issues in developing country contexts.

*Prerequisite(s):* ARE 100A; ARE 100B; ECN 101; ARE 204/ECN 204 and ECN 160A-ECN 160B recommended.

*Learning Activities:* Lecture 4 hour(s).

*Cross Listing:* ARE 214.

*Grade Mode:* Letter.

**ECN 215A – Microdevelopment Theory & Methods I (4 units)**

*Course Description:* Agricultural development theory, with a focus on microeconomics. Agricultural household behavior with and without market imperfections and uncertainty. Analysis of rural land, labor, credit and insurance markets, institutions, and contracts.

*Prerequisite(s):* ECN 200A or ECN 204; ECN 240A recommended.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 215A.

*Grade Mode:* Letter.

**ECN 215B – Open Macroeconomics of Development (4 units)**

*Course Description:* Models and policy approaches regarding trade, monetary and fiscal issues, capital flows and debt are discussed in the macroeconomic framework of an open developing country. Basic analytical focus is real exchange rate and its impact on sectoral allocation of resources.

*Prerequisite(s):* (ARE 200A or ECN 200A); (ARE 204 or ECN 204); (ECN 214 or ECN 215A); ECN 200D or ECN 205.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 215B.

*Grade Mode:* Letter.

**ECN 215C – Microdevelopment Theory & Methods II (4 units)**

*Course Description:* Extension of development theory and microeconomic methods. Agricultural growth and technological change; poverty and income inequality; multisectoral, including village and regional models. Computable general equilibrium methods and applications.

*Prerequisite(s):* ECN 215A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 215C.

*Grade Mode:* Letter.

**ECN 215D – Environmental & Economic Development (4 units)**

*Course Description:* Interdisciplinary course drawing on theoretical and empirical research on interactions between environmental resource use and economic development processes. Analysis of issues emerging at the interface of environmental and development economics.

*Prerequisite(s):* ECN 200A; (ECN 204 or ARE 275).

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 215D.

*Grade Mode:* Letter.

**ECN 216 – Energy & Climate Policy (4 units)**

*Course Description:* Fundamentals of energy technology, economics, and policy. Survey and analysis of current and prospective climate policies at the local and global level, including but not limited to cap-and-trade, emissions offsets, intensity standards, technology standards, mandates and subsidies.

*Prerequisite(s):* ECN 100A or ARE 100A; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Extensive Writing/Discussion.

*Enrollment Restriction(s):* Pass One restricted to graduate students in the following programs: Economics, Energy Graduate Group, and Transportation Technology and Policy Graduate Group.

*Cross Listing:* EGG 202.

*Grade Mode:* Letter.

**ECN 221A – The Theory of Industrial Organization (4 units)**

*Course Description:* Game theory is used to analyze strategic interaction of firms in industries. Topics include models of competition, product differentiation, entry-deterring strategies, contractual arrangements, vertical control and antitrust issues.

*Prerequisite(s):* ECN 200A; ECN 200B; ECN 200C.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 221B – Empirical Analysis in Industrial Organization (4 units)**

*Course Description:* Recent empirical work in industrial organization. Topics include empirical analysis of cartels, product differentiation, innovation and technological change, and imperfect competition in international markets.

*Prerequisite(s):* ECN 221A; ECN 240B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 221C – Industrial Organization & Regulation (4 units)**

*Course Description:* Optimal regulation of natural monopoly. Topics include regulatory mechanisms for single and multiple output firms under symmetric and asymmetric information, optimality without regulation, the economic theory of regulation, and empirical studies of regulation and deregulation.

*Prerequisite(s):* ECN 221A; ECN 240B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 230A – Public Economics (4 units)**

*Course Description:* Measures of deadweight loss and consumer surplus; optimal commodity and income taxation; tax incidence; policy issues in personal taxation, corporate taxation, and social insurance; the evaluation of effective tax rates.

*Prerequisite(s):* ECN 200C.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 230B – Public Economics (4 units)**

*Course Description:* Effects of government policies on economic behavior; labor supply, program participation, investment, consumption and savings.

*Prerequisite(s):* ECN 240A; ECN 240B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.



**ECN 230C – Public Economics (4 units)**

*Course Description:* Advanced topics in economics of the public sector, with emphasis on current research. Topics differ from year to year.

*Prerequisite(s):* ECN 200C; ECN 240B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 233 – Poverty & Public Policy (4 units)**

*Course Description:* Interdisciplinary course covering qualitative and quantitative U.S. based poverty research. Topics include measurement, statistics, theories and evidence on the causes and consequences of poverty, and the history and efficacy of major anti-poverty programs.

*Learning Activities:* Lecture/Discussion 4 hour(s).

*Grade Mode:* Letter.

**ECN 235A – Macroeconomics (4 units)**

*Course Description:* Frontiers of applied/empirical macroeconomics.

Evidence and lessons from macroeconomic history for The Great Depression, financial crises, efficient markets, parity conditions, capital flows, default, financial crises, exchange rates, growth, and other current empirical research topics.

*Prerequisite(s):* ECN 200D; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 235B – Macroeconomics (4 units)**

*Course Description:* Search theory, theory of real-world markets characterized by search frictions, with applications: Labor economics: models of unemployment and wages differentials; Financial economics: determination of asset prices in OTC financial markets; Monetary Economics: foundations for money as a medium of exchange.

*Prerequisite(s):* ECN 200D; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 235C – Macroeconomics (4 units)**

*Course Description:* Basic numerical methods for analytically intractable problems in economics. Techniques presented applicable in a wide range of fields including macroeconomics, econometrics, resource economics, labor economics, economic theory, international trade, finance, game theory, public finance, contract theory, and others.

*Prerequisite(s):* ECN 200D; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 235D – Macroeconomics (4 units)**

*Course Description:* Selected topics in Macroeconomics.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Repeat Credit:* May be repeated with consent of Economics Graduate Studies Committee.

*Grade Mode:* Letter.

**ECN 239 – Econometric Foundations (4 units)**

*Course Description:* Prepares 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.

*Prerequisite(s):* Graduate standing or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 239.

*Grade Mode:* Letter.

**ECN 240A – Econometric Methods (4 units)**

*Course Description:* Least squares, instrumental variables, and maximum likelihood estimation and inference for single equation linear regression model; linear restrictions; heteroskedasticity; autocorrelation; lagged dependent variables.

*Prerequisite(s):* ECN 239; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 240A.

*Grade Mode:* Letter.

**ECN 240B – Econometric Methods (4 units)**

*Course Description:* Topics include asymptotic theory and instrumental variables, pooled time-series cross-section estimation, seemingly unrelated regression, classical hypothesis tests, identification and estimation of simultaneous equation models, cointegration, error correction models, and qualitative and limited dependent variable models.

*Prerequisite(s):* ECN 240A.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 240B.

*Grade Mode:* Letter.

**ECN 240C – Time Series Econometrics (4 units)**

*Course Description:* Probability theory; estimation, inference and forecasting of time series models; trends and non-standard asymptotic theory; vector time series methods and cointegration; time series models for higher order moments and transition data; state-space modeling and the Kalman filter.

*Prerequisite(s):* ECN 240B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 240C.

*Grade Mode:* Letter.

**ECN 240D – Cross Section Econometrics (4 units)**

*Course Description:* Estimation and inference for nonlinear regression models for cross-section data; models for discrete data and for limited dependent variables; models for panel data; additional topics such as bootstrap and semiparametric regression.

*Prerequisite(s):* ECN 240B; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 240D.

*Grade Mode:* Letter.

**ECN 240E – Topics in Time Series Econometrics (4 units)**

*Course Description:* Modern econometric techniques for time series data. Expand on topics covered in ECN 240A, ECN 240B, ECN 240C. Content may differ year to year.

*Prerequisite(s):* ECN 240C; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 240E.

*Grade Mode:* Letter.

**ECN 240F – Topics in Cross Section Econometrics (4 units)**

*Course Description:* Modern econometrics techniques for cross-section data. Expand on topics covered in ECN 240A, ECN 240B, ECN 240D. Content may differ year to year.

*Prerequisite(s):* ECN 240D; or consent of instructor.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Cross Listing:* ARE 240F.

*Grade Mode:* Letter.

**ECN 250A – Labor Economics (4 units)**

*Course Description:* Philosophy, theory and history of American and foreign labor movements; union structure, organization and collective bargaining under changing labor market conditions; current labor market issues.

*Prerequisite(s):* (ECN 150A and ECN 150B) or the equivalent.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 250B – Labor Economics (4 units)**

*Course Description:* Microeconomic theory of labor supply and labor demand, estimation of labor supply and demand functions; human capital theory; labor market analysis.

*Prerequisite(s):* ECN 151A; or consent of instructor; ECN 204 or ECN 200A recommended.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 260A – International Economics (4 units)**

*Course Description:* Theory of trade determinants; gains from trade; tariffs and effective protection; economic unions.

*Prerequisite(s):* ECN 200A or ECN 204.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 260B – International Economics (4 units)**

*Course Description:* Balance of payments adjustment mechanisms; foreign exchange markets theories of balance of payments policy and international monetary mechanisms.

*Prerequisite(s):* ECN 200D; ECN 200E.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 260CN – International Investment & Trade (4 units)**

*Course Description:* Analysis of foreign investment and its links to trade; theories of the firm as they relate to firm's export and investment decisions; and an introduction to the political economy of trade policies.

*Prerequisite(s):* ECN 260A.

*Learning Activities:* Seminar 4 hour(s).

*Grade Mode:* Letter.

**ECN 260D – Topics in International Macroeconomics (4 units)**

*Course Description:* Survey of current literature in international macroeconomic theory.

*Prerequisite(s):* ECN 260B; or consent of instructor.

*Learning Activities:* Seminar 4 hour(s).

*Grade Mode:* Letter.

**ECN 260E – Topics in International Trade (4 units)**

*Course Description:* Current literature in international trade theory.

*Prerequisite(s):* ECN 260A; ECN 260B.

*Learning Activities:* Seminar 4 hour(s).

*Grade Mode:* Letter.

**ECN 260F – International Macroeconomic Policy (4 units)**

*Course Description:* Theory and practice of international macroeconomic policy. Topics include exchange rate regimes, international financial institutions, crises and current topics.

*Prerequisite(s):* ECN 260B.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 270A – Economics of Growth (4 units)**

*Course Description:* Modern theories and empirics of economic growth beginning with the neoclassical theories up to current endogenous growth models. Emphasis on the analysis of human capital and growth, technological innovation, its diffusion and empirical evidence on growth.

*Prerequisite(s):* ECN 200D; ECN 200E.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 270B – Economics of Growth (4 units)**

*Course Description:* Empirical analysis of growth patterns and growth models. Emphasis on the relationship between macroeconomic management and long-term growth; the use of foreign capital in accelerating growth and its occasional mishaps; the comparison of growth performance in East Asia and Latin America since WW2; the experiences of centrally-planned economies and transitions to market-based growth; and the transformation from an industrial economy to a knowledge economy.

*Prerequisite(s):* ECN 200D; ECN 200E.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 270C – Economics of Growth (4 units)**

*Course Description:* Institutional bases; politics; contracts and commitment; money and finance; malthusian dynamics; modern economic growth; transition of industrialization; dual economies, core and periphery; sources of convergence and divergence; openness and growth; resources, demography, and geography; institutions, imperialism, and class conflicts.

*Prerequisite(s):* ECN 200D; ECN 200E.

*Learning Activities:* Lecture 3 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

**ECN 280 – Orientation to Economic Research (2 units)**

*Course Description:* Bridge the gap between students' classwork and their subsequent research. Topics such as the origination of a research project, some mechanics of empirical research and hints on the submission of research papers.

*Learning Activities:* Discussion 2 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

**ECN 290 – Topics in Economics (4 units)**

*Course Description:* Selected topics in economic analysis and public policy, focusing on current research.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Seminar 4 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Letter.

**ECN 291 – Contemporary Economics Seminar (2 units)**

*Course Description:* Seminar series on topics of current interest.

*Prerequisite(s):* Graduate standing in Economics.

*Learning Activities:* Seminar 2 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Satisfactory/Unsatisfactory only.

**ECN 298 – Group Study (1-5 units)**

*Course Description:* Group study.

*Prerequisite(s):* Consent of instructor. Graduate standing.

*Learning Activities:* Discussion 1-5 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

**ECN 299 – Individual Study (1-12 units)**

*Course Description:* Individual study.

*Prerequisite(s):* Consent of instructor. Graduate standing.

*Learning Activities:* Variable.

*Grade Mode:* Satisfactory/Unsatisfactory only.

**ECN 299D – Dissertation Research (1-12 units)**

*Course Description:* Dissertation research.

*Learning Activities:* Variable.

*Grade Mode:* Satisfactory/Unsatisfactory only.

**ECN 397 – Teaching of Economics (2 units)**

*Course Description:* Teaching of economics: methods of instruction, organization of courses, examination and evaluation procedures.

*Prerequisite(s):* Graduate standing in economics.

*Learning Activities:* Lecture/Discussion 2 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.