Economics

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Introduction

Economics is the study of how individuals, organizations, and societies deal with scarcity—the fact that resources are not sufficient to satisfy everyone's wants. Because scarcity requires choice among alternative uses of resources, economists study both the technology by which resources are turned into the products people want and the preferences through which people choose among alternatives. Further, since society is composed of many individuals and groups, economists study markets, governments, and other institutions through which a society might gain the advantages of cooperation and resolve the conflicts due to competing goals. The economics curriculum develops tools and uses them to analyze a wide range of societal problems, and also to study the role of the government in solving these problems.

Economics is a different discipline from business administration. However, there are substantial overlaps. Both disciplines study the behavior of people and firms within the context of market, legal, and other institutions. In evaluating economic institutions, economists tend to emphasize the viewpoint of the larger society, and business scholars tend to emphasize the viewpoint of firms. A more complete discussion is available in the department Undergraduate Handbook, which contains a comparison between the economics major at UCSD and a business administration major at UC Berkeley.

The department Undergraduate Handbook is available in the Economics Undergraduate Student Services office, Sequoyah Hall 245, or on the Internet at the department Web site at http://www.econ.ucsd.edu. The Handbook contains answers to frequently asked questions, gives practical tips for avoiding problems, and provides a more detailed discussion of the department's majors than is possible in the general catalog. It is important for students contemplating a major in the department to be familiar with the Handbook and the prerequisite requirements listed therein. Time-sensitive information, job and internship announcements, and other important information are sent to all declared majors and minors through campus email.

Students interested in the Education Abroad Program (EAP) are encouraged to check out the brochure "Opportunities in Business and Economics" that is available at the EAP office.

The Undergraduate Program

Lower-Division Economic Courses

A FIRST SURVEY COURSE—ECONOMICS 10

Economics 10 is a nontechnical survey of economic reasoning, with emphasis on current events. The course uses only the simplest formal tools (simple equations and graphs). Several purposes are served by Economics 10—economic literacy for students who take no further economics, the first course of a two- or three-quarter economics sequence for students satisfying general-education requirements, and a starting point for students minoring or majoring in economics.

Economics 10 is recommended for most students who intend a minor or major in economics. However, students who have already taken two courses or more of economics at the college level, other than accounting, are viewed as having passed the level of Economics 10; hence they may not go back and take Economics 10 for credit.

MICROECONOMICS AND MACROECONOMICS—ECONOMICS 1A-B AND 2A-B

The department offers two micro-macro sequences, Economics 1A-1B and Economics 2A-2B. For each sequence, the A course introduces the analytical tools of microeconomics (the study of households, firms, and other "micro" agents). The B course introduces the analytical tools of macroeconomics (the study of the aggregate performance of an economy). The 1A-1B courses differ from the 2A-2B courses only in that the latter use calculus in the presentation. Mathematics 10A-10B-10C, or 20A-B and 20C/21C, is the prerequisite for Economics 2A-2B. Micro and macro courses may be taken in either order, or simultaneously. For example, 1B may be taken before, after, or simultaneously with 1A.

A micro-macro combination (such as Economics 1A-1B), or the equivalent from another institution, is required for upper-division work in economics.

Modern economics is somewhat mathematical, and calculus is a standard working tool. Therefore, there are educational advantages in taking the

calculus track (Economics 2A-2B rather than Economics 1A-1B). Students who plan an economics or management science major, especially the latter, are well advised to take the calculus track. However, students who are unable to do so for scheduling or other reasons may be reassured by the fact that Economics 1A-1B satisfies the same requirements as Economics 2A-2B, and by the fact that the economic substance of 1A-1B is the same as for 2A-2B.

Because the substance is the same, it is acceptable to mix courses from the calculus and noncalculus tracks. That is, Economics 1A-2B or Economics 2A-1B are acceptable combinations. For the same reason, students should not take and will not receive credit for both 1A and 2A or for both 1B and 2B.

Accounting Course

The department offers an accounting course, Economics 4. Economics 4 is a lower-division requirement for the B.S. in management science and the management science minor. The course is a prerequisite for Economics 173, Corporate Finance. Economics 4 can be used as an optional part of an economics major or minor; and the course is open to students who take no other courses from the department.

Upper-Division Economics Courses

The upper-division economics core courses are offered according to the following academic schedule:

Fall—100A, 110A, 120A-B-C, 170A, 171, 172A, and 172C;

Winter—100A-B, 110A-B, 120A-B-C, 170A-B, and 172A-B;

Spring—100B, 110B, 120A-B-C, 170B, 171, and 172B-C.

The 100, 110, 120 and 170 core courses are sequential. That is, "A" must be taken before "B" before "C". Economics 172A must be taken first. Economics 172B and 172C may be taken in either order or concurrently.

Entry to the Majors

Any student in good standing may declare a major in the department by filling out a form at the Office of the Registrar.

The Economics Major (B.A.)

The economics B.A. program is designed to provide a broad understanding of resource-allocation and income-determination mechanisms. Both the development of the tools of economic analysis and their application to contemporary problems and public policy are stressed.

A student majoring in economics must meet the following requirements:

1. Calculus. Mathematics 10A-B-C or Mathematics 20A-B and 20C/21C.

2. Lower-division economics. Economics 1A-B, or 2A-B or 1A-2B or 2A-1B.

3. Upper-division core. Economics 100A-B (microeconomics), Economics 110A-B (macroeconomics), and Economics 120A-B-C (econometrics).

4. Upper-division electives. Five more economics courses at the upper-division level.

Majors are strongly encouraged to complete the lower-division requirements (1 and 2) before beginning the upper-division requirements (3 and 4). Further, majors are strongly encouraged to take Economics 100A-B and either 110A-B or 120A-B-C prior to the senior year, since numerous upper-division electives have core-course prerequisites.

The following schedule, though not the only possibility, is a well-constructed one for majoring in economics.

FRESHMAN YEAR
Mathematics 10A-B-C or
Mathematics 20A-B and 20C/21C

SOPHOMORE YEAR
Economics 1A-B or Economics 2A-B or
Economics 10-1A-1B or Economics 10-2A-2B

JUNIOR YEAR
Economics 100A-B
Economics 110A-B
Economics 120A-B-C

SENIOR YEAR
Five Economics Electives

A detailed description of the economics major is contained in the *Undergraduate Handbook*, available in the Undergraduate Program section of the department Web site and in Sequoyah Hall 245.

The Management Science Major (B.Sc.)

Management science builds on a set of related quantitative methods commonly used to solve problems arising in the private (business and finance) and public (government) sectors. While students will gain some familiarity with the traditional functional fields of business management, this program is more tightly focused and more quantitative than a traditional business administration major. It is not, however, a program in applied mathematics or operational research, since the economic interpretation and application of the tools are continually stressed. Rather, it is a quantitative major in applied economics with a management focus. Before beginning upper-division work, a major must complete Economics 2A-B, Economics 4, Mathematics 20A-B and 20C/21C, and Mathematics 20F. Economics 1A may be substituted for 2A, or 1B for 2B. However, 2A-B are recommended. These courses provide both the understanding of basic principles and the mathematical maturity needed to understand the quantitative techniques of management science.

The management science major requires a total of 15 upper-division courses. Nine of these are specified: Economics 170A-B (Management Science Microeconomics), Economics 120A-B-C (Econometrics), Economics 171 (Decisions Under Uncertainty), and Economics 172A-B-C (Introduction to Operations Research). The 170 sequence concerns the nature and interdependence of managerial resource allocation decisions. Economics 120A-B-C teaches the theory and use of statistics and econometrics. The 172 sequence provides a general survey of optimization and problem-solving techniques employed by management scientists.

Of the six management science electives, at least one must be chosen from Economics 173 (Corporate Finance) or Economics 175 (Financial Investments). Two must be chosen from Economics 174 (Insurance, Economics, and Finance), Economics 175 (Financial Investments), Economics 176 (Marketing), Economics 178 (Economic and Business Forecasting), or Economics 179 (Decisions in the Public Sector). Each of these courses focuses on an important set of managerial problems. The remaining three electives may be chosen from among other upper-division economics courses.

The following schedule, though not the only possibility, is a well-constructed one for a student majoring in Management Science.

FRESHMAN YEAR
Mathematics 20A-B and 20C/21C

SOPHOMORE YEAR
Economics 2A-B or 1A-B or
10-2A-2B or 10-1A-1B
Economics 4
Mathematics 20F

JUNIOR YEAR
Economics 170A-B
Economics 120A-B-C
Economics 171
Economics 172A-B-C

SENIOR YEAR
Six Economics Electives

A detailed description of the management science major is contained in the *Undergraduate Handbook*, available on the department Web site and in Sequoyah Hall 245.

Joint Major in Mathematics and Economics (B.A.)

Majors in mathematics and the natural sciences often feel the need for a more formal introduction to issues involving business applications of science and mathematics. Extending their studies into economics provides this application and can provide a bridge to successful careers or advanced study. Majors in economics generally recognize the importance of mathematics to their discipline. Undergraduate students who plan to pursue doctoral study in economics or business need the more advanced mathematics training prescribed in this major.

This major is considered to be excellent preparation for Ph.D. study in economics and business administration, as well as for graduate studies for professional management degrees, including the MBA. The major provides a formal framework making it easier to combine study in the two fields.

Course requirements of the Joint Major in Mathematics and Economics consist principally of the required courses of the mathematics major and the economics/management science majors:

Lower-Division Requirements:

1. Calculus and Linear Algebra. Mathematics 20A-B, 20C/21C, 20D, and 20F

2. Introductory Economics. Economics 1A or 2A and 1B or 2B

Upper-Division Requirements:

Fifteen upper-division courses in mathematics and economics, with a minimum of seven courses in each department, chosen from the courses listed below (prerequisites are strictly enforced):

1. Mathematical Reasoning. Mathematics 109 (formerly Math. 89)

2. One of the following:
   Applied Linear Algebra. Mathematics 102
   Numerical Linear Algebra. Mathematics 170A
   Linear Algebra. Mathematics 100AB

3. One of the following:
   Foundations of Analysis. Mathematics 140A
   Advanced Calculus. Mathematics 142A

4. One of the following:
   Ordinary Differential Equations.
      Mathematics 130A
   Foundations of Analysis. Mathematics 140B
   Advanced Calculus. Mathematics 142B

5. One of the following:
   Microeconomics. Economics 100AB
   Management Science Microeconomics.
      Economics 170AB

6. Econometrics. Economics 120A-B-C or Mathematics 180A and Economics 120B-C, or Mathematics 180A and 181A and Economics 120C

7. One of the following:
   Macroeconomics. Economics 110AB
   Mathematical Programming: Numerical
      Optimization. Mathematics 171AB
   or
   Two of the following:

   Decisions Under Uncertainty. Economics 171
   Introduction to Operations Research.
      Economics 172A-B-C (**Note**: 172A is a prerequisite for 172BC)

Other courses which are strongly recommended are: Mathematics 130B, 131, 181B, 190, and 193A-B and Economics 109, 113, 155, 175, and 178.

Further information may be obtained in the mathematics and economics undergraduate offices.

Honors

Currently, honors programs exist for the economics major and for the management science major. There are two levels of honors. For the lower level, indicated by the phrase "with distinc-tion" on the diploma, you must satisfy the first two of the following three requirements. For the higher level, indicated by the phrase "with highest distinction" on the diploma, you must satisfy all three requirements. There is no application to the honors program. Register for either major under the regular major code (EN25 for economics, EN26 for management science). Your final degree check will indicate which level of honors you receive.

1. Complete either a management science major or the honors track of the economics major, both of which require fifteen upper-division courses. The honors track of the economics major consists of the course work of a regular economics major (twelve upper-division courses) plus one advanced microeconomics course (Economics 113, 117, 145, 150, 151, 152, 155, or 179), one advanced macroeconomics course (Economics 103 or 146), and one advanced econometrics course (Economics 121, 125, 175, 176, or 178). Typically, a course will qualify as "advanced" if it has the corresponding core courses as prerequisites. As an example, a course with an Economics 100A-B prerequisite will typically qualify as an advanced microeconomics course.

2. Have an upper division GPA in your major greater than or equal to 3.5. Typically, the upper-division major GPA will exclude grades for courses taken at universities other than those in the UC system.

3. Take the honors versions of at least two upper-division courses (Economics 100AH-BH, 110AH-AH, 120AH-BH-CH, and 170AH-BH), and take the senior essay seminar (Economics 191A-B). The GPA across these four or more courses must be 3.5 or above. Admission to these courses is by special permission; check with the undergraduate adviser in the Economics Student Services Office.

Grade Rules for Majors

All courses used in meeting requirements for a departmental major must be taken on a letter-grade basis. (Exceptions are courses such as Economics 195 and Economics 199, for which P/NP grading is mandatory. However, no more than twelve units taken P/NP may be counted toward a major.) These courses must be passed with a grade of C– (C minus) or better. These rules apply to lower-division as well as upper-division courses,

and they apply to courses taken from other departments (such as required mathematics courses).

Advanced Placement Credits

Because no high school economics course provides the kind of background needed for upper-division economics and management science, we are strict on allowance of credits. The policy is as follows: If the AP score is 5, accept AP Micro (AP Macro) as equivalent to Economics 1A (Economics 1B) in meeting major or minor requirements. If the score is 3 or 4, the student is required to take Economics 1A or 2A (1B or 2B).

Minors and Programs of Concentration

The economics minor or program of concentration consists of seven courses: an introductory microeconomics course (Economics 1A or 2A); an introductory macroeconomics course (Economics 1B or 2B); and five upper-division economics courses, which are otherwise not restricted.

The management science minor, paralleling the existing economics minor, consists of an introductory micro course (Economics 1A or 2A,) an introductory macro course (Economics 1B or 2B,) Economics 4, and any five from the following list (Caution: some courses have prerequisites):

Economics 170A	Managerial Microeconomics
Economics 170B	Managerial Microeconomics
Economics 120A	Econometrics
Economics 120B	Econometrics
Economics 120C	Econometrics
Economics 171	Decisions Under Uncertainty
Economics 172A	Operations Research
Economics 172B	Operations Research
Economics 172C	Operations Research
Economics 173	Corporate Finance
Economics 174	Insurance, Economics and Finance
Economics 175	Financial Investments
Economics 176	Marketing
Economics 178	Economic and Business Forecasting
Economics 179	Decisions in the Public Sector

To declare a minor or program of concentration, obtain a minor declaration form from your college advising office, fill it out, and turn it in to Sequoyah Hall 245. Students should check with their colleges regarding area of focus, programs of concentration, and project minors.

The Graduate Program

The department offers the M.A., C.Phil., and Ph.D. degrees in economics. However, a student must be admitted to the Ph.D. program in order to be eligible for an M.A. or C.Phil. The department also offers the Ph.D. degree in economics and international affairs jointly with the Graduate School of International Relations and Pacific Studies.

The main Ph.D. requirements are that a student pass qualifying exams in microeconomics, macroeconomics, econometrics, select courses of specialization, and prepare an acceptable dissertation. The Ph.D. degree in economics and international affairs also requires successful completion of a language requirement and additional electives offered by IR/PS.

Detailed descriptions of the Ph.D. programs are available by writing to the Graduate Studies Coordinator in care of the Department of Economics. Information is also available on the Internet at the department Web site at http://www.econ.ucsd.edu. Residence and other campus wide regulations are described in the graduate studies section of this catalog.

Departmental Ph.D. Time Limit Policies

Students must be advanced to candidacy by the end of five years. Total university support cannot exceed six years. Total registered time at UCSD cannot exceed seven years.

COURSES

LOWER-DIVISION

1A-B. Elements of Economics (4-4)
Basic methods of economic analysis and their application to public policy and current events. Economics 1A concerns microeconomics: supply and demand, markets, income distribution, perfect and imperfect competition, the role of government. Economics 1B concerns macroeconomics: unemployment, inflation, business cycles, monetary and fiscal policy. Economics 1A is not required for 1B. Credit not allowed for both Economics 1A and 2A or 1B and 2B.

2A-B. Introduction to Economics (4-4)
Same content as Economics 1A-B, but calculus is used in the presentation. 2A is not required for 2B. Credit not allowed for both Economics 1A and 2A or 1B and 2B.

Prerequisites: Mathematics 10A-B-C, or 20A-B and 20C/21C.

4. Financial Accounting (4)
Recording, organizing, and communicating economic information relating to business entities. *No prerequisites.*

10. Markets (4)
Emphasis on intuition and current events, markets and resource allocation, government intervention when markets fail (monopoly inequality, environmental issues), stock, bond, and other financial markets, inflation and unemployment, international markets. No credit for students who have completed one introductory microeconomics course and one introductory macroeconomics college course. *Prerequisite: department stamp required.*

90. Undergraduate Seminar (1)
Selected topics in economics. May be repeated twice (total of three units) when course topic varies. (P/NP grades only.)

UPPER-DIVISION

100A-B. Microeconomics (4-4)
(Conjoined with Economics 100AH-BH.) Household and firm behavior as the foundations of demand and supply. Market structure and performance, income distribution, and welfare economics. Credit not allowed for both Economics 100A-B and Economics 170A-B. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C. Economics 100A must be taken before Economics 100B.*

100AH-BH. Honors Microeconomics (4-4)
(Conjoined with Economics 100A-B.) Honors sequence covering the material of Economics 100A-B. *Prerequisites: introductory micro, introductory macro, and either Mathematics 10A-B-C, or 20A-B and 20C/21C. GPA of 3.5 or better. Economics 100AH must be taken before Economics 100BH. Department stamp required.*

101. International Trade (4)
Determinants of trade in goods and services, international flows of labor and capital, and the effects of trade policy on welfare and income distribution. Issues such as competitiveness, immigration policy, trading blocs, and industrial policy. *Prerequisites: Economics 1A-B or 2A-B. Recommended: Economics 100A-B or 170A-B.*

103. International Monetary Relations (4)
Balance of payments, international capital movements, and foreign exchange examined in light of current theories, policies, and problems. *Prerequisites: Economics 110A-B.*

105. Industrial Organization and Antitrust Policy (4)
Structure and performance of U.S. industry. Pricing, advertising, product strategies, cartel behavior, and strategic entry barriers. Detailed treatment of antitrust policy. *Prerequisites: Economics 100A-B or 170A-B.*

107. Economic Regulation (4)
Theory and application of economic regulation. Natural monopoly, nonlinear pricing, Ramsey pricing, franchise bidding. Discussion of U.S. electric utilities, gas utilities, broadcasting, surface transportation, and air transportation. *Prerequisites: Economics 100A or 170A.*

109. Game Theory (4)
Introduction to game theory. Analysis of people's decisions when the consequences of the decisions depend on what other people do. Applications to economic,

political, and social interactions. *Prerequisites: Economics 100A-B or 170A-B and Mathematics 20A-B and 20C/21C.*

110A-B. Macroeconomics (4-4)
(Conjoined with Economics 110AH-BH.) The theory of national income determination as the basis for explaining fluctuations in income, employment, and the price level. Use of monetary and fiscal policy to stabilize the economy. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C. Economics 110A must be taken before Economics 110B.*

110AH-BH. Honors Macroeconomics (4-4)
(Conjoined with Economics 110A-B.) Honors sequence covering the material of Economics 110A-B. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C. GPA of 3.5 or better. Economics 110AH must be taken before Economics 110BH. Department stamp required.*

111. Monetary Economics (4)
Financial structure of the U.S. economy. Bank behavior. Monetary control. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A or 20A.*

113. Mathematical Economics (4)
Mathematical concepts and techniques used in advanced economic analysis; applications to selected aspects of economic theory. *Prerequisites: Mathematics 20A-B and 20C/21C, and one of the following: Economics 100A-B, or, Economics 170A-B, or, Mathematics 140A or Mathematics 142A.*

116. Economic Development (4)
Analysis of current economic problems of less-developed areas and conditions for increasing their income, employment, and welfare; case studies of specific less-developed countries. *Prerequisite: Economics 1A-B or 2A-B.*

117. Economic Growth (4)
Models of the economic growth of developed economies. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C, and Economics 100A or 170A.*

118A-B. Law and Economics (4-4)
Analysis of the economic effects of the structure of the law with particular emphasis on the law of liability, including liability for nuisances, zoning law, products liability, and accident liability. *Prerequisites: Economics 100A. 1A-B or 2A-B. 118B may be taken before 118A.*

120A-B-C. Econometrics (4-4-4)
(Economics 120A-B-C conjoined with Economics 120AH-BH-CH.) Probability and statistics used in economics. Economics 120A covers basic data analysis using spreadsheets, probability and sampling theory. 120B covers statistical inference and basic regression methods; 120C covers advanced regression including special topics. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C. The Economics 120A-B-C sequence must be taken in that order (A before B before C).* Credit not allowed for both Economics 120A and Mathematics 183 or ECE 109. Also, see the "Note on overlaps" at the end of the undergraduate course descriptions.

120AH-BH-CH. Honors Econometrics (4-4-4)
(Conjoined with Economics 120A-B-C.) Honors sequence covering the material of Economics 120A-B-C. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C. GPA of 3.5 or better.* The Economics 120AH-BH-CH sequence must be taken in

that order (AH before BH before CH). Credit will not be given for Economics 120AH and Mathematics 183 or ECE 109. *Department stamp required.*

121. Applied Econometrics (4)
Application of econometric methods to such areas as labor supply, human capital, and financial time series. *Prerequisites: Economics 120A-B-C or 120AH-BH-CH.*

125. Economics of Population Growth (4)
Economics of population growth, family size, age profiles, birth and death rates, growth of cities. *Prerequisites: Economics 120A-B-C. Economics 178 is recommended.*

130. Public Policy (4)
Role of economics in public policy. Topics such as funding health care, drug policy, incentives for high technology industries, mass transit versus highway construction, and agriculture subsidies. Term paper usually required. *Prerequisites: Economics 1A-B or 2A-B.*

131. Economics of the Environment (4)
Environmental issues from an economic perspective. Relation of the environment to economic growth. Management of natural resources, such as forest and fresh water. Policies on air, water, and toxic waste pollution. International issues such as ozone depletion and sustainable development. *Prerequisites: Economics 1A-B or 2A-B.*

132. Energy Economics (4)
Energy from an economic perspective. Fuel cycles for coal, hydro, nuclear, oil, and solar energy. Emphasis on efficiency and control of pollution. Comparison of energy use across sectors and across countries. Global warming. Role of energy in the international economy. *Prerequisites: Economics 1A-B or 2A-B.*

133. Housing Policy (4)
(Same as USP 123.) Examines housing markets and the U.S. housing finance system. Evaluates federal and local policies and tax incentives to promote housing production, encourage homeownership, provide decent shelter for low-income families, and improve conditions in deteriorated neighborhoods. *Prerequisites: Economics 1A-B or 2A-B.*

135. Urban Economics (4)
(Same as USP 102.) Urban economic problems and public policies to deal with them. *Prerequisites: Economics 1A-B or 2A-B.*

136. Human Resources (4)
Theoretical and empirical analysis of public and private investment in people, emphasizing the contribution to productivity of education. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 10A-B-C, or 20A-B and 20C/21C.*

137. Inequality and Poverty (4)
Analysis of inequality in the distribution of income, education, and wealth; causes of poverty and public policies to combat it. *Prerequisites: Economics 1A-B or 2A-B, and Economics 120A.*

138A-B. Economics of Health (4)
The application of economic analysis to the health field; the role of health in income, production, and poverty; supply, demand, and price determination in the public and private sectors. *Prerequisites: Economics 1A-B or 2A-B. Economics 138A must be taken before 138B.*

139. Labor Economics (4)
Operation of labor markets. Such topics as labor force participation, unemployment, labor mobility, wage inflation, the impact of unions, human capital investments, internal labor markets, and labor market discrimination. *Prerequisites: Economics 1A-B or 2A-B.*

145. Economics of Ocean Resources (4)
Economic issues associated with oceans. Living marine resources, nonliving marine resources, and other economic attributes of the sea. *Prerequisites: Economics 100A-B or 170A-B.*

146. Economic Stabilization (4)
Theory of business cycles and techniques used by governments to stabilize an economy. Discussion of recent economic experience. *Prerequisites: Economics 110A-B.*

150. Economics of the Public Sector: Taxation (4)
Overview of the public sector in the U.S. and the scope of government intervention in economic life. Basic principles of taxation, tax incidence, and tax efficiency. Analysis of the U.S. tax system before and after the Tax Reform Act of 1986. *Prerequisites: Economics 100A or 170A.*

151. Economics of the Public Sector: Expenditures (4)
Overview of the public sector in the U.S. and the scope of government intervention in economic life. Theory of public goods and externalities. Introduction to the basic forms of government intervention. Evaluation of specific expenditure programs such as education and national defense. *Prerequisites: Economics 100A or 170A.*

152. Topics in Public Economics (4)
Special topics on the economics of the public sector. *Prerequisite: Economics 150 or 151.*

155. Economics of Voting and Public Choice (4)
An economic analysis of social decision making, including such topics as the desirable scope and size of the public sector, the efficiency of collective decision-making procedures, voting theory and collective vs. market resource allocation. *Prerequisite: Economics 100A-B or 170A-B.*

158A-B. Economic History of the United States (4-4)
(Same as History HIUS 140–141.) 158A: The United States as a raw materials producer, as an agrarian society, and as an industrial nation. Emphasis on the logic of the growth process, the social and political tensions accompanying expansion, and nineteenth- and early twentieth-century transformations of American capitalism. 158B: The United States as a modern industrial nation. Emphasis on the logic of the growth process, the social and political tensions accompanying expansion, and twentieth-century transformations of American capitalism.

161. Latin American Economic Development (4)
Development issues facing Latin American countries. Economic policy. Emphasis on Argentina, Brazil, Chile, and Mexico. *Prerequisites: Economics 1A-B or 2A-B.*

163. Japanese Economy (4)
Survey of Japanese economy. Topics such as economic growth, business cycles, saving-investment balance, financial markets, fiscal and monetary policy, labor markets, industrial structure, international trade, and agricultural policy. *Prerequisite: Economics 1A-B or 2A-B.*

170A-B. Management Science Microeconomics (4-4)
(Conjoined with Economics 170AH-BH.) Subject matter of Economics 100A-B, but with greater emphasis on the theory of the firm. Credit not allowed for both

Economics 100A-B and Economics 170A-B. *Prerequisites: Economics 1A-B or 2A-B and Mathematics 20A-B and 20C/21C. 170A must be taken before 170B.*

170AH-BH. Honors Management Science Microeconomics   (4-4)
(Conjoined with Economics 170A-B.) Honors sequence covering the material of Economics 170A-B. *Prerequisite: Economics 1A-B or 2A-B and Mathematics 20A-B and 20C/21C. GPA of 3.5 or better. 170A or AH must be taken before 170BH. Department stamp required.*

171. Decisions Under Uncertainty   (4)
Decision-making when the consequences are uncertain. Decision trees, payoff tables, decision criteria, expected utility theory, risk aversion, sample information. *Prerequisites: Economics 1A-B or 2A-B, Economics 120A, Mathematics 20A-B and 20C/21C, and Mathematics 20F.*

172A-B-C. Introduction to Operations Research   (4-4-4)
Linear, nonlinear, and integer programming. Elements of game theory. Deterministic and stochastic dynamic programming. *Prerequisites: Economics 1A-B or 2A-B, Mathematics 20A-B-C(21C)-F and Economics 120A. Economics 172A may be taken concurrently with 120A. Economics 172A must be taken first, but Economics 172B and C may be taken in either order or concurrently.* A student may not receive credit for both Economics 172A-172B and Mathematics 171A-171B. Also, see the "Note on overlaps" at the end of the undergraduate course descriptions.

173. Corporate Finance   (4)
Corporate financial management, cash flow analysis, capital budgeting and capital structure. Institutional issues in project analysis, performance evaluation, and financial planning. *Prerequisite: Economics 4.*

174. Financial Insurance   (4)
Insurance markets, law, and terminology. Demand for insurance and for lotteries. Contingent claims theory. Reserves management and efficient risk sharing. Financial theories for regulating insurance rates. Options and insurance. Moral hazard. Adverse selection. Current controversies in insurance. *Prerequisites: Economics 120B-C-D and either 100A or Economics 170A. Concurrent enrollment in Economics 120C is permitted. Economics 171 and Economics 175 are recommended.*

175. Financial Investments   (4)
Valuation of assets including stocks, bonds, options, and futures contracts. Optimal portfolio selection and risk management. *Prerequisites: Economics 1A-B or 2A-B and Economics 120A.*

176. Marketing   (4)
Role of marketing in the economy. Topics such as buyer behavior, marketing mix, promotion, product selection, pricing, and distribution. *Prerequisites: Economics 1A-B or 2A-B, Economics 120A-B-C. Concurrent enrollment in Economics 120C is permitted.*

178. Economic and Business Forecasting   (4)
Survey of theoretical and practical aspects of statistical and economic forecasting. Such topics as long-run and short-run horizons, leading indicator analysis, econometric models, technological and population forecasts, forecasting evaluation, and the use of forecasts for public policy. *Prerequisites: Economics 1A-B or 2A-B and Economics 120A-B-C. Concurrent enrollment in Economics 120C is permitted.*

179. Decisions in the Public Sector   (4)
Decision making in the public sector. Topics such as program evaluation, budgeting, financial management, and expenditure decisions. *Prerequisites: Economics 100A-B or 170A-B.*

181. Topics in Finance   (4)
Selected topics in finance. *Prerequisite: consent of department.*

182. Topics in Microeconomics   (4)
Selected topics in microeconomics. *Prerequisite: consent of department.*

183. Topics in Macroeconomics   (4)
Selected topics in macroeconomics. *Prerequisite: consent of department.*

191A-B. Senior Essay Seminar   (4-4)
Senior essay seminar for students with superior records in department majors. *Prerequisite: department stamp required.*

195A-B-C. Introduction to Teaching Economics   (4-4-4)
Introduction to teaching economics. Each student will be responsible for a class section in one of the lower-division economics courses. Limited to advanced economics majors with at least a 3.5 GPA in upper-division economics work. (P/NP grades only.) *Prerequisite: consent of the department.*

199. Independent Study   (2 or 4)
Independent reading or research under the direction of and by special arrangement with a Department of Economics faculty member. (P/NP grades only.) *Prerequisites: consent of instructor and departmental approval.*

Note on overlaps: In general, a student may be denied credit for taking the same subject matter in more than one course, even if there is no explicit mention of the overlap issue in the course descriptions. In particular, the subject matter of Economics 120A-B overlaps the subject matter of probability and statistics courses offered in other departments (Mathematics 180A-181A, for example); and the subject matter of Economics 172A-B overlaps the subject matter of Mathematics 171A-B and AMES 146A-B. It is a student's responsibility to find out, by conferring with relevant advisers, what course combinations are advisable and when credit will be denied.

GRADUATE

200A-B-C. Microeconomics   (4-4-4)
Background mathematical techniques, static and intertemporal consumer and producer theory, partial and general equilibrium, modern producer and consumer theory, risk, time, and interdependence, modern welfare economics.

200D. Decisions   (4)
Further topics in consumer and producer theory, intertemporal optimization, and decision-making under uncertainty. *Prerequisites: Economics 200A-B-C or consent of instructor.*

200E. Markets and Welfare   (4)
Further topics in general equilibrium, welfare analysis, and social choice theory. *Prerequisites: Economics 200A-B-C or consent of instructor.*

200F. Games and Information   (4)
Further topics in game theory and the economics of information. *Prerequisites: Economics 200A-B-C or consent of instructor.*

201A-B-C. Advanced Economic Theory   (4-4-4)
An intensive examination of selected topics in economic theory. Course topic nonrepetitive in a three-year cycle. *Prerequisites: Economics 200E and 210D.*

202A-B-C. Workshop in Economic Theory   (0-4/0-4/0-4)
An examination of recent research in economic theory, including topics in general equilibrium, welfare economics, duality, and social choice; development of related research topics by both graduate students and faculty. Course may be repeated an unlimited number of times. (S/U grades only.) *Prerequisite: Economics 200E or consent of instructor.*

205. Mathematics for Economists   (4)
Advanced calculus review for new graduate students.

207. Experimental Economics   (4)
Design and interpretation of controlled experiments using human subjects. *Prerequisite: consent of instructor.*

210A-B-C. Macroeconomics   (4-4-4)
Neoclassical and Keynesian theories of employment, income, interest rate, price level, and other aggregate variables; macroeconomic policy; balance of payments and exchange rates; conflicts between external and internal balance; disequilibrium theory; growth theory.

210D. Advanced Macroeconomic Theory   (4)
Dynamic analysis, multiple equilibria, modern growth theory, computational methods. *Prerequisites: Economics 210A-B-C or consent of instructor.*

210E. Applied Macroeconomics   (4)
Monetary policy, business cycles, factor utilization, investment, heterogeneity. *Prerequisites: Economics 210A-B-C or consent of instructor.*

211A-B-C. Advanced Macroeconomics   (4-4-4)
Selected theoretical and empirical issues in macroeconomics. *Prerequisite: Economics 210D or consent of instructor.*

212A-B-C. Workshop in Macroeconomics   (4-4-4)
Examination of recent research in macroeconomics; development of own research by graduate students and faculty. *Prerequisite: Economics 210C.*

214A-B-C. Finance   (4-4-4)
Theoretical and empirical issues in finance. Course may be repeated once for credit.

220A-B-C-D-E-F. Econometrics   (4-4-4-4-4-4)
The construction and application of stochastic models in economics. This includes both single and simultaneous equations models. Matrix algebra and basic statistics are covered. Also covered (in 220F) are empirical applications to micro and macroeconomics. These require the completion of an empirical project. Both 220E and F will be offered simultaneously in the winter quarter.

221A-B-C. Advanced Econometrics   (4-4-4)
Extensions of the theory of the linear model; Bayesian analysis; principal components, discriminant analysis, spectral analysis of time series; insufficient data problems and the use of generalized inverse matrices; experimental design; formulation and evaluation of economic models, including the interpretation and

testing of causality. *Prerequisite: Economics 220F or consent of instructor.*

222A-B-C. Workshop in Econometrics   (4-4-4)
Examination of recent econometric research; development of own research by students and faculty. Course may be repeated an unlimited number of times. (S/U grades only.)

224A-B-C. Readings in Econometrics   (1-1-1)
Examination of recent research in econometrics to facilitate the development of thesis research by graduate students.

230A-B. Public Economics   (4-4)
Theoretical and empirical issues in public economics. *Prerequisite: consent of instructor.*

232A-B-C. International Economics   (4-4-4)
Theory of international trade, finance, and monetary relations. Growth, disturbances, capital movements, and balance of payments adjustment. International economic policy and welfare. *Prerequisite: consent of instructor.*

234A. Industrial Organization   (4)
Theoretical and empirical issues in industrial organization. *Prerequisite: Economics 220F or consent of instructor.*

235A-B-C. Workshop in Applied Microeconomics and Industrial Organization   (0-4/0-4/0-4)
Examination of recent research in applied economics; development of own research by graduate students and faculty. Course may be repeated an unlimited number of times. (S/U grades only.)

236A-B. Labor Economics   (4-4)
Theoretical and empirical issues in human resource economics. *Prerequisite: consent of instructor.*

240. Economic Development   (4)
Theoretical and empirical issues in economic development. *Prerequisite: consent of instructor.*

242. Economics of Natural Resources   (4)
Theoretical and empirical issues in natural resource economics. *Prerequisite: consent of instructor.*

267. Special Topics in Economics   (4)
A lecture course at an advanced level on a special topic (or set of related topics) in economics. May be repeated for credit if topic differs. *Prerequisites: Economics 200E, 210D, and 220F, or consent of instructor.*

271. Second-Year Seminar   (2)
A survey of how economics research begins and an introduction to the current frontiers. Members of faculty will give 45-minute presentations in the seminar, with two presentations at each meeting. The talks will be at an introductory level and convey a research interest of the faculty member. *Prerequisite: Economics 200C, or consent of instructor.*

272. Third-Year Paper   (4)
Written project, such as a critical review of a body of literature, including a proposal for an original research paper. For third-year students in winter quarter.

273. Third-Year Paper Presentations   (4)
Workshop for students writing third-year papers. All papers will be formally presented in the workshop.

274. Third-Year Original Paper   (4)
Original research paper. For third-year students.

275. Third-Year Original Paper Presentations   (4)
Workshop for students writing third-year original papers. All papers will be formally presented in the workshop.

280. Computation   (2)
Introduction to econometric computing. (S/U grades only.)

290A-B-C. Colloquium in Economics   (0-0-0)
Lectures presented by visiting speakers on research in a variety of topics in both Theoretical and Applied Economics.

291. Advanced Field Advising   (4)
Controlled reading and discussion with adviser; literature survey. May be repeated for credit. (S/U grades only.)

297. Independent Study   (1-5)
(S/U grades only.)

299. Research in Economics for Dissertation   (1-9)
(S/U grades only.)

500A-B-C. Teaching Methods in Economics   (4-4-4)
The study and development of effective pedagogical materials and techniques in economics. Students who hold appointments as teaching assistants must enroll in this course, but it is open to other students as well. (S/U grades only.)