

**GEO 259. Tectonics of California (4)** Lecture, 2 hours; seminar, 2 hours. Prerequisite(s): consent of instructor. Geological, geophysical, and paleontological bases of interpreting tectonic development of California, with special emphasis on southern California.

Interdisciplinary approach will be emphasized. Weekly reading assignments, active participation in discussions, and appropriate field and library research will be required. Participants will prepare two papers and give presentations.

**GEO 260. Global Climate Change (4)** Seminar, 3 hours; term paper, 3 hours. Prerequisite(s): PHYS 002C or PHYS 040C or consent of instructor. Explores global climate change in historic and geologic time scales. Topics include ocean-atmosphere feedbacks, El Niño, Pacific decadal oscillation, anthropogenic CO<sub>2</sub>, volcanism, cosmic rays, polar ozone depletion, global climate modeling, stable isotopes, "ice house" Pleistocene climates, "greenhouse" climates of the Mesozoic and Tertiary, plate tectonics, and the "snowball" Earth.

**GEO 264. Biogeochemical Cycles through Time (3)**

Lecture, 3 hours; two to three 2-day field trips. Prerequisite(s): BIOL 010/GEO 003; CHEM 001C or equivalent; GEO 001; GEO 002; or consent of instructor. A comprehensive exploration of the major biogeochemical cycles at and near Earth's surface. Emphasis is on microbially mediated cycling of elements and isotopes within diverse sedimentary environments and the cause-and-effect relationships with the ocean and atmosphere. Explores 4 billion years of biospheric evolution in light of these cycles. May be taken Satisfactory (S) or No Credit (NC) with consent of instructor and graduate advisor.

**GEO 265. Special Topics in Earth and Environmental Sciences (1-3)** Seminar, 1-3 hours. Prerequisite(s): graduate standing. Involves oral presentations and small-group discussions of selected topics in the areas of biogeochemistry, global climate change, geomicrobiology, earth surface processes, and interplanetary life. Graded Satisfactory (S) or No Credit (NC). Course is repeatable as content changes to a maximum of 10 units. Cross-listed with ENSC 265.

**GEO 268. Seminar in Biogeography (4)** Seminar, 2 hours; research, 6 hours. Prerequisite(s): graduate standing. Topics include Mediterranean ecosystems, fire ecology, naturalization of exotic species, succession and ecosystem steady state theory, and mapping of vegetation. Course is repeatable to a maximum of 8 units.

**GEO 290. Directed Studies (1-6)** Prerequisite(s): consent of instructor. Research and special studies in the geological sciences. Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

**GEO 297. Directed Research (1-6)** Prerequisite(s): consent of instructor. Research for individual graduate students in geological sciences. Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

**GEO 299M. Research for Master's Thesis (1-12)** research, 3 hours per unit. Prerequisite(s): consent of instructor. Thesis research. Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

**GEO 299P. Research for Dissertation (1-12)** research, 3 hours per unit. Prerequisite(s): consent of instructor. Research for dissertation, arranged in consultation with the staff. Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

## Professional Courses

**GEO 301. Teaching of Geosciences at the College**

**Level (1)** Seminar, 1 hour. Prerequisite(s): graduate standing in Geological Sciences. A program of weekly meetings and individual formative evaluation required of new Teaching Assistants for Geosciences courses. Covers instructional methods and classroom/section activities most suitable for teaching Geosciences. Conducted by the Teaching Assistant Development Program. Graded Satisfactory (S) or No Credit (NC). Course is repeatable.

**GEO 302. Teaching Practicum (1-4)** Seminar, 1-4 hours; practicum, 2-8 hours. Prerequisite(s): restricted to those graduate students appointed as Teaching Assistants. Supervised teaching of upper and lower-division courses in Geosciences. Required of all Teaching Assistants. Graded Satisfactory (S) or No Credit (NC). Course is repeatable for credit, but units not applicable toward degree unit requirements.

## Economics

**Subject abbreviation: ECON**

**College of Humanities, Arts, and Social Sciences**

Gloria González-Rivera, Ph.D., Chair  
Department Office, 4133 Sproul  
(951) 827-1590; [economics.ucr.edu](http://economics.ucr.edu)

**Professors**

Taradas Bandyopadhyay, Ph.D.  
Susan B. Carter, Ph.D.  
Stephen E. Cullenberg, Ph.D.  
Anil B. Deolalikar, Ph.D.  
Gary A. Dymski, Ph.D.  
David H. Fairris, Ph.D.  
Mason Gaffney, Ph.D.  
Gloria González-Rivera, Ph.D.  
Jang-Ting Guo, Ph.D.  
Tae-Hwy Lee, Ph.D.  
Victor D. Lippit, Ph.D.  
R. Robert Russell, Ph.D.  
Richard C. Sutch, Ph.D.  
Aman Ullah, Ph.D.

**Professors Emeriti**

Ronald H. Chilcote, Ph.D.  
Keith B. Griffin, Ph.D.  
Azizur R. Khan, Ph.D.  
Prasanta K. Pattanaik, Ph.D.  
Howard J. Sherman, Ph.D., Jur.D.

**Associate Professors**

Marcelle Chauvet, Ph.D.  
Steven M. Helfand, Ph.D.

**Assistant Professors**

Jorge Agüero, Ph.D.  
Wei Li, Ph.D.  
Mindy Marks, Ph.D.  
Ming Hon Suen, Ph.D.  
Victoria Umanskaya, Ph.D.  
\*\*

**Cooperating Faculty**

Kenneth A. Baerenklau, Ph.D. (Environmental Sciences)  
Linda Fernandez, Ph.D. (Environmental Sciences)  
Keith C. Knapp, Ph.D. (Environmental Sciences)  
Roger L. Ransom, Ph.D. (History)  
Kurt A. Schwabe, Ph.D. (Environmental Sciences)  
Henry J. Vaux, Jr., Ph.D. (Environmental Sciences)

## Majors

Economics studies the production and distribution of goods and services, as well as the way in which productive activity helps shape social existence. Economists are concerned with the factors determining national income, inflation, unemployment, output, growth and inequality (macroeconomics), as well as the behavior of individual decision-making units like households and firms (microeconomics). Economists are also concerned with the role of markets, money and interest rates, the forces affecting international trade, and many other problems of production and distribution.

Economics is the basis for many careers, some of which require only a B.A. degree while others require more advanced work. Possible careers include business, government, education and law.

The B.A. is the most general degree offered in economics. It is appropriate background for a wide variety of purposes, including graduate study and professional schools. However, those planning to attend a graduate program in economics may need more quantitative training than the B.A. requires. Students who are considering attending a graduate program in economics should consult with their undergraduate advisor. The Business Economics B.A. degree provides more specific preparation for careers in business administration or management or for graduate work in business.

## University Requirements

See Undergraduate Studies section.

## College Requirements

See College of Humanities, Arts, and Social Sciences, Colleges and Programs section.

MATH 009A and MATH 009B may also be used to meet breadth requirements.

## Major Requirements

The Economics Department offers B.A. degrees in Economics, Business Economics, Economics/Administrative Studies, and Economics/Law and Society.

### Economics Major

The major requirements for the B.A. degree in Economics are as follows:

- Lower-division requirements (4 courses [at least 16 units])
  - ECON 002, ECON 003
  - MATH 009A, MATH 009B
- Upper-division requirements (12 courses [at least 48 units])
  - ECON 102A, ECON 102B
  - ECON 103A, ECON 103B
  - One course chosen from ECON 123/ HISA 123, ECON 124, or ECON 125
  - ECON 101 and ECON 107

## 208 / Programs and Courses

- e) At least five additional upper-division courses in Economics worth 4 or 5 units each, including at least one course from ECON 171 through ECON 187. Two 2-unit courses can satisfy one 4- or 5-unit course.

**Note** Up to 4 units of internship credit may be counted toward the upper-division electives in Economics.

### Business Economics Major

The major requirements for the B.A. degree in Business Economics are as follows:

1. Lower-division requirements (five courses [at least 20 units])
  - a) ECON 002, ECON 003
  - b) BUS 020
  - c) MATH 009A, MATH 009B
2. Upper-division requirements (12 courses [at least 48 units])
  - a) ECON 102A, ECON 102B
  - b) ECON 103A, ECON 103B
  - c) ECON 101 and ECON 107
  - d) Five additional upper-division courses in Economics worth 4 or 5 units each, including at least two courses from ECON 108, ECON 130, ECON 135, BUS 153/ECON 153, BUS 160/ECON 160, BSAD 162/ECON 162, ECON 163. Two 2-unit courses can satisfy one 4- or 5-unit elective course.
  - e) One course chosen from POSC 182, PSYC 142, SOC 151

**Note** Up to 4 units of internship credit may be counted toward the upper-division electives in Business Economics.

### Economics/Administrative Studies Major

In order to receive the B.A. degree in Economics/Administrative Studies students must fulfill the following requirements:

#### Economics requirements (48 units)

1. ECON 002, ECON 003
2. ECON 102A, ECON 102B, ECON 103A
3. Twenty (20) additional upper-division units in Economics
4. ECON 101
5. One of MATH 009A, MATH 022, or equivalent

**Note** Up to 4 units of internship credit may be counted toward the upper-division electives in Economics.

#### Administrative Studies requirements (37 units)

1. Lower-division courses (17 units)
  - a) BUS 010, BSAD 020A
  - b) STAT 048 or equivalent (may be used to satisfy breadth requirements)

- c) CS 008 (may be used to satisfy breadth requirements)

#### 2. Upper-division requirements (20 units)

- a) Two courses (8 units) from the list below:
- (1) ECON 102A or ECON 130 or ECON 162/BSAD 162
  - (2) PSYC 140 or PSYC 142
  - (3) SOC 150 or SOC 151 or SOC 171
  - (4) POSC 181 or POSC 182 or POSC 183
  - (5) ANTH 127 or ANTH 131

These two courses must be outside the discipline of Economics and cannot be courses included as part of the three-course Business Administration track or their cross-listed equivalents.

- b) A three-course track (12 units) in Business Administration courses from one of the following:

- (1) Organizations (General): BUS 176/SOC 176, BUS 158/ANTH 105, SOC 150, SOC 151
- (2) Human Resources Management/ Labor Relations: BUS 152/ECON 152, BUS 153/ECON 153, BUS 155, BUS 157, PSYC 142
- (3) Business and Society: BUS 102, PHIL 116, POSC 182, POSC 186
- (4) Marketing: BUS 103, and two from BUS 112, BUS 113, BUS 114, BUS 117
- (5) Managerial Accounting/Taxation: BUS 108, and two from BUS 166, BUS 168A, BUS 168B
- (6) Financial Accounting: BUS 108, BUS 165A, BUS 165B
- (7) Finance: BUS 106/ECON 134 and two from BUS 135A, BUS 136, BUS 137, BUS 138, BUS 139
- (8) Management Information Systems: BUS 101, BUS 171, BUS 173
- (9) Production Management: BUS 104/STAT 104, and two from BUS 105, BUS 122, BUS 127/STAT 127

**Note** In filling the dual requirements of the major students may not count more than two courses toward both parts of their total requirements. (This limitation applies to specified Economics requirements and specified Administrative Studies requirements, but does not apply to the required Mathematics and Statistics courses.)

### Economics/Law and Society Major

The major requirements for the B.A. degree in Economics/Law and Society are as follows:

1. **Economics requirements** (11 courses [at least 44 units])
  - a) ECON 002, ECON 003

- b) ECON 119
- c) ECON 102A, ECON 102B, ECON 103A
- d) Five additional upper-division courses in Economics worth 4 or 5 units each. Two 2-unit courses can replace one 4- or 5-unit elective course.

**Note** Up to 4 units of internship credit may be counted toward the upper-division elective courses in Economics.

#### 2. Law and Society requirements (36 units)

- a) PHIL 007 or PHIL 007H
- b) LWSO 100
- c) One course chosen from ECON 111, POSC 114, PSYC 012, SOC 004 (or equivalent course in research methods)
- d) Three courses chosen from ANTH 127, ECON 119, HISE 153, PHIL 165, POSC 167, PSYC 175, SOC 159
- e) Two courses chosen from ENSC 174, HISA 120A, HISA 120B, HISE 123, LWSO 175 (E-Z), PHIL 164, POSC 111, POSC 166, POSC 168, POSC 186, SOC 147, SOC 149, SOC 180
- f) LWSO 193, Senior Seminar

**Note** For sections 2.d) and 2.e) combined, not more than two courses may be taken from the same department. In filling the dual requirements of the major, students may not count more than two courses toward both parts of their total requirements (This limitation applies to specified Economics requirements and Law and Society requirements.)

### Minor

The minor in Economics provides a background in this discipline. Students take basic microeconomic and macroeconomic theory courses, and then are given freedom of choice in pursuing upper-division courses of great interest.

All candidates for the minor in Economics must take

1. Lower-division requirements (8 units): ECON 002, ECON 003
2. Upper-division requirements (at least 25 units):
  - a) ECON 102A, ECON 103A
  - b) Four additional upper-division courses (at least 16 units) in Economics

See Minors under the College of Humanities, Arts, and Social Sciences in the Colleges and Programs section of this catalog for additional information on minors.

## Graduate Program

The Department of Economics offers the M.A. and Ph.D. degrees in Economics.

The graduate Economics program is designed to prepare students for research and teaching in academic institutions as well as for positions

in government, international agencies, and the private sector.

**Admission** Students are normally admitted only in the fall quarter. Applicants should apply electronically, at [www.graduate.ucr.edu](http://www.graduate.ucr.edu). Students submit the completed application, GRE scores, three letters of recommendation (from persons familiar with the student's academic work), and transcripts in duplicate of previous academic work.

**Master's Program** Students should have first-year calculus, a course in statistics, and some background in economics before beginning course work. Students who do not meet these requirements may still be admitted but normally must take these courses as prerequisites to the required courses. Applicants to the M.A. program must have the same academic potential as Ph.D. applicants, as reflected by GPA and GRE scores. Admission to the M.A. program does not guarantee later admission to the Ph.D. program.

**Doctoral Program** The department encourages applicants from a variety of backgrounds, but a good understanding of intermediate microeconomics, intermediate macroeconomics, multivariate calculus, and elementary linear algebra is necessary to begin taking the core requirements, described below. In addition, two courses in basic probability and statistics or econometrics are required before beginning the core econometrics sequence. Students who do not satisfy the requirements, or who have been out of school for several years, should consider enrolling in the one-year M.A. program.

## Master's Degree

The M.A. degree is designed as a preparatory program for those students interested in pursuing the Ph.D. but who are not adequately prepared to enter the Ph.D. program directly (e.g., students who lack the necessary prerequisites in economics or mathematics or students who have been out of school for some time).

## Doctoral Degree

The Ph.D. is the primary degree objective of the graduate program. Students first complete a core curriculum in economic theory and quantitative methods. These courses provide training in the fundamental concepts and research methods of the discipline. Following demonstration of professional competence in the core areas, students specialize in theoretical or applied areas of economics. This leads to the development of independent research and the writing of the Ph.D. dissertation.

## Core Requirements

### 1. Economic Theory

Students must complete the following:

- a) ECON 200A, ECON 200B, ECON 200C (Microeconomic Theory)

- b) ECON 201A, ECON 201B, ECON 201C (Macroeconomic Theory)

- c) ECON 212 (History of Economic Theory and Methodology) or ECON 213 (Methods and Themes in Economic History)

All students must pass two cumulative examinations: one in microeconomic theory (covering topics encompassed in the course sequence ECON 200A, ECON 200B, and ECON 200C) and one in macroeconomic theory (covering the topics covered in ECON 201A, ECON 201B, ECON 201C). Both examinations are given at the end of the first year, at the beginning of the fall quarter. After completing the sequence of courses, students must sit for each examination at each offering until they have passed the requirement. An unexcused failure to sit for a required examination will be regarded as a failure. No student will be given more than three attempts to achieve a satisfactory grade on each one of the two examinations. Copies of the rules regarding these cumulative examinations are available in the department office.

### 2. Quantitative Methods

Students must complete the following: ECON 205A, ECON 205B, ECON 205C (Econometric Methods I, II, III)

To satisfy these course requirements, students must attain a "B" average in the sequences ECON 200A, ECON 200B, and ECON 200C; ECON 201A, ECON 201B, and ECON 201C; and ECON 205A, ECON 205B, and ECON 205C. They also must receive a grade of "B-" or better in ECON 212 or ECON 213. Core courses may be waived, based on equivalent graduate work completed elsewhere. The comprehensive examinations, however, may not be waived.

### Colloquium Requirement

Students must enroll in at least one offering of ECON 289 (Colloquium in Economics) each quarter of their formal residence.

### Field Requirement

All students must complete course work by taking one of the following options:

**Option 1** Students must complete course work in two fields and pass a comprehensive field examination in the field they designate as their major field. Students must take at least three courses in each of both fields.

**Option 2** Students must complete course work in one major field consisting of three courses and two fields consisting of two courses each. Students must pass a comprehensive examination in their major field.

Field comprehensive examinations are given twice a year. No one course may be used to satisfy more than one requirement:

#### 1. Advanced Econometrics

Students must complete the courses a) and b) and one of the courses from c), d), e), or f) listed below.

- a) ECON 285E (Advanced Econometric Methods)
- b) ECON 285F (Topics in Econometrics)
- c) ECON 285G (Applied Econometrics)
- d) ECON 285-I (Macroeconometrics)
- e) ECON 285J (Nonparametric Econometrics)
- f) ECON 285K (Microeconometrics)

#### 2. Advanced Macroeconomic Theory

Students must complete the following:

- ECON 282E (Foundations of Macroeconomics)
- ECON 282F (Advanced Monetary Theory)
- ECON 282G (Special Topics in Macroeconomic Theory)

#### 3. Advanced Microeconomic Theory

Students must complete three of the following:

- ECON 283E (Rational Choice Theory)
- ECON 283F (Measurement and Aggregation in Economics)
- ECON 283G (General Equilibrium)
- ECON 283I (Social Choice and Welfare)
- ECON 283J (Uncertainty and Information)
- ECON 283K (Special Topics in Microeconomic Theory)

#### 4. Advanced Political Economy

ECON 202A (Topics in Economic Theory: Critiques and Alternative Approaches) is recommended.

Students must complete three of the following:

- ECON 272A (Political Economy: Marxian Economics)
- ECON 272B (Political Economy: Efficiency, Justice, and Power)
- ECON 272C (Political Economy: Comparative Political Economy)
- ECON 271 (Radical Political Economy)
- ECON 279 (Political Economy: Advanced Topics)

#### 5. Development Economics

Students must complete three of the following:

- ECON 260 (Theories of Economic Development)
- ECON 261 (Contemporary Development Strategies)
- ECON 262 (Project Evaluation in Developing Countries)
- ECON 265 (Agricultural and Rural Development)
- ECON 266 (The Political Economy of Imperialism)

**6. Economic History**

Students must complete three of the following:

ECON 212 (History of Economic Theory and Methodology)

ECON 213 (Methods and Themes in Economic History)

ECON 223 (American Economic History)

ECON 224 (Economic History of the World Economy in the Twentieth Century)

**7. International Trade Theory**

Students must complete the following:

ECON 234 (International Trade Theory)

ECON 235 (Topics in International Trade Theory)

**8. Labor Economics**

Students must complete three of the following:

ECON 240 (Labor Supply, Labor Demand, and the Structure of Wages)

ECON 241 (Labor Institutions and Macro Labor Outcomes)

ECON 243 (Topics in Labor)

ECON 244 (Empirical Research Methods)

**9. Money, Credit, and Business Cycles**

Students must complete three of the following:

ECON 250 (Money, Credit, and the Macroeconomy)

ECON 251 (Business Cycle Theory)

ECON 254 (Topics in Money, Credit, and Business Cycles)

**10. Resource and Environmental Economics**

Students must complete three of the following:

ECON 207 (Environmental Economics)

ECON 208 (Models of Nonrenewable Resource Management)

ECON 209 (Models of Renewable Resource Management)

Not all of these fields and courses are offered every year; offerings depend primarily on student demand.

As the department faculty is expanding, we expect to add additional fields in the near future. These may include International Economics, Public Economics, and Health Economics.

**Oral Qualifying Examination** Students must pass an oral qualifying examination, which covers a dissertation prospectus and subject matter related to the student's major and minor fields. It is given by a committee of five faculty, at least one of whom must not be a member of the Department of Economics faculty. Students who enter the program fully prepared normally take the examination before the beginning of the third year.

**Dissertation and Final Examination** The final requirement is the completion of a dissertation, under the direction of a dissertation committee, and passing a final examination defending the dissertation. The dissertation committee is normally composed of three Department of Economics faculty members (including cooperating faculty), usually chosen from the oral qualifying examination committee. Students who enter the program fully prepared normally complete the dissertation by the end of the fifth year. Students are encouraged to present a dissertation prospectus to a meeting of ECON 289 in their third year.

**Master's Degree**

**Plan II (Comprehensive Examination)** Students must complete a total of 36 units, 24 of which must be at the graduate level. Students must complete the following:

1. ECON 200A (Microeconomic Theory) or ECON 206 (Mathematics for Economists)
2. ECON 204A (Microeconomic Theory for Master's Students) or ECON 200A-ECON 200B (Microeconomic Theory)
3. ECON 204B (Macroeconomic Theory for Master's Students) or ECON 201A-ECON 201B (Macroeconomic Theory)
4. ECON 205A (Econometric Methods I) and ECON 205B (Econometric Methods II)
5. ECON 212 (History of Economic Theory and Methodology) or ECON 213 (Methods and Themes in Economic History)

**Examination Requirements**

Students must pass one of the following examinations:

1. Master's examination covering the topics in ECON 204A, ECON 204B
2. Doctoral cumulative examination in either microeconomic theory or macroeconomic theory (graded at the master's level)
3. Doctoral Comprehensive Examination in any of the ten fields described above (graded at the master's level)

**Lower-Division Courses**

**ECON 001. Introduction to Economics (4)** Lecture, 3 hours; discussion, 1 hour. Examines the history of economic institutions, the ideas of the great economists, and selected contemporary issues.

**ECON 002. Introduction to Macroeconomics (5)** Lecture, 3 hours; discussion, 1 hour; written work, 30 hours per quarter. Prerequisite(s): none. An introduction to the study of the economic system from a macro, or aggregate, perspective. Includes analysis of unemployment, inflation, and the impact of government policies on the level of economic activity. Credit is awarded for only one of ECON 002, ECON 002H, or ECON 004.

**ECON 002H. Honors Introduction to Macroeconomics (5)** Lecture, 3 hours; discussion, 1 hour; term paper, 3-3.5 hours. Prerequisite(s): admission to the University Honors Program or consent of instructor. Honors course corresponding to ECON 002. An introduction to the study of the economic system from a macro, or aggregate, perspective. Includes analysis of unemployment, inflation, and the impact of government policies on the level of economic activity. Satisfactory (S) or No Credit (NC) grading is not available. Credit is awarded for only one of ECON 002, ECON 002H, or ECON 004.

**ECON 003. Introduction to Microeconomics (5)**

Lecture, 3 hours; discussion, 1 hour; written work, 3 hours. An introduction to the study of the economic system from the micro, or individual decision-maker's, perspective. Includes analysis of competition, monopoly, and the distribution of income. Credit is awarded for only one of ECON 003 or ECON 004.

**ECON 004. Principles of Economics (5)**

Lecture, 4 hours; discussion, 1 hour. Prerequisite(s): none. Studies the economic system from both the micro, or individual decision-maker's perspective, and macro, or aggregate perspective. Includes analysis of competition, monopoly, distribution of income, unemployment, inflation, and the impact of government policies on economic activity. Credit is awarded for only one of ECON 002, ECON 002H, or ECON 004 and for only one of ECON 003 or ECON 004.

**ECON 005. Data Analysis for Economics and Business (5)**

Lecture, 3 hours; outside research, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 (or ECON 002H), ECON 003; or ECON 004; or consent of instructor. Introduction to the sources of economic and business data and data analysis using graphs, plots, computers, and descriptive statistics. Also covers index numbers, measures of inequality, and simple regression analysis.

**ECON 006. Introduction to Environmental Economics (4)**

Lecture, 3 hours; discussion, 1 hour. An introduction to the basic principles of economics and their application to problems of environmental quality and natural resource utilization. Emphasis is on the failure of markets as a cause of environmental degradation and the role of government in resolving problems of resource scarcity. Does not satisfy the Natural Science breadth requirement for the College of Humanities, Arts, and Social Sciences. Cross-listed with ENSC 006. *Does not satisfy the Natural Science breadth requirement for the College of Humanities, Arts, and Social Sciences.*

**Upper-Division Courses**

**ECON 101. Statistics for Economics (5)** Lecture, 3 hours; discussion, 1 hour; laboratory, 1 hour; individual laboratory, 2 hours. Prerequisite(s): MATH 008B or MATH 009A or MATH 09HA or MATH 022 or equivalent. An introduction to the basic statistical methods for economics. Topics include economic data analysis, index numbers, univariate and bivariate probability distributions, correlation and regression, sampling distributions, properties of estimators, and hypothesis testing.

**ECON 102A. Microeconomic Theory (5)** Lecture, 3 hours; discussion, 1 hour; written work, 3 hours. Prerequisite(s): ECON 003 or ECON 004; MATH 008B or MATH 009A or MATH 09HA or MATH 022; enrollment priority is given to Business Economics majors, Economics majors and minors, Economics/Administrative Studies majors, and Economics/Law and Society majors. A comprehensive discussion of the competitive market system, modern utility theory of consumer behavior, firm behavior in product and factor markets, and monopoly.

**ECON 102B. Microeconomic Theory (5)** Lecture, 3 hours; discussion, 1 hour; written work, 3 hours. Prerequisite(s): ECON 102A or consent of instructor; enrollment priority is given to Business Economics majors, Economics majors and minors, Economics/Administrative Studies majors, and Economics/Law and Society majors. A continuation of ECON 102A. Covers imperfect competition, general equilibrium, welfare economics, intertemporal decision making, uncertainty, and information.

**ECON 103A. Macroeconomic Theory (5)** Lecture, 3 hours; discussion, 1 hour; term paper, 3 hours. Prerequisite(s): ECON 002 or ECON 002H or ECON 004; enrollment priority is given to Business Economics majors, Economics majors and minors, Economics/Administrative Studies majors, and Economics/Law and Society majors. Discusses the theory of income, employment, price level and the role of the international economy. Introduces fiscal and monetary policy.

**ECON 103B. Macroeconomic Theory (5)** Lecture, 3 hours; discussion, 1 hour; term paper, 3 hours. Prerequisite(s): ECON 103A. ECON 102A is recommended; enrollment priority is given to Business Economics majors, Economics majors and minors, Economics/Administrative Studies majors, and Economics/Law and Society majors. Investigates developments in macroeconomic theory and events. Presents models that explain economic growth and business cycle fluctuations and their empirical relevance and policy implications.

**ECON 107. Introductory Econometrics (5)** Lecture, 3 hours; discussion, 1 hour; laboratory, 1 hour; outside research, 1 hour; written work, 1 hour. Prerequisite(s): ECON 002 or ECON 002H or ECON 003 or ECON 004; ECON 101; or consent of instructor. An introduction to the basic tools of econometrics. Focuses on the issues relating to the linear regression model, including heteroskedasticity, serial correlation, and multicollinearity.

**ECON 108. Introductory Econometrics (5)** Lecture, 3 hours; discussion, 1 hour; laboratory, 1 hour; written work, 1 hour; outside research, 1 hour. Prerequisite(s): ECON 107 or consent of instructor. A continuation of ECON 107. Covers, at an introductory level, the basic concepts related to logit and probit models, simultaneous equations models, dynamic time series models, unit roots and auto-regressive conditional heteroskedasticity (ARCH), and forecasting.

**ECON 110. Mathematical Economics (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A. Covers the use of mathematical tools to analyze economic problems, with emphasis on linear algebra and differential calculus. Also addresses applications to comparative statics and optimization problems.

**ECON 111. Research Methods in Business and Economics (5)** Lecture, 3 hours; discussion, 1 hour; term paper, 3 hours. Prerequisite(s): ECON 002 or ECON 002H or ECON 003 or ECON 004. Introduction to research methods in business and economics. Topics include the scientific method and notions of progress in science, problems of research design, data sources and data gathering techniques, the case study method, and measurement and interpretation of business and economic data.

**ECON 112. Forecasting in Business and Economics (5)** Lecture, 3 hours; discussion, 1 hour; laboratory, 1 hour; written work, 2 hours. Prerequisite(s): ECON 002 or ECON 002H or ECON 003 or ECON 004 or equivalent; ECON 107; or consent of instructor. Provides a basic knowledge of forecasting and its applications, particularly by using business and economic data. Covers basic methods of forecasting, such as regression methods, exponential smoothing, algorithms, and autoregressive integrated moving average (ARIMA) methods. Also explores how to combine and evaluate various forecasts. Uses computer analysis extensively.

**ECON 115. Marxian Political Economy (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): upper-division standing or consent of instructor. Fundamental concepts of Marxian political economy, including historical materialism, surplus value, exploitation, class analysis, economic crises, the state, socialism, and Marxian methodological foundations.

**ECON 116. Foundations of Political Economy (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): upper-division standing or consent of instructor. Explores ways of thinking about economic and social issues precluded by conventional approaches to economic analysis. Topics include the class relations between labor and capital, discrimination, market socialism, and alternative perspectives on development, macroeconomic instability, and the environment.

**ECON 117. Economics and Philosophy (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102B or consent of instructor. Examines issues on the boundary of economics and philosophy. Topics include social choice theory and economic justice; foundations of utility theory, rational choice, and economic welfare; epistemology and the philosophies of science of Popper, Kuhn, and others. Cross-listed with PHIL 119.

**ECON 118. The Contemporary United States Economy (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Provides a broad survey of issues relating to the development of the U.S. economy and especially its contemporary structure. Incorporates issues relating to both macro- and micro-economic phenomena, with a focus on questions that are of particular relevance to current policy.

**ECON 119. Law and Economics (4)** Lecture, 3 hours; term paper, 3 hours. Prerequisite(s): ECON 002 or ECON 002H or ECON 003 or ECON 004 or consent of instructor. An economic analysis of legal institutions and their evolution, including the areas of property laws, contract law, tort law, and criminal law.

**ECON 120. The Great Economists (4)** Lecture, 6 hours; individual study, 6 hours. Prerequisite(s): upper-division standing or consent of instructor. In-depth study of selected influential writers or a school of writers on economics or political economy. Emphasis is on selected writers' relations to other schools and other writers. Offered in summer only.

**ECON 121 (E-Z). Readings in Economics (2)** for hours and prerequisites, see segment descriptions. In-depth discussion of a book that is not a textbook that offers important insights into economic issues.

**ECON 121E. The Wizard of Oz (2)** Lecture, 15 hours per quarter; written work, 15 hours per quarter. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Focuses on the Populist Movement, the rise of William Jennings Bryan's third-party presidential bid, and the contemporary political struggle regarding management of the U.S. money supply.

**ECON 121F. The Revolutions in Agricultural Biology (2)** Lecture, 15 hours per quarter; individual study, 15 hours per quarter. Prerequisite(s): ECON 002 (or ECON 002H), ECON 003; or ECON 004; or consent of instructor. Explores the history of biotechnology. Covers the impact on standards of living, the distribution of welfare, and the pace and pattern of economic growth. Topics include the origin of agriculture, the Columbian Exchange, the dwarfing of wheat and rice, hybrid corn, and the adoption of genetically modified crops.

**ECON 121G. The Great Crash and the Great Depression (2)** Lecture, 15 hours per quarter; individual study, 15 hours per quarter. Prerequisite(s): ECON 002 (or ECON 002H), ECON 003; or ECON 004; or consent of the instructor. What caused the great stock market crash of 1929? Did the market crash cause the Great Depression of the 1930s? What were some of the economic and social consequences? Can it happen again? Explores these and related questions from the most significant economic disruption in American economic history.

**ECON 122 (E-Z). Economic Issues in the News (2)** for hours and prerequisites, see segment descriptions. An in-depth examination of a current economic issue.

**ECON 122E. Economic Aspects of Contemporary Mexican Immigration to the United States (2)** Lecture, 15 hours per quarter; written work, 15 hours per quarter. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Examines the origin and nature of migrant flows, their implications for the economic development of Mexico, and impacts on U.S. labor markets, income and wage inequality, provision of social services, and the evolution of government policy.

**ECON 122F. The Federal Deficit and the National Debt (2)** Lecture, 15 hours per quarter; individual study, 15 hours per quarter. Prerequisite(s): ECON 002 (or ECON 002H), ECON 003; or ECON 004; or consent of instructor. Studies revenues, expenditures, and tax policies of the federal government, focusing on causes and consequences of federal deficit spending. Topics include discretionary and mandatory spending (social security benefits, Medicare, etc.), tax credits and loopholes, debt finance, the life-cycle hypothesis of saving, and the burden of the national debt.

**ECON 123. American Economic History (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): upper-division standing or consent of instructor. Covers economic history of the United States from colonial times to the present. Cross-listed with HISA 123.

**ECON 124. World Economic History (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Covers the economic history of the world from Paleolithic times to the present.

**ECON 125. History of Economic Thought (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Study of the development of major economic theories, including those of Adam Smith, Karl Marx, and John Maynard Keynes. Focus is on how alternative theories define and address economic problems differently and the policy implications that follow.

**ECON 129. Health Economics (4)** Lecture, 3 hours; term paper, 3 hours. Prerequisite(s): ECON 003. Economic analysis of health and medical care, medical technology, and the functioning of insurance markets. Emphasis is on behaviors of insurance companies, physicians, and the pharmaceutical industry.

Major concerns include the rising cost of health care, government involvement, and health care reform.

**ECON 130. Introduction to Money, Banking, and Credit (5)** Lecture, 3 hours; discussion, 1 hour; term paper, 3 hours. Prerequisite(s): ECON 103A. Covers the basic theories of modern monetary systems; money, credit, and interest rate behavior; financial intermediation and central banking; and methods and objectives of monetary and regulatory policy.

**ECON 132. Public Finance (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A, ECON 103A, BUS 106/ECON 134 or ECON 130 is recommended. Covers functions of government in a market economy: distributive equity, taxation, spending, borrowing, and debt management. Addresses promotion of capital formation, full employment, stability, and efficient resource use as well as intergovernmental relations.

**ECON 134. Financial Theories and Markets (4)** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): ECON 003 or ECON 004; upper-division standing; BSAD 020A and BSAD 020B are recommended. Covers the foundation materials for both corporate financial management, and investment and portfolio analysis. Topics include time value of money, capital budgeting, capital structure, dividend policy, portfolio theory, Capital Asset Pricing Model, and market efficiency. Cross-listed with BUS 106.

**ECON 135. The Stock Market (5)** Lecture, 3 hours; discussion, 1 hour; written work, 3 hours. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. ECON 103A is strongly recommended. An analysis of the history of the stock market and its role in the macroeconomy. Topics include factors governing stock prices, fundamental and technical analysis, the impact of inflation and interest rates, international investing, and the role of social institutions in the determination of stock prices.

**ECON 136. Empirical Financial Economics (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 107 or consent of instructor. Discusses various empirical aspects of financial economics and financial risk management. Addresses both theoretical and applied issues in finance, risk management, and econometrics. Also discusses quantitative analysis, simulation methods, and case studies.

**ECON 143A. Environmental Economics (4)** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): ECON 003 or ECON 004 or equivalent, MATH 022 or equivalent; or consent of instructor. Introduction to economic analysis of natural resources and the environment with emphasis on environmental quality. Topics include environment-economy interactions and social choice theory; source control costs, damage valuation, and efficient pollution control; and design of efficient and equitable environmental policy. Cross-listed with ENSC 143A.

**ECON 143B. Natural Resource Economics (4)** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): ECON 143A/ENSC 143A or consent of instructor. Considers the extraction and use of natural resources. Topics include land use and natural capital economics and valuation; economics of mineral and nonrenewable resources including recycling; and managing biological and renewable resources, including common property, efficient usage, and regulation. Cross-listed with ENSC 143B.

**ECON 143C. Ecological Economics and Environmental Valuation (4)** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): ECON 143A/ENSC 143A or consent of instructor. Survey of environmental valuation and

economy-wide, long time-scale issues. Valuation methods covered include hedonic pricing, weak complements, contingent valuation, and ecosystem services. Environmental macroeconomic topics include population growth, biophysical constraints to economic growth, intertemporal welfare and sustainability, and sustainable development. Cross-listed with ENSC 143C.

**ECON 146. Urban Economic Problems (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A. The application of economic principles to the major problems of the modern urban community, such as poverty, discrimination, deterioration of the environment, and housing problems. Programs for alleviation or solution. Cross-listed with URST 146.

**ECON 148. Land and Resource Economics (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A. Distinctive qualities of land and its rent; valuation of land as an investment. Assembly, division, and development of land; efficiency of land market and effects of taxation. Concentrated ownership, separation of ownership and management, rent and taxable surplus, and origins and kinds of tenure.

**ECON 152. Economics of Labor Relations (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. An analysis of the history of labor and industrial relations in the U.S. with emphasis on problems of collective action, long-swings of economic growth, income inequality, and the role of government. Cross-listed with BUS 152.

**ECON 153. Labor Economics (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A. An analysis of labor demand, labor supply, and the structure of wages. Emphasizes neoclassical, institutional, and radical perspectives. Cross-listed with BUS 153.

**ECON 155. Women's Labor and the Economy (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Focuses on economic analyses of four topics: women's work in and out of the paid labor force; gender differences in occupation, earnings, and income; marriage, divorce, and childbearing; and public policy regarding women's work and standard of living. Explores differences among women by race, ethnicity, class, marital status, and parental responsibilities are explored. Cross-listed with WMST 155.

**ECON 156. Population Dynamics and Economic Well-being (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002, ECON 003. Examines the causes and consequences of population dynamics. Economic models of such demographic behavior as fertility, mortality, marriage, and migration are presented. Consequences of population change for economic growth, the environment, and well-being are discussed.

**ECON 159. Economics of Art, Entertainment, and Culture (4)** Lecture, 3 hours; extra reading, 3 hours. Prerequisite(s): ECON 002 or ECON 002H or ECON 003 or consent of instructor. Overview of the economic aspects of art, entertainment and culture. Topics include consumer demand for culture, economic models of nonprofit organizations, competition and market structure in the arts and entertainment industries, copyright issues, public support of the arts, and the role and impact of public and private subsidies.

**ECON 160. Industrial Organization (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A. A study of the organization and structure of the American industrial system with emphasis on its production and pricing behavior and policies, and

its market structure and public policies regulating or influencing its market behavior. Cross-listed with BUS 160.

**ECON 162. Managerial Economics (4)** Lecture, 3 hours; discussion, 1 hour. Prerequisite(s): ECON 102A. Examines applications of economic analysis to problems of management, especially of capital. Emphasis is on production economics and cost analysis. Cross-listed with BSAD 162.

**ECON 163. Economics and Business Strategy (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 101, ECON 102B. Provides an understanding of the basic concepts of game theory as well as many strategic interactions, including price wars, cooperation, commitment, bargaining, and the strategic use of information.

**ECON 170 (E-Z). Case Studies in Economic Development (2)** for hours and prerequisites, see segment descriptions. A detailed study of the history, problems and prospects of economic development in a selected geographical region.

**ECON 170E. Economic Development in India (2)** Lecture, 15 hours per quarter; written work, 15 hours per quarter. Prerequisite(s): ECON 102A or consent of instructor. A detailed study of the history, problems and prospects of economic development in India.

**ECON 170F. Economic Development in Australia (2)** Lecture, 15 hours per quarter; individual study, 15 hours per quarter. Prerequisite(s): ECON 002 or ECON 002H, ECON 003; or ECON 004. Discusses Australian economic development from the first European settlements to the present day. Focus is on Australia as a settler economy, created through a process of large-scale migration from well-established states to a land-abundant, previously unorganized region and involving the marginalization of the indigenous population.

**ECON 171. International Finance (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 103A. Covers international monetary theory and its applications. Topics include balance of payments, exchange rates, open-economy macroeconomics, and international monetary institutions. Addresses selected policy issues.

**ECON 175. Comparative Analysis of Economic Systems (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): upper-division standing or consent of instructor. Examines the varieties of capitalism as well as its characteristic features and systematic problems. Topics also include the search for an alternative; central planning; and market socialism.

**ECON 178. International Trade (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 102A. A study of the pure theory of trade, trade policy, and international factor movements including illustrative applications to current issues and problems. Cross-listed with BUS 178.

**ECON 180. Transition from Socialism to Capitalism (4)** Lecture, 3 hours; individual study, 3 hours. Prerequisite(s): ECON 002 (or ECON 002H), ECON 003; or ECON 004; or consent of instructor. Examines the transition from central planning to a more market-oriented economic system in Central and Eastern Europe, the countries of the former Soviet Union, China, Mongolia, and Vietnam. Evaluates alternative transition strategies using Russia and China as the key examples.