

# Department of Economics

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## William Branch, Department Chair

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Economics is concerned with the way individuals or societies allocate scarce resources and distribute goods and services. Any situation requiring choice among competing alternatives can be viewed as an economic problem. Economics courses enable students to study the way individuals make these choices (microeconomics), the way governments make these choices (public choice), the aggregate consequences of these choices (macroeconomics), and to test the relevance of these theories in data (econometrics). In addition, the Economics curriculum addresses international trade, money and banking, and economic development of the less developed nations.

Faculty members in the Department of Economics have research and teaching interests that span a broad range of fields. In addition to strengths in micro theory, macroeconomics, and econometrics, the Department has expertise in many applied fields, including development economics, economic history, industrial organization, international economics, labor economics, public choice and public finance, transportation economics, and urban economics. Members of the Department maintain close ties with members of the Department of Political Science, the Department of Statistics, The Paul Merage School of Business, and the School of Education. Members of the Department maintain affiliations with the Center for Population, Inequality, and Policy, Institute for Mathematical Behavioral Sciences, Institute of Transportation Studies, Institute on Global Conflict and Cooperation, and the Center for the Study of Democracy.

- Business Economics, B.A.
- Economics, B.A.
- Economics, Minor
- Economics, Ph.D.
- Quantitative Economics, B.A.

## Faculty

Neerja Aggarwal, Ph.D. University of California, Irvine, *Lecturer of Economics*

David Agrawal, Ph.D. University of Michigan, *Professor of Economics*

Marion Aouad, Ph.D. University of California, Berkeley, *Assistant Professor of Economics*

Vellore Arthi, Ph.D. University of Oxford, *Assistant Professor of Economics*

D. Bell, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Daniel E. Bogart, Ph.D. University of California, Los Angeles, *Professor of Economics*

William A. Branch, Ph.D. University of Oregon, *Department Chair and Professor of Economics*

David Brownstone, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Jan K. Brueckner, Ph.D. Stanford University, *Distinguished Professor of Economics; Urban Planning and Public Policy*

Jiawei Chen, Ph.D. Johns Hopkins University, *Associate Professor of Economics*

Natalia Chernyshoff, Ph.D. University of California, Davis, *Lecturer of Economics*

Michael Choi, Ph.D. University of Wisconsin, Madison, *Associate Professor of Economics*

Damon Clark, Ph.D. Oxford University, *Associate Professor of Economics; Urban Planning and Public Policy*

Arthur S. De Vany, Ph.D. University of California, Los Angeles, *Professor Emeritus of Economics*

Yingying Dong, Ph.D. Boston College, *Professor of Economics*

John Duffy, Ph.D. University of California, Los Angeles, *Professor of Economics; Logic and Philosophy of Science*

Gordon J. Fielding, Ph.D. University of California, Los Angeles, *Professor Emeritus of Economics*

Sofia Franco, Ph.D. University of California, Santa Barbara, *Assistant Professor of Teaching of Economics*

Matthew Freedman, Ph.D. University of Maryland-College Park, *Dean's Professor of Economics*

Michelle Garfinkel, Ph.D. Brown University, *Professor of Economics*

Amihai Glazer, Ph.D. Yale University, *Professor Emeritus of Economics*

Matthew Harding, Ph.D. Massachusetts Institute of Technology, *Professor of Economics; Statistics*

Ivan G. Jeliazkov, Ph.D. Washington University, *Associate Professor of Economics; Statistics*

Brian C. Jenkins, Ph.D. University of North Carolina at Chapel Hill, *Associate Professor of Teaching of Economics*

Linda Cohen Jennings, Ph.D. California Institute of Technology, *Professor Emeritus of School of Law; Economics*

Priyaranjan Jha, Ph.D. Columbia University, *Professor of Economics*

Igor Kopylov, Ph.D. University of Rochester, *Associate Professor of Economics*

Ying-Ying Lee, Ph.D. University of Wisconsin-Madison, *Associate Professor of Economics*

Jack Liebersohn, Ph.D. Massachusetts Institute of Technology, Sloan School of Management, *Assistant Professor of Economics*

Olga Malkova, Ph.D. University of Michigan, *Assistant Professor of Economics*

Bhash Mazumder, Ph.D. University of California, Berkeley, *Professor of Economics*

Michael T. McBride, Ph.D. Yale University, *Professor of Economics; Logic and Philosophy of Science; Religious Studies*

Martin C. McGuire, Ph.D. Harvard University, *UCI Endowed Chair and Professor Emeritus of Economics*

Fabio Milani, Ph.D. Princeton University, *Professor of Economics*

David Neumark, Ph.D. Harvard University, *Distinguished Professor of Economics*

Dale J. Poirier, Ph.D. University of Wisconsin-Madison, *Professor Emeritus of Economics*

Gary Richardson, Ph.D. University of California, Berkeley, *Professor of Economics; Religious Studies*

Ty Robbins, Ph.D. University of California, Santa Barbara, *Lecturer of Economics*

Guillaume Rocheteau, Ph.D. University of Paris, *Dean's Professor of Economics*

Jose Antonio Rodriguez Lopez, Ph.D. University of California, Berkeley, *Associate Professor of Economics*

Donald G. Saari, Ph.D. Purdue University, *UCI Distinguished Professor Emeritus of Economics; Mathematics*

George Sarraf, Ph.D. Claremont Graduate University, *Lecturer of Economics*

Paul R. Shirey, Ph.D. University of California, Irvine, *Lecturer of Social Sciences; Economics*

Stergios Skaperdas, Ph.D. Johns Hopkins University, *Clifford S. Heinz Chair and Professor of Economics; Political Science*

Kenneth A. Small, Ph.D. University of California, Berkeley, *Professor Emeritus of Economics*

Eric Swanson, Ph.D. Stanford University, *Professor of Economics*

Amjad Toukan, Ph.D. University of California, Irvine, *Lecturer of Economics*

Oliko Vardishvili, Ph.D. European University Institute, *Assistant Professor of Economics*

Tejaswi Velayudhan, Ph.D. University of Michigan, *Assistant Professor of Economics*

Miguel Zerecero, Ph.D. Toulouse School of Economics, France, *Assistant Professor of Economics*

## **Affiliate Faculty**

N. Edward Coulson, Ph.D. University of California, San Diego, *Professor of Paul Merage School of Business; Economics; Urban Planning and Public Policy*

Greg Duncan, Ph.D. University of Michigan, *UCI Distinguished Professor of Education; Economics; Psychological Science* (economics of education, program evaluation, child development)

David Hirshleifer, Ph.D. University of Chicago, *Distinguished Professor Emeritus of Paul Merage School of Business; Economics*

Philippe Jorion, Ph.D. University of Chicago, *Dean's Professor of Paul Merage School of Business; Economics*

Marek Kaminski, Ph.D. University of Maryland, College Park, *Professor of Political Science; Economics* (voting models, democratization, political consequences of electoral laws)

Radhika Lunawat, Ph.D. University of Minnesota, *Associate Professor of Paul Merage School of Business; Economics*

Emily Owens, Ph.D. University of Maryland at College Park, *Department Chair and Deans' Professor of Criminology, Law and Society; Economics* (how government policies affect the prevalence of criminal activity as well as how agents within the criminal justice system, particularly police, prosecutors, and judges, respond to policy changes)

Jean-Daniel M. Saphores, Ph.D. Cornell University, *Professor of Civil and Environmental Engineering; Economics; Urban Planning and Public Policy* (transportation and environmental systems (with a focus on air pollution and energy use), travel behavior analysis, alternative fuel vehicles, automated vehicles, transit use, sustainable infrastructure management, and decision making under uncertainty using real options)

Brian Skyrms, Ph.D. University of Pittsburgh, *UCI Distinguished Professor of Logic and Philosophy of Science; Economics; Philosophy*

## Courses

### **ECON 1. Introduction to Economics. 4 Units.**

An analysis of the problems society faces in organizing itself to provide goods and services. How decisions of government, business, and the individual relate to current economic problems such as unemployment, inflation, poverty, and environmental pollution.

ECON 1 may not be taken for credit if taken after or concurrently with ECON 20A or ECON 20B.

Restrictions: No Economics majors. No AP Economics Micro with a minimum score of 4. No AP Economics Macro with a minimum score of 4.

**(III)**

### **ECON 11. The Internet and Public Policy. 4 Units.**

How the Internet works. Current public policy issues concerning the Internet. Introductory economics. Communications law. Interactions between information technology, economics, and law. Case studies about Internet and communications policy.

Same as I&C SCI 11

**(II or III.)**

### **ECON 12. Federal Reserve: Past, Present, and Future. 4 Units.**

Studies central banking in the United States from colonial times to the present. Focuses on the past, present, and future of the Federal Reserve and precursors to that system, which was established in 1913.

### **ECON 13. Global Economy. 4 Units.**

Acquaints students with the fundamental patterns of the global economy. Emphasizes the historical roots and political implications of economic choices.

Restrictions: Business Economics majors, Economics majors, International Studies majors, and Quantitative Economics majors have the first consideration for enrollment.

**(III and VIII)**

### **ECON 15A. Probability and Statistics in Economics I. 4 Units.**

An introduction to probability, statistics, and econometrics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Examples from economics.

Prerequisite: MATH 2A or AP Calculus AB with a minimum score of 3 or AP Calculus BC with a minimum score of 3 and (MATH 2B or AP Calculus BC with a minimum score of 4).

Overlaps with MGMT 7.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**(Va)**

### **ECON 15B. Probability and Statistics in Economics II. 4 Units.**

An introduction to probability, statistics, and econometrics. Emphasis on a thorough understanding of the probabilistic basis of statistical inference. Examples from economics.

Prerequisite: ECON 15A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**(Va)**

### **ECON 17. An Economic Approach to Religion. 4 Units.**

Introduction to how basic economic concepts such as demand, supply, consumption, production, competition, free-riding, innovation, regulation, and rent-seeking can be applied to understand observed religious behavior.

Same as REL STD 17

**(III)**

**ECON 20A. Basic Economics I. 4 Units.**

The fundamentals of microeconomics. The behavior of firms and consumers: markets, supply/demand, utility maximization, resource allocation, and efficiency.

Overlaps with MGMT 4A, ECON 23.

Restrictions: Economics, Quantitative Economics, Business Economics, and Business Info Management majors have first consideration for enrollment.  
(III)

**ECON 20B. Basic Economics II. 4 Units.**

The fundamentals of macroeconomics. Government behavior: monetary and fiscal policy, inflation, and unemployment. Effective fall 2006, the content of Economics 20B is macroeconomics. This course cannot be taken to repeat Economics 20B taken prior to fall 2006.

Prerequisite: ECON 20A or ECON 13 or ECON 23.

Overlaps with MGMT 4B.

Restrictions: Business Information Management majors, Business Economics majors, Economics majors, Quantitative Economics majors, Mechanical Engineering majors, Aerospace Engineering majors, Civil Engineering majors, Environmental Engineering majors, and International Studies majors have the first consideration for enrollment. For School of Social Sciences majors, MGMT 4B may not be used as a substitute for ECON 20B.

(III)

**ECON 23. Basic Economics for Engineers. 4 Units.**

The fundamentals of microeconomics. The behavior of firms and of consumers: markets, supply/demand, utility maximization, resource allocation, and efficiency.

Overlaps with ECON 20A.

Restrictions: Engineering majors, Mechanical Engineering majors, Aerospace Engineering majors, Civil Engineering majors, and Environmental Engineering majors only.

(III)

**ECON 25. The Economics of Accounting Decisions. 4 Units.**

Introduction to accounting concepts and principles, including the accounting model and accounting style, transaction analysis, and preparation of financial statements. An analysis of the similarities and differences between accounting and economic concepts (e.g., value, profits).

Prerequisite: ECON 20A.

Overlaps with MGMT 30A.

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON H80. Learning Economics Through Sports. 4 Units.**

Introduces students to a selection of research topics in economics and other social sciences, using sports as laboratories and as sources of exceptionally-detailed data. Topics include labor markets, psychological biases and social forces, the adoption of innovations.

Restrictions: Campuswide Honors Collegium only.

(III)

**ECON 100A. Intermediate Economics I. 4 Units.**

Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: (ECON 20A or AP Economics Micro with a minimum score of 4) and (ECON 20B or AP Economics Macro with a minimum score of 4) and (MATH 2A or AP Calculus AB with a minimum score of 3 or AP Calculus BC with a minimum score of 3 or AP69 with a minimum score of 4) and (MATH 2B or AP Calculus BC with a minimum score of 4).

Overlaps with ECON 105A.

Restrictions: Business Economics majors and Economics majors have the first consideration for enrollment. No Quantitative Economics majors.

**ECON 100B. Intermediate Economic II. 4 Units.**

Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 100A or ECON 105A.

Overlaps with ECON 105B.

Restrictions: Business Economics majors and Economics majors have the first consideration for enrollment. No Quantitative Economics majors.

**ECON 100C. Intermediate Economics III. 4 Units.**

Determinants of supply and demand; operation of competitive and monopolistic markets; imperfections of the market system, explanations of unemployment, inflation, recessions; public policy for macroeconomic problems.

Prerequisite: ECON 100B or ECON 105B.

Overlaps with ECON 105C.

Restrictions: Business Economics majors and Economics majors have the first consideration for enrollment. No Quantitative Economics majors.

**ECON 105A. Intermediate Quantitative Economics I . 4 Units.**

An advanced and mathematical version of ECON 100A for students in the Quantitative Economics major.

Prerequisite: (ECON 20A or AP Economics Micro with a minimum score of 4) and (ECON 20B or AP Economics Macro with a minimum score of 4) and (MATH 2A or AP Calculus AB with a minimum score of 3 or AP Calculus BC with a minimum score of 3 or AP69 with a minimum score of 4) and (MATH 2B or AP Calculus BC with a minimum score of 4) and MATH 3A.

Overlaps with ECON 100A.

Restrictions: Quantitative Economics majors have the first consideration for enrollment. No Business Economics majors and No Economics majors.

**ECON 105B. Intermediate Quantitative Economics II . 4 Units.**

An advanced and mathematical version of ECON 100B for students in the Quantitative Economics major.

Prerequisite: ECON 105A.

Overlaps with ECON 100B.

Restrictions: Quantitative Economics majors have the first consideration for enrollment. No Business Economics majors and No Economics majors.

**ECON 105C. Intermediate Quantitative Economics III . 4 Units.**

An advanced and mathematical version of ECON 100C for students in the Quantitative Economics major.

Prerequisite: ECON 105B.

Overlaps with ECON 100C.

Restrictions: Quantitative Economics majors have the first consideration for enrollment. No Business Economics majors and No Economics majors.

**ECON 107. Economics of Asymmetric Information. 4 Units.**

Focuses on the effects of asymmetric information in the markets for traditional economic goods and resources, such as labor, insurance, used cars, credit, and in auctions and bargaining problems. Prerequisite:

Prerequisite: ECON 100A or ECON 105A.

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 109. Special Topics in Economic Theory. 4 Units.**

Studies in selected areas of Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 113. Game Theory of Human Cooperation and Morality. 4 Units.**

Teaches how game theory is used to understand human cooperation and morality. Covers basic game-theoretic concepts and analysis, how they illuminate what it means to be moral, and how prosocial human dispositions evolved.

Prerequisite: (ECON 15B or STATS 120B) and (ECON 100A or ECON 105A).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors only.

**ECON 115. Behavioral Economics. 4 Units.**

Studies the behavioral and psychological biases in economics settings. Both individual decisions and games are discussed.

Prerequisite: (ECON 20A or AP Economics Micro with a minimum score of 4) and (ECON 20B or AP Economics Macro with a minimum score of 4).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 116. Game Theory . 4 Units.**

Extensive form games with perfect information and coalitional games. The key solution concepts are Nash Equilibrium, Backward Induction, and the Core. Substantive examples include public good production, oligopoly, electoral competition, auctions, holdup, market entry, and voting.

Prerequisite: (ECON 15B or STATS 120B) and (ECON 100A or ECON 105A).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 122A. Applied Econometrics I. 4 Units.**

Introduction to econometrics emphasizing practical applications in microeconomics and macroeconomics.

Corequisite: ECON 100A or ECON 105A.

Prerequisite: ECON 100A or ECON 105A and (ECON 15B or MATH 130B or MATH 133A or STATS 120C).

Overlaps with ECON 123A, ECON 123B.

Restrictions: Business Economics majors and Economics majors have the first consideration for enrollment. No Quantitative Economics majors.

**ECON 122B. Applied Econometrics II. 4 Units.**

Introduction to econometrics emphasizing practical applications in microeconomics and macroeconomics.

Prerequisite: ECON 122A.

Overlaps with ECON 123B.

Restrictions: Business Economics majors and Economics majors have the first consideration for enrollment. No Quantitative Economics majors.

**ECON 122CW. Data Analysis Writing. 4 Units.**

Research writing course in econometrics focusing on individual research projects. Students employ econometric analysis to address an economic question in a 20-page paper and present their findings to the class in a short presentation.

Prerequisite: ECON 15A and ECON 15B and ECON 122A and ECON 122B. Satisfactory completion of the Lower-Division Writing requirement.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

(Ib)

**ECON 123A. Econometrics I. 4 Units.**

Specification, estimation, and testing of econometric models. Applications in various areas of microeconomics and macroeconomics.

Prerequisite: (MATH 2A or AP Calculus AB with a minimum score of 3 or AP69 with a minimum score of 4 or AP Calculus BC with a minimum score of 3) and (MATH 2B or AP Calculus BC with a minimum score of 4) and MATH 3A and (STATS 120C or MATH 130C) and (ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C).

Overlaps with ECON 122A, ECON 122B.

Restrictions: Quantitative Economics majors have the first consideration for enrollment. No Business Economics majors and No Economics majors.

**ECON 123B. Econometrics II. 4 Units.**

Specification, estimation, and testing of econometric models. Applications in various areas of microeconomics and macroeconomics.

Prerequisite: ECON 123A.

Restrictions: Quantitative Economics majors have the first consideration for enrollment. No Business Economics majors and No Economics majors.

**ECON 123CW. Econometrics III. 4 Units.**

Seminar course in which students do an original econometric research project.

Prerequisite: ECON 123B. Satisfactory completion of the Lower-Division Writing requirement.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

(Ib)

**ECON 125. Business Forecasting. 4 Units.**

Students learn how to produce forecasts of the behavior of economic (and other) variables. The techniques examined are linear regression, nonlinear regression, and nonparametric kernel regression; AR, MA, ARMA, ARIMA, and Box-Jenkins.

Prerequisite: ECON 122A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 126. Computational Macroeconomics. 4 Units.**

Introduction to the computational methods for studying economic growth and the business cycle. Students learn how to write computer programs to simulate macroeconomic models, download and manage data from internet resources, and to do basic statistics.

Corequisite: ECON 122A or ECON 123A.

Prerequisite: (ECON 100C or ECON 105C) and (ECON 122A or ECON 123A).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors only.

**ECON 127. Experimental Economics . 4 Units.**

Learn what constitutes proper experimental design and what laboratory experiments teach us about human behavior and the economy. Students participate in a sample experiment, evaluate the results, and discuss experiment design and larger issues. Formerly ECON 117.

Prerequisite: ECON 15B and ECON 100B.

**ECON 127W. The Economics of Opportunity. 4 Units.**

Examines factors that allow individuals to improve their economic situation regardless of their family's economic circumstances during childhood. Covers various topics including neighborhoods, housing, education, healthcare, labor markets, and the criminal justice system.

Prerequisite: (ECON 15A or STATS 120A or MATH 130A) and (ECON 15B or STATS 120B or MATH 130B) and (ECON 122A or ECON 123A) and (ECON 100A or ECON 105A) and (ECON 100B or ECON 105B) and (ECON 100C or ECON 105C). Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

**ECON 128. Machine Learning for Economists. 4 Units.**

Develops the theory and computation of recent methods at the intersection of econometrics and machine learning as used in economics and business. Building on intermediate econometrics, it introduces causal random forests, double machine learning, and neural networks.

Prerequisite: ECON 123A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors only.

**ECON 129. Special Topics in Quantitative Methods. 4 Units.**

Studies in selected areas of Quantitative Methods. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 131A. The Economics of Risk and Uncertainty. 4 Units.**

The theory of insurance and joint-ownership of risky enterprises; optimal procedures for the allocation of uncertain payoffs.

Prerequisite: (ECON 15B or MATH 130B or STATS 120B) and (ECON 100B or ECON 105B).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 132A. Introduction to Financial Investments. 4 Units.**

Modern theories of investment and their application to the study of financial markets. The relation between risk and return, diversification, asset pricing, efficient markets hypothesis, and the market valuation of stocks, bonds, options, and futures.

Corequisite: ECON 100C or ECON 105C.

Prerequisite: ECON 15A and ECON 15B and (ECON 122A or ECON 123A) and (ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C) or (MATH 130A and STATS 120A and STATS 120B and STATS 120C) or MATH 130B or MATH 133A.

Overlaps with MGMT 141.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 133. Markets and Networks. 4 Units.**

Introduction into network effects in economic settings, such as auctions, markets, and bargaining. Networks are also important in information diffusion, aggregation, and search. Some applications refer to traffic and epidemics.

Prerequisite: ECON 100A or ECON 105A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 134A. Corporate Finance. 4 Units.**

Provides an overview of the modern theory and practice of corporate finance and focuses on two fundamental financial decisions; investment as well as financing. Beginning with discounted cash flow analysis, basic theory will be applied to the valuation of stocks.

Prerequisite: (ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C) and (ECON 15A or MATH 130A or STATS 120A) and (ECON 15B or MATH 130B or STATS 120B).

Overlaps with MGMT 109.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 134B. Corporate Finance II. 4 Units.**

Advanced material in corporate finance. How to value companies, debt and equity financing, capital structure, IPOs, venture capital, private equity, and mergers and acquisitions. Applies knowledge through cases and real-life examples.

Prerequisite: ECON 134A or MGMT 109.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 135. Mathematics of Finance. 4 Units.**

After reviewing tools from probability, statistics, and elementary differential and partial differential equations, concepts such as hedging, arbitrage, Puts, Calls, the design of portfolios, the derivation and solution of the Blac-Scholes, and other equations are discussed.

Prerequisite: MATH 3A or MATH H3A.

Same as MATH 176

Restrictions: Business Economics majors, Economics majors, Mathematics majors, Quantitative Economics majors, and Applied and Computational Mathematics majors have the first consideration for enrollment.

**ECON 137W. Financial Markets and the Macroeconomy. 4 Units.**

Students are required to write a paper on a research question related to financial markets and their interactions with the macroeconomic and political environment.

Prerequisite: ECON 122A or ECON 123A. Satisfactory completion of the Lower-Division Writing requirement.

**(Ib)**

**ECON 139. Special Topics in Financial Economics. 4 Units.**

Studies in selected areas of Financial Economics. Topics addressed vary each quarter.

Prerequisite: MATH 2A or AP Calculus AB with a minimum score of 3 or AP Calculus BC with a minimum score of 4 and (MATH 2B or AP Calculus BC with a minimum score of 4). Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 140. Managerial Economics. 4 Units.**

A collection of concepts and methods for effective decision making. Explores how the tools of microeconomics, including game theory and industrial organization theory, can be used to make better managerial decisions, particularly those involving allocation of resources within firms.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 140E. Health Economics. 4 Units.**

Builds off of economic theory to explore topics in health economics including health care demand, health insurance markets, the supply of health care, and examine health care policy.

Prerequisite: ECON 100B or ECON 105B.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 141A. Public Economics I. 4 Units.**

Examines the role of the government in the economy and its impact on individuals and firms.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

**ECON 141B. Public Economics II. 4 Units.**

Theory of public goods, externalities, voting models, analysis of bureaucracy, the Tiebout model, income redistribution, intergovernmental grants.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 141D. Public Economics and Development. 4 Units.**

Covers three topics of great relevance to governments in low-income countries: education, social insurance, and tax evasion. Through the lens of these topics, the basic questions of Public Economics, using theory and empirical evidence, are addressed.

Prerequisite: ECON 122A or ECON 123A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors only.

**ECON 142A. Industrial Organization I. 4 Units.**

The theory of market structure. Imperfect markets, government policies, and industry performance.

Prerequisite: (ECON 15A and ECON 15B) and (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 142CW. Industrial Organization III. 4 Units.**

Research in industrial organization. Imperfect competition, antitrust, and regulation.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B). Satisfactory completion of the Lower-Division Writing requirement.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**(Ib)**

**ECON 144A. Urban Economics I. 4 Units.**

Why cities exist, economics of urban land-use, housing demand and tenure choice, traffic congestion.

Corequisite: ECON 20B.

Prerequisite: ECON 20A and (ECON 20B or AP Economics Macro with a minimum score of 4). Recommended: ECON 100A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 144B. Urban Economics II. 4 Units.**

Housing policy analysis, urban public goods and services, crime, pollution, urban amenities.

Prerequisite: (ECON 20A or AP Economics Micro with a minimum score of 4) and (ECON 20B or AP Economics Macro with a minimum score of 4).

Recommended: ECON 100A.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 145E. Economics of the Environment. 4 Units.**

Surveys economic aspects of natural resources, pollution, population, and the environment. Examines the causes of pollution; analysis of public policies regarding these problems. Emphasis on microeconomic aspects of environmental problems.

Prerequisite: ECON 100A or ECON 105A.

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 145FW. Economics of the Environment II. 4 Units.**

Applications of tools covered in ECON 145E to topics in environmental economics. Emphasis on independent research papers. Syllabus and classes include writing technique and use cutting-edge research papers as a base for developing effective reading, writing, and research skills.

Prerequisite: (ECON 15A or STATS 120A or MATH 130A) and (ECON 15B or STATS 120B or MATH 130B) and (ECON 122A or ECON 123A) and (ECON 100A or ECON 105A) and (ECON 100B or ECON 105B) and (ECON 100C or ECON 105C). Satisfactory completion of the Lower-Division Writing requirement.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**(Ib)**

**ECON 145L. Economics of Law. 4 Units.**

Examination of several economic concepts which are useful in understanding legal rules: externalities, the assignment of property rights, and Coase's theorem. Examples are drawn from the fields of pollution control, no-fault insurance, medical malpractice, and product liability.

Corequisite: ECON 100B or ECON 105B.

Prerequisite: (ECON 100A or ECON 105A) and (ECON 100B or ECON 105B).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 146A. Illegal Economics. 4 Units.**

How illegal firms function in illegal markets, why individuals participate in these groups and markets, and what federal, state, and local governments do to disrupt organized illegal activity.

Same as CRM/LAW C182

Restrictions: Business Economics majors, Criminology, Law and Society majors, Economics majors, Quantitative Economics majors, and Social Ecology majors have the first consideration for enrollment.

**ECON 146B. Economics of Criminal Justice. 4 Units.**

Provides an introduction to the economics of crime literature.

Prerequisite: ECON 122A or ECON 123A.

Same as CRM/LAW C184

Restrictions: Business Economics majors, Criminology, Law and Society majors, Economics majors, Quantitative Economics majors, and Social Ecology majors have the first consideration for enrollment.

**ECON 146D. Conflict and Economics. 4 Units.**

Applies the tools of economics to study the causes and consequences of violent conflict (e.g., wars between nations, civil wars, and crime) and more refined forms of conflict (e.g., lobbying and litigation).

Prerequisite: (ECON 100A or ECON 105A) and (ECON 100B or ECON 105B).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 147B. Economics of Strategy. 4 Units.**

Uses tools of economics, game theory in particular, to develop an understanding of business decision-making. Deals with questions such as how the firm decides what kind of business to be in, how large should it be, and others.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Overlaps with MGMT 110, MGMT 168.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 148. Business Decisions. 4 Units.**

Surveys normative and descriptive models of decision-making behavior, with an emphasis on organizational and policy contexts. Topics include rational choice theory, biases and heuristics, framing effects, and overconfidence. Management fads, panics, and herd behavior are also discussed.

Prerequisite: (ANTHRO 10A and ANTHRO 10B and ANTHRO 10C) or (SOCIOL 10A and SOCIOL 10B and SOCIOL 10C) or (SOC SCI 10A and SOC SCI 10B and SOC SCI 10C) or (MATH 2A and MATH 2B and (STATS 7 or MGMT 7)) or (STATS 120A and STATS 120B and STATS 120C) or (ECON 15A and ECON 15B).

Same as SOCIOL 138

Restrictions: Sociology majors have the first consideration for enrollment.

**ECON 149. Special Topics in Economics of Public and Private Organizations. 4 Units.**

Studies in selected areas of Economics of Public and Private Organizations. Topics addressed vary each quarter.

Repeatability: May be taken unlimited times as topics vary

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 151A. Labor Economics and Human Resources I. 4 Units.**

Labor demand, labor supply, human capital, personnel economics, and other topics.

Prerequisite: (ECON 15A and ECON 15B) and (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B).

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 152A. Economic Anthropology. 4 Units.**

Economic systems in comparative perspective: production, distribution, and consumption in market and non-market societies; agricultural development in the third world.

Prerequisite: One course in general science, anthropology, economics, geography, or sociology.

Same as ANTHRO 125A

Restrictions: Anthropology majors, Business Economics majors, Economics majors, and Quantitative Economics majors only.

**ECON 153W. Political Institutions, Legal Systems, and Economic Development. 4 Units.**

Studies a variety of empirical papers analyzing how institutions affect economic development. The topics include cross-country studies of institutions as well as narrower topics such as corruption, regulation of entry, political connections, and pork barrel politics.

Prerequisite: ECON 15A and (ECON 15B or STATS 120C or MATH 130C) and ECON 100A and ECON 100B and (ECON 100C or ECON 105C) and (ECON 122A or ECON 123A). Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

**ECON 154. Voting and Political Manipulation. 4 Units.**

Introduction to social choice and cooperative games. Topics include majority rule, types of voting methods, apportionment and proportional representation, agenda manipulation, coalition formation, voting power, political consequences of electoral laws.

Same as POL SCI 151H, SOC SCI 121T

Restrictions: Business Economics majors, Political Science majors, International Studies majors, and Social Science majors have the first consideration for enrollment.

**ECON 155. Current Issues in Political Economy. 4 Units.**

Political economy seeks explanations that combine insights from both economics and politics. Topics include the interaction of government and markets, the causes of the Great Recession, and the sources of income and wealth inequality.

Prerequisite: ECON 20A or ECON 20B or ECON 13 or INTL ST 13.

**ECON 157. Economic Development. 4 Units.**

Considers the process of economic development across the globe and why some countries are rich and others poor. Discusses the major problems facing developing countries, such as population growth, education, capital formation, environmental protection, and international trade.

Prerequisite: (ECON 20A or AP Economics Micro with a minimum score of 4) and (ECON 20B or AP Economics Macro with a minimum score of 4).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 161A. Money and Banking. 4 Units.**

Basic elements of money and banking: institutional features and economics of financial markets and, in particular, the U.S. banking system; determinants of interest rates; the Federal Reserve and its role in money supply; effects of money on output and inflation.

Corequisite: ECON 100C or ECON 105C.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B) and (ECON 100C or ECON 105C).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 161B. International Money. 4 Units.**

Open economy macroeconomics and determination of exchange rates. Asset-market approach to the balance of payments. Internal and external balance in the economy. Macroeconomic policies under fixed and floating exchange rates. The international monetary system and institutions.

Corequisite: ECON 100C or ECON 105C.

Prerequisite: (ECON 100A and ECON 100B) or (ECON 105A and ECON 105B) and (ECON 100C or ECON 105C).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 161D. Advanced Money and Banking. 4 Units.**

Studies business cycles in the United States during the last century. The first portion of the course reviews the theoretical models employed to study economic fluctuations and empirical methods used to measure fluctuations.

Prerequisite: ECON 161A and (ECON 100C or ECON 105C).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 162. Poverty, Growth, and Development. 4 Units.**

Examines India as a case study for each of the topics studied: growth experience of India along with its poverty eradication record, aspects of poverty, and the policies that have been undertaken to tackle poverty.

Prerequisite: (ECON 15A or STATS 120A) and (ECON 15B or STATS 120B) and (ECON 100A and ECON 100B and ECON 100C) or (ECON 105A and ECON 105B and ECON 105C).

**ECON 163. Poverty and Inequality. 4 Units.**

Examines the measurement, causes, consequences, and correlates of poverty and inequality in the United States. Topics include the roles of public policy responses through income taxes, transfers, and direct labor-market interventions, family structure and neighborhoods.

Prerequisite: (ECON 15B or STATS 120B) and (ECON 100A or ECON 105A).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 164AW. The Industrial Revolution in Western Europe. 4 Units.**

How do economists explain the process of economic development during the past three centuries? Has the process of industrialization affected living standards? Focusing on these questions, students learn how to apply economic theory and quantitative methods.

Corequisite: ECON 100C.

Prerequisite: ECON 100C or ECON 105C. Satisfactory completion of the Lower-Division Writing requirement.

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

(Ib)

**ECON 164C. American Economic History from Colonization to the Present. 4 Units.**

Examines how the American economy evolved from colonization to the post-war era. Topics include relations with foreign countries, the emergence of manufacturing and big business, railroads, slavery, war, the Great Depression, the rise of fiscal and monetary policies.

Prerequisite: ECON 20A and ECON 20B.

**ECON 165. Economics of International Business . 4 Units.**

Students learn to understand and analyze the principal economic issues in the international business arena. Covers topics such as trade theory, foreign direct investment, foreign exchange market, and strategy of international business.

Prerequisite: ECON 100C (may be taken concurrently) or ECON 105C (may be taken concurrently).

**ECON 166. Development Economics. 4 Units.**

Uses theory and empirics to understand the economies of low- and middle-income countries. Explores the concept, determinants, and consequences of economic growth, drawing on historical and cross-country evidence. Topics include poverty, inequality, agriculture, demography, and strategies of risk management.

Prerequisite: (ECON 15A or STATS 120A) and (ECON 15B or STATS 120B) and (ECON 122A or ECON 123A) and (ECON 100A or ECON 105A) and (ECON 100B or ECON 105B) and (ECON 100C or ECON 105C).

Restrictions: Business Economics majors, Economics majors, and Quantitative Economics majors have the first consideration for enrollment.

**ECON 167. International Trade and Commercial Policy. 4 Units.**

Determination of trade flows and the relative prices. Gains from trade, the terms of trade, and income distribution. Imperfect competition and international trade. The effect of tariffs, export subsidies, and import quotas. The effects of free and restricted trade.

Prerequisite: ECON 100A or ECON 105A.

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 169. Special Topics in Development Economics. 4 Units.**

Studies in selected areas of Development Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

Restrictions: Economics majors, Quantitative Economics majors, and Business Economics majors have the first consideration for enrollment.

**ECON 190. Senior Thesis. 4 Units.**

Students work with faculty to complete their honors thesis.

Repeatability: May be taken for credit 3 times

**ECON 190BW. Economics Honors Colloquium II. 4 Units.**

Colloquium required for honors students in Economics, Quantitative Economics, and Business Economics. Introduces students to independent research and helps students plan a research program. Students complete their thesis.

Prerequisite: ECON H190A. Satisfactory completion of the Lower-Division Writing requirement.

(Ib)

**ECON H190A. Economics Honors Colloquium I. 4 Units.**

Colloquium required for honors students in economics, quantitative economics, and business economics. Introduces students to independent research.

Helps students plan a research program. Prepares students for thesis writing.

Prerequisite: Satisfactory completion of the Lower-Division Writing requirement.

**ECON 199. Independent Study. 1-5 Units.**

Independent research with Economics faculty.

Repeatability: May be taken unlimited times

**ECON 200A. Graduate Colloquium for Economics I. 2 Units.**

Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Repeatability: May be taken unlimited times

Restrictions: Economics majors only.

**ECON 200B. Graduate Colloquium for Economics II. 2 Units.**

Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Prerequisite: ECON 200A with a minimum grade of B-.

Repeatability: May be taken unlimited times

Restrictions: Economics majors only.

**ECON 200C. Graduate Colloquium for Economics III. 2 Units.**

Weekly reports and colloquia by faculty, students, and visitors. Supplemented by class discussion of these presentations and other material on current research methodology.

Prerequisite: ECON 200B with a minimum grade of B-.

Repeatability: May be taken unlimited times

Restrictions: Economics majors only.

**ECON 203A. Mathematics for Economists. 4 Units.**

Gives students the mathematical background required for graduate work in economics. Topics covered include multivariate calculus, differential equations, and linear algebra.

**ECON 210A. Microeconomic Theory I. 4 Units.**

Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

**ECON 210B. Microeconomic Theory II. 4 Units.**

Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Prerequisite: ECON 210A with a minimum grade of B-.

**ECON 210C. Microeconomic Theory III. 4 Units.**

Theoretical microeconomics. Emphasis on the meaning and empirical interpretation of theoretical models. Topics include theory of the firm, theory of the market, theory of the consumer, duality theory, application to econometrics, general equilibrium and welfare economics, uncertainty, game theory.

Prerequisite: ECON 210B with a minimum grade of B-.

**ECON 210D. Macroeconomic Theory I. 4 Units.**

Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

**ECON 210E. Macroeconomic Theory II. 4 Units.**

Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Corequisite: ECON 211L.

Prerequisite: ECON 210D with a minimum grade of B-.

**ECON 210F. Macroeconomic Theory III. 4 Units.**

Advanced macroeconomic theory including alternative macroeconomic models, microeconomic foundations of macroeconomics, investment and growth theory, inflation and unemployment, rational expectations and macroeconomic policy, wealth effects, crowding out and fiscal policy, money and interest, open economy models.

Prerequisite: ECON 210E with a minimum grade of B-.

**ECON 211L. Macroeconomics Theory II Lab. 2 Units.**

Overview of stochastic processes; introduction to dynamic programming; two equilibrium concepts; Ricardian equivalence; real business cycle model; complete versus incomplete markets; asset pricing and the equity premium puzzle.

Corequisite: ECON 210E.

Grading Option: Satisfactory/Unsatisfactory only

**ECON 220A. Statistics and Econometrics I. 4 Units.**

Takes up where ECON 202 leaves off. Continuing in the likelihood perspective, begins with Bayesian point estimation and then covers interval estimation and hypothesis testing from both frequentist and Bayesian perspectives.

Corequisite: ECON 221A.

**ECON 220B. Statistics and Econometrics II. 4 Units.**

Begins by relaxing the ideal conditions of the standard regression model. Potential topics include kernel density estimation, instrumental variables (IV), two stage least squares (2SLS), panel data models, and simulation-based Bayesian methods, including Gibbs sampling, and the bootstrap.

Corequisite: ECON 221B.

Prerequisite: ECON 220A with a minimum grade of B-.

**ECON 220C. Statistics and Econometrics III. 4 Units.**

Covers econometric time series, discrete choice and count models, sample selection, and duration models along with Bayesian and classical asymptotic methods.

Corequisite: ECON 221C.

Prerequisite: ECON 220B with a minimum grade of B-.

**ECON 221A. Statistics and Econometrics Laboratory I. 2 Units.**

Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220A.

**ECON 221B. Statistics and Econometrics Laboratory II. 2 Units.**

Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220B.

**ECON 221C. Statistics and Econometrics Laboratory III. 2 Units.**

Discussion of problems in statistics and econometrics, and their relationships to statistical and econometrics theory. Instruction in the use of computers for applied econometric work.

Corequisite: ECON 220C.

**ECON 223A. Discrete Choice Econometrics. 4 Units.**

Specification, estimation, and testing of discrete choice models, with emphasis on cross-sectional and panel data models and applications. Students use computer packages to apply models and techniques to real data.

Prerequisite: ECON 220A with a minimum grade of B- and ECON 220B with a minimum grade of B- and ECON 220C with a minimum grade of B-.

**ECON 227A. Experimental Econ I. 4 Units.**

An introduction to experimental social science. Students learn experimental methodology, design, and analysis, and be exposed to active research areas. Each student writes a proposal for their own experiment and presents the design in class.

**ECON 227B. Experimental Econ II. 4 Units.**

Focuses on implementing experimental projects in a laboratory environment. Subjects learn about human subjects protection, program experimental software for their own projects, and conduct live experiment sessions.

**ECON 229. Special Topics in Econometrics. 2-4 Units.**

Studies in selected areas of Econometrics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

**ECON 232. Business Cycles in Historical Perspective. 4 Units.**

Investigates business cycles in the United States and worldwide during the last two centuries. Topics include causes and consequences of business fluctuations, monetary and fiscal policy, models of fluctuations, and empirical macroeconomics.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B- and ECON 210D with a minimum grade of B- and ECON 210E with a minimum grade of B- and ECON 210F with a minimum grade of B-.

**ECON 234. American Economic History. 4 Units.**

Focuses on American economic history from colonization onwards. Topics include the development of legal systems, transport systems, financial markets, industrialization, migration, immigration, technological change, and the consequences of slavery.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B- and ECON 210D with a minimum grade of B- and ECON 210E with a minimum grade of B- and ECON 210F with a minimum grade of B-.

**ECON 235. Health and Development in Historical Perspective. 4 Units.**

Investigates the evolution of population health over time and across the development process. Examines how the environment, nutrition, public health systems, and medical innovations have influenced health and demographic behavior. Also explores the interplay between health capital and economic growth.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B- and ECON 220A with a minimum grade of B- and ECON 220B with a minimum grade of B-.

**ECON 239. Special Topics in Financial Economics. 2-4 Units.**

Studies in selected areas of Financial Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

**ECON 241A. Industrial Organization I. 4 Units.**

Analysis of the structure and economic performance of markets, and the impact of public policy and their efficiency and equity. Effects of information structure. Oligopoly, cartels, mergers, vertical integration, patents, innovation, antitrust, and regulation.

Prerequisite: ECON 100B and ECON 203A with a minimum grade of B-.

**ECON 241B. Industrial Organization II. 4 Units.**

Analysis of the structure and economic performance of markets, and the impact of public policy and their efficiency and equity. Effects of information structure. Price flexibility and dispersion, auctions, search and industrial structure, intrafirm organization.

Prerequisite: ECON 241A with a minimum grade of B- and ECON 100B and ECON 203A with a minimum grade of B-.

**ECON 242. Development Economics. 4 Units.**

Uses theory and empirics to understand the economies of low- and middle-income countries. Explores the concept, determinants, and consequences of economic growth, drawing on historical and cross-country evidence. Topics include poverty, inequality, agriculture, demography, and strategies of risk management.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B- and ECON 220A with a minimum grade of B- and ECON 220B with a minimum grade of B-.

**ECON 243A. Game Theory. 4 Units.**

A formal introduction to non-cooperative game theory. Topics include properties of Nash Equilibrium and equilibrium refinements, games with imperfect information, and games with incomplete information.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B-.

**ECON 243B. Advanced Game Theory. 4 Units.**

Provides advanced instruction in game theory. The topics covered will be (i) the theory of repeated games and (ii) evolutionary game theory.

Applications include bargaining, collusion, reputation, social norms, and the evolution of preferences via natural selection and cultural transmission.

Prerequisite: ECON 243A with a minimum grade of B-.

**ECON 245. Empirical Methods in Applied Microeconomics. 4 Units.**

Focuses on the empirical methods used in modern applied microeconomics. Teaches methods that can be applied to produce original research in applied fields using cross-sectional and panel data. Applications will be drawn heavily from labor, public, health and development economics.

**ECON 249. Special Topics in Microeconomics. 2-4 Units.**

Studies in selected areas of Microeconomics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times

**ECON 251A. Labor Economics I. 4 Units.**

Analysis of the relationships between education and the labor market (human capital theory), between resources devoted to education and the return to education (the education production function) and between education and labor market inequality (the theory of skill-biased technical change).

Prerequisite: ECON 203A with a minimum grade of B-.

**ECON 251B. Labor Economics II. 4 Units.**

Analysis of core topics in labor economics, with an emphasis on empirical methods. Topics may include minimum wages, discrimination, gender, aging and retirement, labor market networks, personnel economics, and employment policy.

Prerequisite: ECON 203A with a minimum grade of B-.

**ECON 255. Microeconomics and Public Policy. 4 Units.**

Introduces the fundamental principles of microeconomics that are required for applied policy analysis. Provides students with an intuitive understanding of the microeconomic approach, and familiarizes them with concepts used in applied public policy analysis.

Same as UPPP 240

Repeatability: May be taken for credit 2 times

**ECON 259. Special Topics in Labor Economics. 2-4 Units.**

Studies in selected areas of Labor Economics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

**ECON 260B. Monetary Economics II. 4 Units.**

Surveys recent issues on monetary policy in uncertain environments. Examines settings where both the policy makers and the private sector are uncertain of future outcomes or the underlying economic structure.

**ECON 261A. International Trade I. 4 Units.**

Covers theoretical models, empirical methods, and policy issues in international trade. Following the conventional treatment of the Richardian model, the Heckscher-Ohlin model and the specific factors model, new trade models which incorporate scale economics and imperfect competition will be discussed.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B-.

**ECON 261B. International Trade II. 4 Units.**

Covers theoretical models, empirical methods, and policy issues in international trade. Following the conventional treatment of the Richardian model, the Heckscher-Ohlin model, and the specific factors model, new trade models which incorporate scale economics and imperfect competition are discussed.

Prerequisite: ECON 261A with a minimum grade of B- and ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B-.

**ECON 263A. Advanced Macroeconomics I. 4 Units.**

Students build Dynamic Stochastic General Equilibrium (DSGE) macroeconomic models from microeconomic foundations. This approach emphasizes intertemporal optimization by firms and households and typically incorporates nominal rigidities such as sluggish price and/or wage adjustment.

**ECON 269. Special Topics in Macroeconomics. 2-4 Units.**

Studies in selected areas of Macroeconomics. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

**ECON 270A. Political Economy I. 4 Units.**

Political Economy lies at the intersection of economics and political science. Studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

**ECON 270B. Political Economy II. 4 Units.**

Political Economy lies at the intersection of economics and political science. Studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: ECON 270A with a minimum grade of B-.

**ECON 270C. Political Economy III. 4 Units.**

Political Economy lies at the intersection of economics and political science. Studies effects of politics on the economy and uses tools derived from economics to understand the behavior of governments and of citizens when they deal with politics.

Prerequisite: ECON 270B with a minimum grade of B-.

**ECON 271. Economics of Criminal Justice. 4 Units.**

Considers empirical research from the economics literature on various topics related to the criminal justice system, such as policing, bail reform, incarceration, or recidivism.

Same as CRM/LAW C271

**ECON 272A. Public Economics I. 4 Units.**

Covers welfare economics, the theory of optimal taxation, tax incidence, and empirical methods in tax policy. Empirical topics include tax evasion, measurement of incidence, efficiency costs, and other policy issues.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B-.

**ECON 272B. Public Economics II. 4 Units.**

Covers the theory of public goods and models of decentralized provision of such goods, including voluntary provision, voting, bureaucratic provision, and preference revelation mechanisms, as well as the Tiebout model. Also covers externalities, cost-benefit analysis, and intergovernmental competition.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B-.

**ECON 272C. Public Economics III. 4 Units.**

Covers the rationale for and effects of government intervention in insurance markets and for redistribution. Includes theoretical and empirical analyses of cash and in-kind assistance programs, unemployment insurance, disability insurance, Social Security, and other programs.

Prerequisite: ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B-.

**ECON 275. Economics of Government. 4 Units.**

Prepares students to analyze public policy questions with tools from economics. By the end, students should be able to identify important economic issues in public policy debates and consume and critique economic research on these topics.

Same as UPPP 227

**ECON 279. Special Topics in Political Economy. 2-4 Units.**

Studies in selected areas of Political Economy. Topics addressed vary each quarter.

Prerequisite: Prerequisites vary.

Repeatability: May be taken unlimited times as topics vary

**ECON 281A. Urban Economics I. 4 Units.**

Economic reasons for the existence of cities, analysis of urban spatial structure, urban sprawl, Third World urbanization, hedonic price analysis, housing tenure choice.

Prerequisite: ECON 210A with a minimum grade of B-.

**ECON 281B. Urban Economics II. 4 Units.**

Housing in the portfolio, land-use controls, rent control, homelessness, neighborhood effects, urban quality-of-life measurement, and subcenters.

Prerequisite: ECON 210A with a minimum grade of B-.

**ECON 282B. Transportation Economics II. 4 Units.**

Economics of the airline industry. Hub-and-spoke networks, the effects of competition on airfares, price dispersion, airline alliances, airport congestion, product unbundling.

Prerequisite: ECON 282A with a minimum grade of B-.

**ECON 284. Health Economics. 4 Units.**

Introduction to graduate-level Health Economics. Research-oriented and focuses on the synthesis and critical examination of existing Economics research, as well as analyzing and producing research, with a focus on the U.S.

Prerequisite: (ECON 210A with a minimum grade of B- and ECON 210B with a minimum grade of B- and ECON 210C with a minimum grade of B-) and (ECON 220A with a minimum grade of B- and ECON 220B with a minimum grade of B- and ECON 220C with a minimum grade of B-) or UPPP 215 with a minimum grade of B- and UPPP 240 with a minimum grade of B-.

**ECON 290. Dissertation Research. 2-12 Units.**

Dissertation research with Economics faculty.

Repeatability: May be taken unlimited times

**ECON 299. Independent Study. 2-4 Units.**

Independent research with Economics faculty.

Repeatability: May be taken unlimited times