Economics

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Lecturer with Potential Security of Employment

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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 on the Internet at the department Web site at http://www.econ.ucsd.edu/ugradprog. 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

MICROECONOMICS AND MACROECONOMICS—ECONOMICS 1-2-3

The department offers three lower-division economics classes, Economics 1-2-3. Economics 1 introduces microeconomics: supply and demand, markets, income distribution, perfect and imperfect competition, and the role of government. Modern economics is somewhat mathematical, and calculus is the standard working tool. Econo-mics 2, therefore, introduces basic mathematical concepts used in conjunction with basic micro and macro principles to expose students to standard tools of economic analysis: mathematical foundations of marginal analysis, basics of graphical, algebraic and statistical modeling, policy analysis, discounting, and strategic interaction. Economics 3 introduces macroeconomics: unemployment, inflation, business cycles, and monetary and fiscal policy.

The courses are to be taken in sequential order.

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, but 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 major codes are as follows: Economics, EN 25; Management Science, EN 26; and Joint Mathematics-Economics, EN 28.

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 1-2-3.

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 numer-

ous 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
Economics 1-2-3
Mathematics 10A-B-C or
Mathematics 20A-B and 20C/21C

SOPHOMORE YEAR
Economics 100A-B
Economics 120A-B-C

JUNIOR YEAR
Economics 110A-B
Economics Electives

SENIOR YEAR
Remaining 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.

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 1-2-3, Mathematics 20A-B and 20C/21C, and Mathematics 20F. 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, three from the following "restricted" list must be taken: Economics 109 (Game Theory), Economics 121 (Applied Econometrics), Economics 125 (Economics of Population Growth), Economics 173 (Corporate Finance), 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). At least one restricted elective must be either Economics 173 or 175. 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.. 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
Economics 1-2-3
Mathematics 20A-B and 20C/21C

SOPHOMORE YEAR
Economics 120A-B-C
Economics 170A-B
Mathematics 20F

JUNIOR YEAR
Economics 4 (taken in quarter prior to Econ 173)
Economics 171
Economics 172A-B-C
Economics Electives

SENIOR YEAR
Remaining Economics Electives

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

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 1-2-3

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:
   a. Applied Linear Algebra. Mathematics 102
   b. Numerical Linear Algebra. Mathematics 170A
   c. Linear Algebra. Mathematics 100A and B

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

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

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

6. Econometrics/Statistics. One of the following:
   a. Economics 120A-B-C

   b. Mathematics 180A and Economics 120B-C
   c. Mathematics 180A and 181A and Economics 120C

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

   or

   Two of the following:

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

Other courses which are strongly recommended are: Mathematics 130B, 131, 181B, 190, and 193A-B and Economics 109, 113,175, 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 distinction" 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 105, 107, 109, 113, 117, 150, 151, 155, or 179), one advanced macroeconomics course (Economics 103 or 146), and one advanced econometrics course (Economics 121, 125, 174, 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, and 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 to courses taken from other departments (such as required mathematics courses). Exceptions are courses such as Economics 195 and Economics 199, for which P/NP grading is mandatory. However, no more than twelve units of Economics 195 and Economics 199 taken P/NP may be counted toward a major.

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 1 (Economics 3) in meeting major or minor requi-rements. If the score is 3 or 4, the student is required to take Economics 1 (Economics 3) for the major or minor. There is not an advanced placement exam equivalent to Economics 2.

Minors and Programs of Concentration

The economics minor or program of concentration consists of eight courses: introductory microeconomics (Economics 1); microeconomic applications (Economics 2); introductory macroeconomics (Economics 3); and five upper-division economics courses, which are otherwise not restricted.

The management science minor, paralleling the economics minor, consists of nine courses: introductory microeconomics (Economics 1); microeconomics applications (Economics 2); introductory macroeconomics (Economics 3); financial accounting (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

Grades of P/NP are acceptable for minor courses. If courses are taken for a letter grade, passing is considered with a "D" or better. To declare a minor or program of concentration, obtain a minor declaration form, 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 Admissions Officer 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. Students will not be permitted to continue beyond the pre-candidacy and total registered time limits. Students will not be permitted to receive UCSD administered financial support beyond the support limit.

COURSES

LOWER-DIVISION

1. Elements of Economics I (4)
Introduction to the study of the economic system from the micro, or individual decision maker's, perspective. Analysis of the allocation of resources and distribution of income in perfectly competitive markets. Courses must be taken in 1-2-3 order.

2. Elements of Economics II (4)
Continuation of study of microeconomics: analysis of monopoly and imperfectly competitive markets, the role of government, and cost/benefit analysis. Courses must be taken in 1-2-3 order. *Prerequisite: Economics 1.*

3. Elements of Economics III (4)
Introductory macroeconomics: unemployment, inflation, business cycles, monetary and fiscal policy. Courses must be taken in 1-2-3 order. *Prerequisites: Economics 1 and 2.*

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

87. Freshman Seminar (1)
The Freshman Seminar Program is designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. May be repeated when course topics vary. (P/NP grades only.)

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. Microeconomics A (4)
Economic analysis of household determination of the demand for goods and services, consumption/saving decisions, and the supply of labor. Analysis of firms'

determination of output and the demand for factors of production. Analysis of perfectly competitive markets. Economics 100A must be taken before Economics 100B. Credit not allowed for both Economics 100A and Economics 170A. *Prerequisites: Economics 1A-B or Economics 1-2-3; and Mathematics 10A or 20A, Mathematics 10B or 20B, and Mathematics 10C or 20C or 21C.*

100B. Microeconomics B (4)
Analysis of the effects of market structure (perfect competition, imperfect competition, and monopoly) and strategic interaction among firms, the distribution of income, and welfare economics. Economics 100A must be taken before Economics 100B. Credit not allowed for both Economics 100B and Economics 170B. *Prerequisite: Economics 100A.*

100AH-BH. Honors Microeconomics (1-1)
Honors sequence covering the material of Economics 100A-B. *Prerequisites: GPA of 3.5 or better. Department stamp required. Economics 100A must be taken with 100AH, and 100B must be taken with 100BH.*

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 1-2-3. 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.*

104. Economics of Network Industries (4)
Economics of industries in which network effects play an important role, such as telecommunications, internet, software, and airlines. Analysis of standards, complementarities, switching costs, and economies of scale, and their role in shaping network industries. *Prerequisites: Economics 100A-B or 170A-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.*

110A. Macroeconomics A (4)
Analysis of the determination of long run growth and models of the determination of output, interest rates, and the price level. Analysis of inflation, unemployment, and monetary and fiscal policy. Economics 110A must be taken before Economics 110B. *Prerequisites: Economics 1A-B or 1-2-3; and Mathematics 10C or 20C or 21C.*

110B. Macroeconomics B (4)
Analysis of the determination of consumption spending at the aggregate level; extension of the basic macro model to include exchange rates and international trade; the aggregate money supply, and the business cycle. Economics 110A must be taken before Economics 110B. *Prerequisites: Economics 110A.*

110AH-BH. Honors Macroeconomics (1-1)
Honors sequence covering the material of Economics 110A-B. *Prerequisites: GPA of 3.5 or better. Department stamp required. Economics 110A must be taken with 110AH, and 110B must be taken with 110BH.*

111. Monetary Economics (4)
Financial structure of the U.S. economy. Bank behavior. Monetary control. *Prerequisites: Economics 1A-B or 1-2-3 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: Economics 100A-B, or Economics 170A-B; or Mathematics 140A; or Mathematics 142A.*

114. Economics of Immigration (4)
Examination of the economic causes and consequences of international migration. Economic reasons that motivate people to migrate, the labor market and fiscal impacts of immigration on sending and receiving countries, the economic consequences of current immigration policies. Emphasis on mid-twentieth century immigration to the U.S. from Asia and Latin America with some consideration given to aspects of other international migrations. *Prerequisites: Economics 1A-B or 1-2-3.*

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 1-2-3.*

117. Economic Growth (4)
Models of the economic growth of developed economies. *Prerequisites: Economics 100A or 170A.*

118A. Law and Economics A (4)
Course uses economic theory as the basis for evaluating the economic efficiency of both actual and theoretical legal doctrines in several legal fields. Basic principles of law and economic theory applied to questions posed by the law: torts (accidents), product liability law, property law, criminal law (law enforcement), and litigation. Issues of risk bearing and why people buy insurance. Economics 118B may be taken before 118A. *Prerequisites: Economics 1A-B or 1-2; and Mathematics 10A or 20A.*

118B. Law and Economics B (4)
Course uses economic theory as the basis for evaluating the economic efficiency of both actual and theoretical legal doctrines. Basic principles of law and economic theory applied to questions posed by the law: contract law, the law of corporate organization (how firms are legally structured), bankruptcy law, and debtor-creditor law. Economics 118B may be taken before Economics 118A. *Prerequisites: Economics 1A-B or 1-2; and Mathematics 10A or 20A.*

120A. Econometrics A (4)
Probability and statistics used in economics. Probability and sampling theory, statistical inference, and use of spreadsheets. Courses must be taken in A-B-C order. Credit not allowed for Economics 120A and any of the following: ECE 109; Mathematics 180A; or Mathematics 183. *Prerequisites: Economics 1A-B or 1-2-3; and Mathematics 10A or 20A, Mathematics 10B or 20B, and Mathematics 10C or 20C or 21C.*

120B. Econometrics B (4)
Basic econometric methods, including the linear regression model, heteroskedasticity, serial correlation, hypothesis testing, forecasting, and identification. Courses must be taken in A-B-C order. Credit not allowed for Economics 120B and Mathematics 181A. *Prerequisite: Economics 120A or ECE 109 or Mathematics 180A or Mathematics 183.*

120C. Econometrics C (4)
Advanced econometric methods: time series analysis, estimation in the presence of autocorrelated and heteroskedastic errors, estimation of simultaneous equations models, estimation of discrete choice models, and econometric methods designed for panel data sets. *Prerequisite: Economics 120B.*

120AH-BH-CH. Honors Econometrics (1-1-1)
Honors sequence covering the material of Economics 120A-B-C. *Prerequisites: GPA of 3.5 or better. Department stamp required. Economics 120A must be taken with 120AH, 120B must be taken with 120BH, and 120C must be taken with 120CH.*

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. Concurrent enrollment in Economics 120C is permitted.*

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. Concurrent enrollment in Econo-mics 120C is permitted. 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 1-2.*

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 1-2.*

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 1-2.*

133. International Environmental Agreements (4)
Addresses environmental issues that transcend national boundaries, such as climate change, biodiversity loss, over-fishing, etc. Examines why international agreements are required, how they are negotiated and implemented, and studies their effectiveness. Explores the use of game theory, environmental economics, international relations, political science, and international law for formulating more effective environmental treaties. *Prerequisites: Economics 1A-B or 1-2.0*

135. Urban Economics (4)
(Same as USP 102.) Economic analysis of why and where cities develop, problems they cause, and public policies to deal with these problems. Determination of urban land rent/use, reasons for suburbanization. Transportation and congestion in cities, zoning, poverty and housing, urban local government. *Prerequisites: Economics 1A-B or 1-2 and Mathematics 10A or 20A.*

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 1-2-3 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-C, 120A, or Mathematics 180A or Mathematics 183 or ECE 109.*

138A. Economics of Health A (4)
The application of economic analysis to the health field. Issues related to the production of health services and the demand for health care, including the role of insurance. *Prerequisites: Economics 1A-B or 1-2-3.*

138B. Economics of Health B (4)
Current health policy issues. Includes benefit-cost analysis of potential policy changes and health care options, the role of changing technology, private, non-profit and government provision of health care, regulation of health care entities such as drug companies, HMOs, and nursing homes. Economics 138A must be taken before Economics 138B. *Prerequisites: Economics 138A.*

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 1-2-3.*

145. Economics of Ocean Resources (4)
Economic issues associated with oceans. Economics of managing renewable resources in the oceans, with an emphasis on fisheries, economics of conservation and biodiversity preservation for living marine resources, with an emphasis on whales, dolphins, sea-turtles, and coral reefs. *Prerequisites: Economics 1A-B or 1-2-3.*

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.*

147. Economics of Education (4)
Examination of issues in education using theoretical and empirical approaches from economics. Analysis of decisions to invest in education. Consideration of various market structures in education, including school choice and school finance programs. *Prerequisites: Economics 1A-B or 1-2-3 and Economics 120A or ECE 109 or Mathematics 180A or Mathematics 183.*

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.*

153. Economics of the Public Sector: Income Maintenance and Insurance (4)
Overview of the public sector in the U.S. and the scope of government intervention in economic life. Theory of income redistribution and social insurance. Applications to current policy in such areas as welfare, unemployment insurance, and Social Security. *Prerequisites: Economics 100A or Economics 170A.*

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. *Prerequisite: Economics 1*A-B or 1-2-3.

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 1-2-3.*

165. Middle East Economics (4)
Internal economies of radical religious groups and terrorist organizations, oil economics, Ottoman economic history, Islamic banking, economic development and peace in Palestine, economic demography and migration. *Prerequisites: Economics 1A-B or 1-2-3.*

170A. Management Science Microeconomics A (4)
Intermediate microeconomics, including techniques of marginal analysis, demand theory and optimal pricing, estimation of demand function, forecasting, production theory, cost analysis and transfer pricing, and competitive and monopolistic market structure. Credit not allowed for both Economics 100A and Economics

170A. *Prerequisites: Economics 1A-B or 1-2-3; and Mathematics 20A, 20B, and 20C or 21C.*

170B. Management Science Microeconomics B   (4)
Intermediate microeconomics, including oligopoly theory, game theory and competitive strategy, externalities and public goods, and information economics (adverse selection, signing, and principal-agent problems), with emphasis on the theory of the firm. Economics 170A must be taken before 170B. Credit not allowed for both Economics 100B and Economics 170B. *Prerequisite: Economics 170A.*

170AH-BH. Honors Management Science Microeconomics   (1-1)
Honors sequence covering the material of Economics 170A-B. *Prerequisite: GPA of 3.5 or better. Department stamp required. Economics 170A must be taken with 170AH, and 170B must be taken with 170BH.*

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 120A 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 120A and Mathematics 20F. Economics 172A may be taken concurrently with 120A. Economics 172A must be taken first, but Economics 172B may be taken before or concurrently with 172C. A student may not receive credit for both Economics 172A-172B and Mathematics 171A-171B.*

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 120A-B-C 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 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 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, forecast evaluation, and the use of forecasts for public policy. *Prerequisites: 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. May not use more than eight units for credit.*

198. Directed Group Study   (2 or 4)
Directed study on a topic or in a group field not included in regular department curriculum by special arrangement with a faculty member. *Prerequisites: upper-division standing and consent of instructor. May be repeated up to three times when course topics vary.* (P/NP grades only.)

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.*

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.

201. Advanced Economic Theory   (4)
An intensive examination of selected topics in economic theory. Course topic nonrepetitive in a three-year cycle. *Prerequisites: Economics 207 and 213.*

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 207 or consent of instructor.*

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

206. Decisions   (4)
Further topics in consumer and producer theory, intertemporal optimization, and decision-making

under uncertainty. (Previously numbered Economics 200D.) *Prerequisites: Economics 200A-B-C or consent of instructor.*

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

208. Games and Information   (4)
Further topics in game theory and the economics of information. (Previously numbered Economics 200F.) *Prerequisite: Economics 200A-B-C or 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.

211. Advanced Macroeconomics   (4-4-4)
Selected theoretical and empirical issues in macroeconomics. *Prerequisite: Economics 213 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.*

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

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

220. A-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.

221. Advanced Econometrics   (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.)

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

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

231. Public Economics: National Government Expenditures   (4)
Theoretical and empirical issues in public economics. (Previously numbered Economics 230B.) *Prerequisite: consent of instructor.*

232. Public Economics: Fiscal Federalism   (4)
Theoretical and empirical issues in public economics. (Previously numbered Economics 230C.) *Prerequisite: 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.)

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

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

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

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

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

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

270. Finance—Core Asset Pricing   (4)
Theoretical and empirical issues in finance. (Previously numbered Economics 214A.)

271. Finance—Market Micro Structure and Volatility Modeling   (4)
Theoretical and empirical issues in finance. (Previously numbered Economics 214B.)

272. Finance—Theory and Testing of Intertemporal Asset Pricing Models (4)
Theoretical and empirical issues in finance. (Previously numbered Economics 214C.)

279. Readings in Finance   (1)
Examination of recent research in finance to facilitate the development of thesis research by graduate students. *Prerequisite: consent of instructor.*

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

281. 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. (Previously numbered Economics 267.) *Prerequisite: consent of instructor.*

282. 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. (Previously numbered Economics 272.)

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

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

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

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.)