

# Economics

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## LECTURERS WITH SECURITY OF EMPLOYMENT

Kate Antonovics, Ph.D., *Vice Chair, Instruction*  
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## ECONOMICS STUDENT SERVICES:

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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.

Information on the undergraduate program can be found on the undergraduate program's Web site at <http://economics.ucsd.edu/ugrad/index.php>. The Web site 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 Web site 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 e-mail.

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.

Transfer students should see the department Web site at <http://economics.ucsd.edu/ugrad/ugradTransStudInfo/index.php>.

## THE UNDERGRADUATE PROGRAM

### LOWER-DIVISION ECONOMIC COURSES

#### *Microeconomics and Macroeconomics—ECON. 1-2-3*

The department offers three lower-division economics classes, ECON 1-2-3. ECON 1 is an introduction to the study of the economic system from the micro, or individual decision maker's perspective. The focus of ECON 1 is the allocation of resources and the distribution of income in perfectly competitive markets. ECON 2 is a continuation of the study of microeconomics with a focus on the allocation of resources in monopoly and other imperfectly competitive markets, market imperfections, and the role of government in markets. ECON 3 introduces macroeconomics: unemployment, inflation, business cycles, and monetary and fiscal policy. ECON 1 is a prerequisite for both ECON 2 and ECON 3. ECON 2 and ECON 3 can be taken in any order and may be taken concurrently.

### ACCOUNTING COURSE

The department offers an accounting course, ECON 4. ECON 4 is a lower-division requirement for the B.S. in management science and the management science minor. ECON 4 is open to students who take no other courses from the department.

### UPPER-DIVISION ECONOMICS CORE COURSES

The upper-division economics and management science core courses are expected to be offered according to the following academic schedule:

**Fall—100A-B-C, 110A, 120A-B-C, 171, 172A, and 173A**  
**Winter—100A-B-C, 110A-B, 120A-B-C, 172A-B, and 173A-B**  
**Spring—100A-B-C, 110B, 120A-B-C, 171, 172B, and 173B**

The 100, 110, 120, 172, and 173 core courses are sequential. That is, A must be taken before B and when applicable B before C.

### ENTRY TO THE MAJORS

Any student in good standing may declare a major in the department. 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.

When choosing which mathematics series to take, Math. 10A-B-C or Math. 20A-B-C, it is important to remember that only Math. 20A-B-C allows students access to Math. 20F and several upper-division Math. courses that are recommended as preparation for Ph.D. study in economics and business administration, as well as for graduate studies for professional management degrees, including the MBA. Therefore, while we require economics

majors to take Math. 10A-B-C, we recommend that economics students take Math. 20A-B-C.

A student majoring in economics must meet the following requirements:

1. Lower-division mathematics courses. Math. 10A-B-C (required) or Math. 20A-B-C (recommended).
2. Lower-division economics courses. ECON 1 and ECON 3.
3. Upper-division economics core courses. ECON 100A-B-C (microeconomics), ECON 110A-B (macroeconomics), and ECON 120A-B-C (econometrics).
4. Upper-division economics electives. Five more economics courses at the upper-division level. *At least two of these elective courses must be "advanced electives."*The economics advanced electives are

**ECON 103. International Monetary Relations**

**ECON 104. Economics of Network Industries**

**ECON 105. Industrial Organization and Firm Strategy**

**ECON 109. Game Theory**

**ECON 113. Mathematical Economics**

**ECON 119. Law and Economics: Contracts and Corporations**

**ECON 121. Applied Econometrics**

**ECON 125. Demographic Analysis and Forecasting**

**ECON 141. Economics of Health Consumers**

**ECON 142. Behavioral Economics**

**ECON 143. Experimental Economics**

**ECON 147. Economics of Education**

**ECON 150. Public Economics: Taxation**

**ECON 151. Public Economics: Expenditures I**

**ECON 152. Public Economics: Expenditures II**

**ECON 155. Political Economics**

**ECON 171. Decisions Under Uncertainty**

**ECON 172A. Operations Research A**

**ECON 172B. Operations Research B**

**ECON 173A. Financial Markets**

**ECON 173B. Corporate Finance**

**ECON 174. Financial Risk Management**

**ECON 176. Marketing**

**ECON 178. Economic and Business Forecasting**

Note that many of these advanced economics electives recommend 100C as a prerequisite for the class. In the fall quarter of 2010, 100C will become a prerequisite for the advanced electives that currently only recommend 100C as a prerequisite. Therefore, economics majors are strongly encouraged to take ECON 100A-B-C and either ECON 110A-B or ECON 120A-B-C in their sophomore year.

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

### **FRESHMAN YEAR**

ECON 1 and ECON 3  
Math. 10A-B-C (required) or  
Math. 20A-B-C (recommended)

### **SOPHOMORE YEAR**

ECON 100A-B-C  
ECON 120A-B-C

### **JUNIOR YEAR**

ECON 110A-B  
Economics Electives

### **SENIOR YEAR**

Economics Electives

A detailed description of the economics major is available in the Undergraduate Program section of the department Web site at <http://economics.ucsd.edu/ugrad/index.php>.

### **THE MANAGEMENT SCIENCE MAJOR (B.S.C.)**

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.

A student majoring in management science must meet the following requirements:

1. Lower-division mathematics courses. Math. 20A-B-C and Math. 20F.
2. Lower-division economics courses. ECON 1, ECON 3, and ECON 4.
3. Upper-division economics core courses. ECON 100A-B-C (microeconomics), ECON 120A-B-C (econometrics), ECON 171 (decisions under uncertainty), ECON 172A-B (operations research) and ECON 173A-B (finance).
4. Upper-division economics electives. Four more economics courses at the upper-division level. *At least two of these elective courses must be "advanced electives."*The management science advanced electives are

**ECON 103. International Monetary Relations**

**ECON 104. Economics of Network Industries**

**ECON 105. Industrial Organization and Firm Strategy**

**ECON 109. Game Theory**

**ECON 113. Mathematical Economics**

**ECON 119. Law and Economics: Contracts and Corporations**

**ECON 121. Applied Econometrics**

**ECON 125. Demographic Analysis and Forecasting**

**ECON 150. Public Economics: Taxation**

**ECON 151. Public Economics: Expenditures I**

**ECON 152. Public Economics: Expenditures II**

**ECON 155. Political Economics**

**ECON 174. Financial Risk Management**

**ECON 176. Marketing**

**ECON 178. Economic and Business Forecasting**

Note that many of these advanced management science electives recommend 100C as a prerequisite for the class. In the fall quarter of 2010, 100C will become a prerequisite for the advanced electives that currently only recommend 100C as a prerequisite. Therefore, management science majors are strongly encouraged to take ECON 100A-B-C and ECON 120A-B-C in their sophomore year. The following schedule, though not the only possibility, is a well-constructed one for a student majoring in management science.

### **FRESHMAN YEAR**

ECON 1 and ECON 3  
ECON 4  
Math. 20A-B-C

### **SOPHOMORE YEAR**

ECON 100A-B-C  
ECON 120A-B-C  
Math. 20F

### **JUNIOR YEAR**

ECON 171  
ECON 172A-B  
ECON 173A-B  
Economics Electives

### **SENIOR YEAR**

Economics Electives

A detailed description of the management science <http://economics.ucsd.edu/ugrad/index.php>.

### **JOINT MAJOR IN MATHEMATICS AND ECONOMICS (B.S.C.)**

This major is considered to be excellent preparation for the Ph.D. study in economics and business administration, as well as for graduate studies for professional management degrees, including the M.B.A.

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. Majors in mathematics 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. This major provides a formal framework making it easier to combine study in economics and mathematics.

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. One of the following sequences:
  - a. Calculus and Linear Algebra. Math. 20A-B-C-D and 20F
  - b. Honors Calculus. Math. 31AH-BH, Math 20D
2. Introductory economics. ECON 1 and ECON 3.

## Upper-Division Requirements

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

1. Mathematical Reasoning. Math. 109 (**Note:** Students completing Math. 31CH may substitute a four-unit upper-division math. elective for Math. 109.)
2. One of the following:
  - a. Applied Linear Algebra. Math. 102
  - b. Numerical Linear Algebra. Math. 170A
  - c. Modern Algebra. Math. 100A-B
3. One of the following:
  - a. Foundations of Analysis. Math. 140A
  - b. Advanced Calculus. Math. 142A
4. One of the following:
  - a. Ordinary Differential Equations. Math. 130A
  - b. Foundations of Analysis. Math. 140B
  - c. Advanced Calculus. Math. 142B
5. Microeconomics. ECON 100A-B-C
6. Econometrics/Statistics. One of the following:
  - a. ECON 120A-B-C
  - b. Math. 180A and ECON 120B-C
  - c. Math. 180A and 181A and ECON 120C
7. One of the following:
  - a. Macroeconomics. ECON 110A-B
  - b. Mathematical Programming: Numerical Optimization. Mathematics 171A-B
  - c. Introduction to Operations Research. ECON 172A-B
  - d. Decisions Under Uncertainty. ECON 171 and Introduction to Operations Research. ECON 172A

When choosing across the Math. 140 or the Math. 142 series, it is recommended that students take Math. 142. Other courses which are strongly recommended are Math. 130B, 131, 181B, 190, and 193A-B and ECON 109, 113, 173A-B, 174, and 178.

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

## HONORS

### Economics Majors

To graduate with the phrase “with distinction” on your diploma, you must complete two additional advanced electives (for a total of seven electives, four of which are advanced). You must also have an upper-division GPA in your major greater than or equal to 3.5. The upper-division major GPA will only include grades for courses taken at universities in the UC system and through EAP.

To graduate with the phrase “with highest distinction” on your diploma, you must complete two additional advanced electives (for a total of seven electives, four of which are advanced), take the honors sections of at least two upper-division courses (ECON 100AH-BH-CH, ECON 110AH-BH, and ECON 120AH-BH-CH), and take the Senior Essay Seminar (ECON 191A-B). You must also have an upper-division GPA in your major greater than or equal to 3.5. The major GPA in your honors sections and ECON 191A-B must be 3.5 or above. Admission to honors sections and ECON 191A-B is by special permission; check with the undergraduate advisors in the Economics Student Services Office. Note that we generally offer A honors sections in the fall, B honors sections in the winter, and the C honors sections in the spring.

### Management Science Majors

To graduate with the phrase “with distinction” on your diploma, you must have an upper-division GPA in your major greater than or equal to 3.5. The upper-division major GPA will only include grades for courses taken at universities in the UC system and through EAP.

To graduate with the phrase “with highest distinction” on your diploma, you must complete the honors sections of at least two upper-division courses (ECON 100AH-BH-CH or ECON 120AH-BH-CH), and take the Senior Essay Seminar (ECON 191A-B). You must also have an upper-division GPA in your major greater than or equal to 3.5. The major GPA in your honors sections and ECON 191A-B must be 3.5 or above. Admission to honors sections and ECON 191A-B is by special permission; check with the undergraduate advisors in the Economics Student Services Office. Note that we generally offer A honors sections in the fall, B honors sections in the winter, and the C honors sections in the spring.

### Joint Mathematics/Economics Majors

To graduate with honors requires the following:

1. At least one quarter of the Student Colloquium, Math. 196. (**Note:** Math. 196 is only offered in the fall quarter.)
2. At least one Economics honors course: ECON 100AH, 100BH, 100CH, 110AH, 110BH, 120AH, 120BH, 120CH. [**Note:** enrollment in these honors classes is by special permission; check with the undergraduate advisors in the Economics Student Services Office, (SH 245).]
3. An Honors Thesis. The research and writing of the thesis will be conducted over two quarters of the senior year under the supervision of a faculty advisor. The completed thesis must be approved by the Joint Mathematics and Economics Honors Committee, which comprises the Mathematics Honors Committee and the Economics Honors Committee, and presented orally at the Undergraduate Research Conference or another appropriate occasion.

- a. If the student is a declared major in the mathematics department (MA33), this thesis will be credited as eight units of Math. 199H. Enrollment in Math. 199H is by special permission; check with the advisors in the

mathematics department Undergraduate Affairs Office (AP&M 7018) or the Mathematics Advising Office (AP&M 6016).

- b. If the student is a declared major in the economics department (EN28), the student must enroll in ECON 191A-B. Enrollment in ECON 191 is by special permission; check with the undergraduate advisors in the Economics Student Services Office (SH 245).
4. A minimum GPA of 3.0 overall, 3.5 in the upper-division courses required for the major and a 3.5 in the following four classes: Math. 196, Economics Honors class, and either ECON 191A-B or two quarters of Math. 199H.

The Joint Mathematics and Economics Honors Committee will determine the level of honors to be awarded, based on the student's GPA in the major and the quality of the honors work.

## 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 courses, upper-division courses, and to required courses taken from other departments (such as required mathematics courses). Exceptions are ECON 195, ECON 198, and ECON 199, for which P/NP grading is mandatory. No more than twelve units of ECON 195, ECON 198, and ECON 199 taken P/NP may be counted toward a major. Further, no more than eight units of ECON 195 may be counted toward a major.

## ECONOMICS DEPARTMENT RESIDENCY REQUIREMENT

To receive a bachelor of arts or bachelor of science degree from the economics department, all students must pass with a C– (C minus) or better at least nine of the required upper-division courses (at least four units each) for the major, taken through the UCSD economics department, while officially enrolled at UCSD, to satisfy the residency requirement.

## ADVANCED PLACEMENT CREDITS

Because no high school economics course provides the kind of background needed for upper-division economics and management science courses, the department is strict on allowance of credits. The policy is as follows: If the AP score is 5, accept AP Micro (AP Macro) as equivalent to ECON 1 (ECON 3) in meeting major or minor requirements. If the score is 3 or 4, the student is required to take ECON 1 (ECON 3) for the major or minor. There is not an advanced placement exam equivalent to ECON 2.

Minors and Programs of Concentration The economics minor or program of concentration consists of eight courses: introductory microeconomics (ECON 1); microeconomic applications (ECON 2) or ECON 100A; introductory macroeconomics (ECON 3) or ECON 110A; and five additional upper-division economics courses, which are otherwise not restricted.

The management science minor, paralleling the economics minor, consists of nine courses: introductory microeconomics (ECON 1); microeconomic applications (ECON 2) or ECON 100A; introductory

macroeconomics (ECON 3) or ECON 110A; financial accounting (ECON 4), and any additional five classes from the following list (Caution: All courses have prerequisites).

ECON 100A. Microeconomics A  
ECON 100B. Microeconomics B  
ECON 100C. Microeconomics C  
ECON 120A. Econometrics A  
ECON 120B. Econometrics B  
ECON 120C. Econometrics C  
ECON 171. Decisions Under Uncertainty  
ECON 172A. Operations Research A  
ECON 172B. Operations Research B  
ECON 173A. Financial Markets  
ECON 173B. Corporate Finance  
ECON 174. Financial Risk Management  
ECON 176. Marketing  
ECON 178. Economic and Business Forecasting

Grades of P/NP are acceptable for minor courses. If courses are taken for a letter grade, passing is considered with a C- (C minus) or better. To declare a minor or program of concentration, complete an Undergraduate Declaration of Minor using the Major/Minor tool found on [TritonLink](#). Students should check with their colleges regarding area of focus, programs of concentration, and project minors.

## THE GRADUATE PROGRAM

The department offers a Ph.D. degree in economics, designed to provide a solid, analytically oriented training in microeconomics, macroeconomics, econometrics, and advanced specialties. Since the program is structured as a doctoral program, only students who intend to pursue a doctorate should apply.

The main economics Ph.D. requirements are that a student pass qualifying exams in microeconomics, macroeconomics, econometrics, and select courses of specialization, and prepare an acceptable dissertation.

Detailed descriptions of the Ph.D. program are available on the Internet at the department Web site at <http://economics.ucsd.edu/>. Residence and other campuswide 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 UC San Diego 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

*For course descriptions not found in the UC San Diego General Catalog, 2010–11, please contact the department for more information.*

## LOWER-DIVISION

### 1. Principles of Microeconomics (4)

Introduction to the study of the economic system. Course will introduce the standard economic models used to examine how individuals and firms make decisions in perfectly competitive markets. Credit not allowed for both ECON 1 and ECON 1A.

### 2. Market Imperfections and Policy (4)

Analysis of monopoly and imperfectly competitive markets, market imperfections and the role of government. **Prerequisite:** ECON 1 or 1A.

### 3. Principles of Macroeconomics (4)

Introductory macroeconomics: unemployment, inflation, business cycles, monetary and fiscal policy. Credit not allowed for both ECON 1B and ECON 3. **Prerequisite:** ECON 1 or 1A.

### 4. Financial Accounting (4)

(Cross-listed with MGT 4.) Recording, organizing, and communicating financial 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. Freshman seminars are offered in all campus departments and undergraduate colleges, and topics vary from quarter to quarter. Enrollment is limited to fifteen to twenty students, with preference given to entering freshmen. May be repeated when course topics vary. (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. Credit not allowed for both ECON 100A and ECON 170A. **Prerequisites:** ECON 1A or 1; and Math. 10C or 20C.

### 100B. Microeconomics B (4)

Analysis of firms' production and costs, the supply of output and demand factors of production. Analysis of perfectly competitive markets. Credit not allowed for both ECON 100B and ECON 170B. **Prerequisite:** ECON 100A or 170A.

### 100C. Microeconomics C (4)

Analysis of the effects of imperfect market structure, strategy, and imperfect information. **Prerequisite:** ECON 100B or 170B.

### 100AH. Honors Microeconomics A (1)

Honors sequence expanding on the material taught in ECON 100A. ECON 100A must be taken with ECON 100AH. Credit not allowed for both ECON 100AH and ECON 170AH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

### 100BH. Honors Microeconomics B (1)

Honors sequence expanding on the material taught in ECON 100B. ECON 100B must be taken with ECON 100BH. Credit not allowed for both ECON 100BH and ECON 170BH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

### 100CH. Honors Microeconomics C (1)

Honors sequence expanding on the material taught in ECON 100C. ECON 100C must be taken with ECON 100CH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

### 101. International Trade (4)

Examines theories of international trade in goods and services as well as international migration and capital flows. The course discusses comparative advantage, motives for trade policies, and the effects of trade barriers and trading blocs on income distribution and welfare. **Prerequisites:** ECON 1A-B or 2 or 100B or 170B.

### 103. International Monetary Relations (4)

Analyzes exchange rates and the current account, and relates their joint determination to financial markets and the domestic macroeconomy. Discusses macroeconomic

policies under different exchange rate regimes and implications for financial stability and current account sustainability. **Prerequisite:** ECON 110B or 173A or 175.

### 104. Economics of Network Industries (4)

Economics of industries with network effects such as telecommunications, internet, software, and airlines. Analysis of standards, complementarities, switching costs, economies of scale, and optimal price setting in the presence of network effects. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B.

### 105. Industrial Organization and Firm Strategy (4)

Theory of monopoly and oligopoly pricing, price discrimination, durable goods pricing, cartel behavior, price wars, strategic entry barriers, mergers, pro- and anti-competitive restraints on business. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B.

### 107. Economic Regulation and Antitrust Policy (4)

Detailed treatment of antitrust policy: Sherman Act, price fixing, collusive practices, predatory pricing, price discrimination, double marginalization, exclusive territories, resale price maintenance, refusal to deal, and foreclosure. Theory of regulation and regulatory experience in electrical utilities, oil, telecommunications, broadcasting, etc. **Prerequisites:** ECON 1A-B or 2 or 100B or 170B; and Math. 10C or 20C.

### 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. This course features applications in economics, political science, and law. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B or Math. 109.

### 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. **Prerequisites:** ECON 1A-B or 3; and Math. 10C or 20C.

### 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. **Prerequisite:** ECON 110A.

### 110AH. Honors Macroeconomics A (1)

Honors sequence expanding on the material taught in ECON 110A. ECON 110A must be taken with ECON 110AH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

### 110BH. Honors Macroeconomics B (1)

Honors sequence expanding on the material taught in ECON 110B. ECON 110B must be taken with ECON 110BH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

### 111. Monetary Economics (4)

Financial structure of the U.S. economy. Bank behavior. Monetary control. **Prerequisites:** ECON 1A-B or 3; and Math. 10A or 20A.

### 113. Mathematical Economics (4)

Mathematical concepts and techniques used in advanced economic analysis; applications to selected aspects of economic theory. ECON 100C is recommended. **Prerequisite:** ECON 100B or ECON 170B; or Math. 140A or Math. 142A.

### 114. Economics of Immigration (4)

Impact of immigration on the U.S. economy. Empirical evidence on the labor market and fiscal impacts of immigration. Consequences of U.S. immigration policies on the economy. **Prerequisites:** ECON 1A-B or ECON 1 and 3.

### 116. Economic Development (4)

Introduction to the economics of less developed countries, covering their international trade, human resources, urbanization, agriculture, income distribution, political economy, and environment. **Prerequisites:** ECON 1A-B or 2 or 100B.

### 117. Economic Growth (4)

Models of the economic growth of developed economies. **Prerequisite:** ECON 100A or 170A.

**118. Law and Economics: Torts, Property, and Crime (4)**

Uses economic theory to evaluate the economic effects of U.S. law in several legal fields, including tort law (accidents), products liability law, property law, criminal law (law enforcement), and litigation. Also considers risk bearing and why people buy insurance. Renumbered from ECON 118A. Credit not allowed for both ECON 118 and ECON 118A. **Prerequisites:** ECON 1A-B or 2 or 100A; and Math. 10A or 20A.

**119. Law and Economics: Contracts and Corporations (4)**

Uses economic theory to evaluate the economic effects of U.S. law in contract law, corporate law (how large firms are organized and governed), debtor-creditor law, and bankruptcy law. ECON 100C and 118 are recommended. **Prerequisite:** ECON 100B or 170B.

**120A. Econometrics A (4)**

Probability and statistics used in economics. Probability and sampling theory, statistical inference, and use of spreadsheets. Credit not allowed for ECON 120A and any of the following: ECE 109; Math. 180A; Math.183; Math. 186. **Prerequisites:** ECON 1A or 1; and Math. 10C or 20C.

**120B. Econometrics B (4)**

Basic econometric methods, including the linear regression, hypothesis testing, quantifying uncertainty using confidence intervals, and distinguishing correlation from causality. Credit not allowed for both ECON 120B and Math. 181A. **Prerequisite:** ECON 120A or ECE 109 or Math. 180A or Math. 183 or Math. 186.

**120C. Econometrics C (4)**

Advanced econometric methods: estimation of linear regression models with endogeneity, economic methods designed for panel data sets, estimation of discrete choice models, time series analysis, and estimation in the presence of autocorrelated and heteroskedastic errors. **Prerequisite:** ECON 120B or Math. 181A.

**120AH. Honors Econometrics A (1)**

Honors sequence expanding on the material taught in ECON 120A. ECON 120A must be taken with ECON 120AH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

**120BH. Honors Econometrics B (1)**

Honors sequence expanding on the material taught in ECON 120B. ECON 120B must be taken with ECON 120BH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

**120CH. Honors Econometrics C (1)**

Honors sequence expanding on the material taught in ECON 120C. ECON 120C must be taken with ECON 120CH. GPA of 3.5 or better. **Prerequisite:** department stamp required.

**121. Applied Econometrics (4)**

Application of econometric methods to such areas as labor supply, human capital, and financial time series. Concurrent enrollment in ECON 120C is permitted. **Prerequisite:** ECON 120C.

**125. Demographic Analysis and Forecasting (4)**

Interaction between economic forces and demographic changes are considered, as are demographic composition and analysis; fertility, mortality, and migration processes and trends. Course emphasizes the creation, evaluation, and interpretation of forecasts for states, regions and sub-county areas. ECON 178 is recommended. **Prerequisite:** ECON 120B or Math. 181A.

**130. Public Policy (4)**

Course uses basic microeconomic tools to discuss a wide variety of public issues, including the war on drugs, global warming, natural resources, health care and safety regulation. Appropriate for majors who have not completed ECON 100A-B-C or ECON 170A-B and students from other departments. **Prerequisites:** ECON 1A-B or 2 or 100A.

**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:** ECON 1A-B or 2 or 100A.

**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:** ECON 1A-B or 2 or 100A; and Math. 10C or 20C.

**133. International Environmental Agreements (4)**

Addresses environmental issues that transcend national boundaries, such as climate change, biodiversity loss, over-fishing. Examines why international agreements are required, how they are negotiated and implemented, and studies their effectiveness. Explores whether more effective environmental treaties could be designed. **Prerequisites:** ECON 1A-B or 2 or 100A.

**135. Urban Economics (4)**

(Cross-listed with 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. Credit not allowed for both ECON 135 and USP 102. **Prerequisites:** ECON 1A-B or 2 or 100A; and Math. 10A or 20A.

**136. Human Resources (4)**

A practical yet theory-based study of the firm's role in managing workers, including issues related to hiring, education and training, promotions, layoffs and buyouts, and the overarching role that worker compensation plays in all of these. **Prerequisite:** ECON 100B or 170B.

**139. Labor Economics (4)**

Theoretical and empirical analysis of labor markets. Topics include: labor supply, labor demand, human capital investment, wage inequality, labor mobility, immigration, labor market discrimination, labor unions and unemployment. **Prerequisites:** ECON 1A-B or 2 or 100B.

**140. Economics of Health Producers (4)**

Physician and nurse supply, medical malpractice, incentives to avoid patient injury, patents and pricing in the pharmaceutical industry, not-for-profit firms, and government regulation of healthcare producers. Renumbered from ECON 138A. Credit not allowed for both ECON 140 and ECON 138A. **Prerequisites:** ECON 1A-B or 2 or 100B.

**141. Economics of Health Consumers (4)**

Demand for health care and health insurance, employer-provision of health insurance and impact on wages and job changes. Cross country comparisons of health systems. ECON 100C is recommended. Renumbered from ECON 138B. Credit not allowed for both ECON 141 and ECON 138B. **Prerequisite:** ECON 100B or 170B.

**142. Behavioral Economics (4)**

Course will study economic models in which standard economic rationality assumptions are combined with psychologically plausible assumptions on behavior. We consider whether the new models improve ability to predict and understand phenomena including altruism, trust and reciprocity, procrastination, and self-control. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B.

**143. Experimental Economics (4)**

Explore use of experiments to study individual and interactive (strategic) decision-making. Topics may include choice over risky alternatives, altruism and reciprocity, allocation and information aggregation in competitive markets, cooperation and collusion, bidding in auctions, strategy in coordination and "outguessing" games. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B.

**144. Economics of Conservation (4)**

Examines conservation of biodiversity from an economic perspective. Topics include valuing biodiversity, defining successful conservation, and evaluating the cost effectiveness of policies such as conservation payments, ecotourism, and privatization. Emphasis on forests, coral reefs, elephants, tigers, and sea turtles. **Prerequisites:** ECON 1A-B or 2 or 100A.

**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:** ECON 1A-B or 2 or 100A.

**146. Economic Stabilization (4)**

Theory of business cycles and techniques used by governments to stabilize an economy. Discussion of recent economic experience. **Prerequisite:** ECON 110B.

**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:** ECON 1A-B or 2 or 100A; and ECON 120B or Math. 181A.

**150. Public Economics: 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. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B.

**151. Public Economics: Expenditures I (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. Discussion of specific expenditure programs such as education and national defense. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B.

**152. Public Economics: Expenditures II (4)**

Overview of the public sector in the U.S. and the justifications for 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. ECON 100C is recommended. Renumbered from ECON 153. Credit not allowed for both ECON 152 and ECON 153. **Prerequisite:** ECON 100B or 170B.

**155. Political Economics (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:** ECON 109.

**158. Economic History of the United States I (4)**

(Cross-listed with HIUS 140.) 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. Renumbered from 158A. Credit not allowed for ECON 158 and any of the following: ECON 158A; HIUS 140. **Prerequisite:** upper-division standing.

**ECON 159. Economic History of the United States II (4)**

(Cross-listed with HIUS 141.) 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. Renumbered from 158B. Credit not allowed for ECON 159 and any of the following: ECON 158B; HIUS 141. **Prerequisite:** upper-division standing.

**161. Global Integration of Latin America (4)**

Examines the integration of Latin American and Caribbean countries into the global economy. Topics include trade in agricultural and manufactured goods, regional trade agreements, international capital flows to Latin America, financial vulnerabilities, and policy responses. **Prerequisites:** ECON 1A-B or ECON 1 and 3.

**162. Economics of Mexico (4)**

Survey of the Mexican 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. **Prerequisites:** ECON 1A-B or ECON 1 and 3.

**163. Japanese Economy (4)**

Survey of the Japanese economy. Economic growth, business cycles, saving-investment balance, financial markets, fiscal and monetary policy, labor markets, industrial structure, international trade, and agricultural policy. **Prerequisites:** ECON 1A-B or ECON 1 and 3.

**165. Middle East Economics (4)**

Internal economies of radical religious groups and terrorist organizations. Ottoman economic history, economic demography and migration, Islamic banking, economic development and peace in Palestine, and oil economics. **Prerequisites:** ECON 1A-B or ECON 1 and 3.

**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:** ECON 100A or 170A; and ECON 120A or ECE 109 or Math. 180A or Math. 183 or Math. 186.

**172A. Operations Research A (4)**

Linear and integer programming, elements of zero-sum, two-person game theory, and specific combinatorial algorithms. Credit not allowed for both ECON 172A and Math. 171A. **Prerequisites:** ECON 100A or 170A; and ECON 120A or ECE 109 or Math. 180A or Math. 183 or Math. 186; and Math. 20F.

**172B. Operations Research B (4)**

Non-linear programming, deterministic and stochastic dynamic programming, queuing theory, search models, and inventory models. Credit not allowed for both ECON 172B and Math. 171B. **Prerequisite:** ECON 172A or Math. 171A.

**173A. Financial Markets (4)**

Financial market functions, institutions and instruments: stocks, bonds, cash instruments, derivatives (options), etc. Discussion of no-arbitrage arguments, as well as investors' portfolio decisions and the basic risk-return trade-off established in market equilibrium. Renumbered from ECON 175. Credit not allowed for both ECON 173A and ECON 175. **Prerequisites:** ECON 100A or 170A; and ECON 120B or Math. 181A.

**173B. Corporate Finance (4)**

Introduces the firm's capital budgeting decision, including methods for evaluation and ranking of investment projects, the firm's choice of capital structure, dividend policy decisions, corporate taxes, mergers and acquisitions. Renumbered from ECON 173. Credit not allowed for both ECON 173B and ECON 173. **Prerequisites:** ECON 4; and ECON 173A or 175.

**174. Financial Risk Management (4)**

Risk measures, hedging techniques, value of risk to firms, estimation of optimal hedge ratio, risk management with options and futures. ECON 171 is recommended. **Prerequisite:** ECON 173A or 175.

**176. Marketing (4)**

Role of marketing in the economy. Topics such as buyer behavior, marketing mix, promotion, product selection, pricing, and distribution. Concurrent enrollment in ECON 120C is permitted. **Prerequisite:** ECON 120C.

**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. Concurrent enrollment in ECON 120C is permitted. **Prerequisite:** ECON 120C.

**180. Topics in Econometrics (4)**

Selected topics in econometrics. May be repeated for credit, as topics vary. **Prerequisites:** ECON 120C, consent of department is required.

**181. Topics in Finance (4)**

Selected topics in finance. May be repeated for credit as topics vary. **Prerequisites:** ECON 173A or 175; consent of department is required.

**182. Topics in Microeconomics (4)**

Selected topics in microeconomics. ECON 100C is recommended. **Prerequisite:** ECON 100B or 170B, consent of department is required.

**191A. Senior Essay Seminar A (4)**

Senior essay seminar for students with superior records in department majors. Students must complete ECON 191A and ECON 191B in consecutive quarters. **Prerequisite:** department stamp required.

**191B. Senior Essay Seminar B (4)**

Senior essay seminar for students with superior records in department majors. Students must complete ECON 191A and ECON 191B in consecutive quarters. **Prerequisite:** department stamp required.

**192. Senior Seminar in Economics (1)**

The senior seminar is designed to allow senior undergraduates to meet with faculty members in a small group setting to explore an intellectual topic in economics at the upper-division level. Topics will vary from quarter to quarter. Senior seminars may be taken for credit up to four times, with a change in topic and permission of the department. Enrollment is limited to twenty students, with preference given to seniors. **Prerequisite:** department stamp and/or consent of instructor.

**195. Introduction to Teaching Economics (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.) Students may not earn more than eight units credit in 195 courses. **Prerequisite:** consent of the department.

**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:** ECON 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:** ECON 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 ECON 200D.) **Prerequisites:** ECON 200A-B-C or consent of instructor.

**208. Games and Information (4)**

Further topics in game theory and the economics of information. (Previously numbered ECON 200F.) **Prerequisites:** ECON 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)**

Covers various topics in macroeconomics at the frontiers of research, including theory, computation, and empirical work. Emphasis depends on the instructor. Students will read the latest working papers and publications in the covered areas. **Prerequisites:** graduate standing and ECON 210A-B-C or consent of instructor.

**212A-B-C. Workshop in Macroeconomics (0-4/0-4/0-4)**

Examination of recent research in macroeconomics; development of own research by graduate students and faculty. Course may be repeated an unlimited number of times. (S/U grades only.) **Prerequisite:** ECON 210C.

**213. Advanced Macroeconomic Theory (4)**

This course develops purely theoretical models for problems in macroeconomics. Topics include dynamic general equilibrium, asset market equilibrium, and economic growth and distribution. **Prerequisites:** ECON 210A-B-C or consent of instructor.

**215. Macroeconomic Policy (4)**

This course focuses on theoretical models and empirical analysis aimed at understanding and directing macroeconomic policy, including monetary, fiscal, and structural policies. **Prerequisites:** ECON 210A-B-C or consent of instructor.

**216. Computation for Macroeconomics (4)**

This course covers advanced computation techniques that are widely used in macroeconomics, finance, and other fields. Students will learn a range of numerical methods for handling systems of equations, integration, optimization, and other problems. **Prerequisites:** ECON 210A-B-C or consent of instructor.

**219. Readings in Macroeconomics (4)**

This course will cover numerical analysis of dynamic macroeconomic models. Topics include numerical techniques, dynamic programming, linear systems, solution algorithms, and applications to dynamic general equilibrium. **Prerequisite:** graduate standing or consent of instructor.

**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.

**221. Advanced Econometrics (4)**

Advanced Topics in Econometrics. Topics may vary from year to year, covering areas such as cross-section, time-series, panel, limited dependent variables, conditional quantile estimation, bootstrapping, and large- and small-sample distribution theory. **Prerequisites:** graduate standing and ECON 220A, 220B, 220C, 220D, and 220E 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. (S/U grades only.)

**225. Forecasting (4)**

Topics include testing for rationality of forecasts, Mincer-Zarnowitz regressions, asymmetric loss functions, tests for equal (superior) predictive ability, multivariate forecasting. **Prerequisites:** graduate standing and ECON 220A, 220B, 220C, 220D, and 220E or consent of instructor.

**226. Bayesian and Numerical Methods (4)**

Topics include Bayesian inference and decision theory, loss functions, estimation of dynamic stochastic general

equilibrium models, nonlinear time series, state-space models, spatial-temporal models, and high-frequency data. **Prerequisites:** graduate standing and ECON 220A, 220B, 220C, 220D, and 220E or consent of instructor.

**227. Nonparametric and Semi-Parametric Models (4)**  
Topics include neural networks, kernels, series, splines, estimation of densities and spectra, smoothing parameter selection, semi-parametric models, efficiency and adaptation, forecasting with nonlinear models, over-fit, computation, and interpretation. **Prerequisites:** graduate standing and ECON 220A, 220B, 220C, 220D, and 220E or consent of instructor.

**228. Nonstandard Inference (4)**  
Topics include weak instruments, unit roots, break tests, switching models, set-based inference, maximum likelihood estimation and meaning of misspecified models, consistency, asymptotic normality, consistent covariance matrix estimation, and tests of model misspecification. **Prerequisites:** graduate standing and ECON 220A, 220B, 220C, 220D, and 220E or consent of instructor.

**229. Estimating Causal Effects (4)**  
Topics include the definition, identification, and estimation of causal effects. Topics include White and Chalck's settlable systems, Granger causality, treatment effects, parametric and non-parametric estimation methods, extensions of IV methods, and tests for structural identification. **Prerequisites:** graduate standing and ECON 220A, 220B, 220C, 220D, and 220E or instructor approval.

**230. Public Economics: Taxation (4)**  
Exploration of existing theoretical literature evaluating the efficiency and distribution effects of income and commodity taxes. Characterization of an "optimal" tax structure, and examination of problems faced in tax administration. Scrutiny of behavioral responses to existing tax structures. **Prerequisites:** ECON 200A-B-C and ECON 220A-B-C.

**231. Public Economics: National Government Expenditures (4)**  
Examination of possible normative justification of government expenditures (public goods, externalities, and market failures). Exploration of positive government-behavior models. Analysis of behavioral responses to key existing government-expenditure programs (social security, Medicare, and unemployment insurance). Overview of cost-benefit analysis. **Prerequisites:** ECON 200A-B-C and ECON 220A-B-C.

**232. Public Economics: Redistribution and Social Insurance (4)**  
Justifications for government involvement in redistribution and insurance markets. Optimal design of transfer and social insurance programs. Overview of program-evaluation methods. Theoretical and empirical analyses of specific programs, such as welfare, unemployment insurance, and social security. **Prerequisites:** ECON 200A-B-C and ECON 220A-B-C.

**235A-B-C. Workshop in Applied Economics (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.)

**237. Political Economy: Microeconomic Perspectives (4)**  
The course will examine recent research investigating the behavior of key actors in the political arena: voters, candidates, legislatures, interest groups, political parties, and the media, and then assessing the resulting political and economic outcomes. **Prerequisite:** graduate standing.

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

**241. Microeconomics of Development (4)**  
Course introduces the household as a decision-making unit, and the contracts and institutions that emerge to compensate for imperfect markets. Emphasis is placed on data and identification strategies that can be used to measure the impact of policy interventions. **Prerequisite:** graduate standing or consent of instructor.

**242. Macroeconomics of Development (4)**  
Course begins with measurement of development and continues to history of division of world into industrial and agricultural countries. Roles of trade, finance, and investment in aggregate growth are then studied. Course concludes by covering income distribution and political economy. **Prerequisite:** graduate standing or consent of instructor.

**245. International Trade (4)**  
This course covers the determinants of the pattern and volume of trade in goods and services, the interaction of international trade with income distribution and economic growth, and commercial policy. The emphasis is on theory, with some empirical illustration and motivation. **Prerequisite:** consent of instructor.

**246. International Macroeconomics (4)**  
This course presents open-economy macroeconomics and international finance. Topics include theories of the exchange rate, foreign-exchange regimes, current account adjustments, and international portfolio investments. The course examines real and monetary explanations, and implications of international capital market integration. **Prerequisite:** consent of instructor.

**247. Empirical Topics in International Economics (4)**  
This course examines the empirical work in international trade or international macroeconomics. International trade topics include empirical tests of theories of international trade and international capital movements. International macroeconomic topics include empirical studies of exchange rate and relative price adjustments. **Prerequisite:** consent of instructor.

**249A. International Development Workshop I (1-4)**  
Presentation of recent research in international and development economics by faculty and graduate students, covering micro and macroeconomic aspect of both areas. Regular attendance is required. **Prerequisite:** graduate standing or consent of instructor.

**249B. International Development Workshop II (1-4)**  
Presentation of recent research in international and development economics by faculty and graduate students, covering micro and macroeconomic aspect of both areas. Regular attendance is required. **Prerequisite:** graduate standing or consent of instructor.

**249C. International Development Workshop III (1-4)**  
Presentation of recent research in international and development economics by faculty and graduate students, covering micro and macroeconomic aspect of both areas. Regular attendance is required. **Prerequisite:** graduate standing or consent of instructor.

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

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

**261. Industrial Organization II (4)**  
This course covers theory and empirical applications in the following areas of industrial organization: mergers, vertical integration, and innovation. Optional topics include network effects, technology adoption, and regulation. **Prerequisite:** ECON 220F or consent of instructor.

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

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

**267. Topics in Environmental and Resource Economics (4)**  
The course will cover any of a variety of topics in environmental and resource economics, including climate change, exhaustible and renewable resources, international

environmental agreements, nonmarket valuation, energy economics, and water allocation. **Prerequisite:** graduate standing.

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

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

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

**281. Special Topics in Economics (4)**  
Lecture course at an advanced level on a special topic. May be repeated for credit if topic differs. (Previously numbered ECON 267.) **Prerequisite:** consent of instructor.

**282. Introduction to Research and Literature Review (4)**  
Introduction to research methods and the literature, including overviews of active research areas, formulation of research ideas, critical reviewing, and data sources. Students write a critical review of a body of literature including a proposal for an original research paper. **Prerequisite:** graduate standing.

**285. Pre-Candidacy Presentation (2)**  
This course is a workshop in which students make formal presentations on the literature and on their own projects and receive input from other students and the instructor. **Prerequisite:** graduate standing.

**286. Graduate Research Presentation Workshop (3)**  
The aim of the course is to train students to present their research effectively to a broad audience. Students are required to prepare a formal presentation, and then to provide feedback on the presentations made by other students. Depending on student demand, meetings may be divided into multiple sections, based on field interests. **Prerequisites:** graduate standing, ECON 285.

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

**296. Original Research Paper (1-12)**  
In this course, students are guided toward the formulation of an original research idea and the writing of an original paper. Students receive support and input through group discussion and also through interaction with the instructor. **Prerequisite:** graduate standing.

**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.)