

# ECONOMICS

## Lam Family College of Business

Dean: Dr. Eugene Sivadas

### Department of Economics

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Chair: Dr. Anoshua Chaudhuri

Graduate Coordinator: Dr. Lisa Takeyama

#### Vision

The Economics Department vision is to be a quality academic department that provides the best possible education to our undergraduate and graduate students, trains student scholars and fosters original intellectual growth through research.

#### Mission

Our mission is to prepare our students, through high-quality teaching and research, to be engaged and informed citizens, and to contribute productively in their careers using knowledge learned during their study of Economics.

### Program Scope

The Bachelor of Arts in Economics provides students with a foundation in economic theory while allowing them to apply what they have learned in real-world settings. The program fully exposes students to the primary methods of economic inquiry and analysis. Courses in the program call on students to use both quantitative and qualitative reasoning to analyze and explain economic events and problems. Students also develop practical skills in collecting and statistically analyzing economic data to reach conclusions about economic issues. The undergraduate program in economics provides excellent preparation for students planning to enter careers in business, government, and non-profit organizations. It can also serve to adequately prepare students for advanced graduate and professional studies in economics, business, public policy, urban and regional planning, law, and other related fields.

The Master of Science in Quantitative Economics allows students to pursue advanced study in economics and focuses on theoretical foundations and real-world applications. The program requires students to develop skills in the mathematical modeling of economic theory and statistical analysis of economic data, as well as in the writing and communicating of economic ideas. The M.S. program provides excellent advanced training for students wishing to obtain professional positions as researchers or administrators in private businesses, governmental agencies, or non-profit organizations. The program also offers a solid foundation for students interested in continuing their graduate studies in Ph.D. programs elsewhere.

### Career Outlook

Both the undergraduate and graduate programs prepare students for a wide variety of careers in business, government, and non-profit organizations. Practical orientation and a strong emphasis on quantitative reasoning allow graduates of these programs to move into interesting and promising careers in a number of fields. Undergraduate students majoring in economics, particularly those who have supplemented their program with additional coursework in accounting, finance, and computer programming, are very attractive

job candidates. Graduate students in the master's program develop advanced theoretical, statistical, and data analytic skills, which allow them to compete successfully for more advanced positions. Economics majors from SF State have recently been placed in entry-level positions in business management, marketing, financial services, research consulting firms, public policy analysis, teaching, and many other fields. The undergraduate major also provides excellent preparation for advanced graduate and professional studies in economics and related disciplines. SF State graduates of the M.S. program have recently been placed in advanced positions with public utilities, economics consulting firms, the research divisions of large companies, and local and state governmental agencies, while other SF State M.S. graduates have been admitted to top Ph.D. granting institutions.

### Professor

MICHAEL BAR (2005), *Professor of Economics*; B.A. (1997), University of Haifa; Ph.D. (2005) University of Minnesota.

SUDIP CHATTOPADHYAY (1999), *Professor of Economics*; B.S. (1980), M.S. (1982), University of Calcutta; M.S. (1995), Ph.D. (1997), University of Illinois, Champaign-Urbana.

ANOSHUA CHAUDHURI (2003), *Professor of Economics*; B.A. (1994), Jadavpur University; M.A. (1996), Delhi School of Economics; Ph.D. (2003), University of Washington.

### Associate Professor

KIRILL CHERNOMAZ (2007), *Associate Professor of Economics*; B.A. (1999), University of Colorado, Denver; M.A. (2001), Central European University, Budapest, Hungary; M.A. (2002), The Ohio State University; Ph.D. (2007) The Ohio State University.

ZUZANA JANKO (2009), *Associate Professor of Economics*; B.A. (1997), M.A. (2000), Ph.D. (2003), University of California, Riverside.

VENOO KAKAR (2013), *Associate Professor of Economics*; B.A. (2006), University of Delhi; M.A. (2008), Jamia Millia Islamia; M.A. (2011), Ph.D. (2013), University of California, Riverside.

PHILIP G. KING (1987), *Associate Professor of Economics*; B.A. (1978), Washington University; M.A. (1981), Ph.D. (1987), Cornell University.

MICHAEL J. POTEPAN (1991), *Associate Professor of Economics*; B.A. (1979), California State University, San Bernardino; Ph.D. (1985), University of California, Davis.

LISA TAKEYAMA (2006), *Associate Professor of Economics*; B.A. (1984), San Francisco State University; Ph.D. (1992), Stanford University.

### Assistant Professor

CHENGHAO HU (2018), *Assistant Professor of Economics*; B.A. (2008), Fudan University; M.A. (2013), University of Oklahoma; Ph.D. (2018), University of California, Davis.

CHANG HYUNG (MAX) LEE (2019), *Assistant Professor of Economics*; B.A. (2013), University of California, Santa Cruz; M.A. (2014), Ph.D. (2019), University of California, Santa Barbara.

SEPIDEH MODREK (2016), *Assistant Professor of Economics*; B.A. (2001), M.A. (2007), Ph.D. (2009), University of California, Berkeley.

VERONICA SOVERO (2018), *Assistant Professor of Economics*; B.S. (2005), California Institute of Technology; M.A. (2007), University of Sussex; M.A. (2008), Ph.D. (2013), University of California, Los Angeles.

## Major

- Bachelor of Arts in Economics (<http://bulletin.sfsu.edu/colleges/business/economics/ba-economics/>)

## Minor

- Minor in Economics (<http://bulletin.sfsu.edu/colleges/business/economics/minor-economics/>)

## Masters

- Master of Science in Quantitative Economics (<http://bulletin.sfsu.edu/colleges/business/economics/ma-economics/>)

### ECON 101 Introduction to Microeconomic Analysis (Units: 3)

Basic analysis of prices and markets; consumer behavior; behavior of the firm; factor markets.

#### Course Attributes:

- D1: Social Sciences

### ECON 102 Introduction to Macroeconomic Analysis (Units: 3)

Basic economic methodology, analysis, and policy; economic institutions, organizations, and industrial structure; the monetary system; measurement, determination, and stability of national income; monetary, fiscal, and balance of payments problems and policies. [Formerly ECON 100]

#### Course Attributes:

- D1: Social Sciences

### ECON 301 Intermediate Microeconomic Theory (Units: 3)

Prerequisites: ECON 101, ECON 102, and MATH 226 or equivalent.

Behavior of firms and households in the market economy; production of the firm; determination of costs and prices; income distribution; examination of alternative market structures.

### ECON 302 Intermediate Macroeconomic Theory (Units: 3)

Prerequisites: ECON 101, ECON 102, and MATH 226 or equivalent or consent of the instructor.

Determinants of important aggregate economic variables: levels of real and nominal output. Rates of unemployment, inflation, and economic growth. Causes of changes in these variables and consequences of alternative macroeconomic policies.

### ECON 306 Economics and the Environment (Units: 3)

Prerequisite: Upper-division standing or consent of the instructor.

How economic systems impact the natural environment and how the natural environment underlies the economy. Includes neoclassical and ecological economics perspectives.

(This course is offered as ENV5 306 and ECON 306. Students may not repeat the course under an alternate prefix.)

### ECON 311 Statistical Methods and Interpretation (Units: 3)

Prerequisite: MATH 226 or equivalent.

Statistical methods essential in solving economic and business problems; descriptive statistics, probability theory, estimation, inferences, hypothesis testing, and statistical software applications. Lecture, 2 units; activity, 1 unit.

### ECON 312 Introduction to Econometrics (Units: 3)

Prerequisites: ECON 301, ECON 311, and MATH 226 or equivalent or consent of the instructor.

Applied regression and correlation analysis of variance, time series analysis, and forecasting, index numbers, experimental design and sampling methods, and computer applications using major economic data sources; interpretation of results. Lecture, 2 units; activity, 1 unit.

### ECON 400 Economic and Social History of the United States (Units: 3)

Prerequisite: ECON 102.

Economic and social development of the United States.

### ECON 450 Health Economics (Units: 3)

Prerequisites: ECON 101 and ECON 102.

Economic analysis of the US health care system. Supply, demand, and price of health care; cost, access, and quality; regulation; health care reform and comparative health systems.

### ECON 474 History of Labor in the United States (Units: 3)

Prerequisites: Upper-division standing; GE Area E; or consent of the instructor.

Development of the workforce and organized labor in the U.S. with an emphasis on the social and economic characteristics of work and the workforce and characteristics of labor organizations at different times. (This course is offered as HIST 474, ECON 474, and LABR 474. Students may not repeat the course under an alternate prefix.)

### ECON 500 Money and Banking (Units: 3)

Prerequisite: ECON 302 or equivalent.

The roles of the Federal Reserve System, private commercial banks, and the public in the determination of the money supply. Analysis of the level and structure of interest rates. Methods, objectives, and actual consequences of monetary policy; international monetary problems.

### ECON 501 Money and Capital Markets (Units: 3)

Prerequisites: ECON 302 and ECON 500 or equivalent.

Savings and investments; financial intermediaries; the flow of funds; the structure of interest rates; debts, real assets, and the level of economic activity.

### ECON 505 Public Economics (Units: 3)

Prerequisites for ECON 805: Graduate standing; ECON 301; or consent of the instructor.

Prerequisites for ECON 505: Upper-division standing; ECON 101, ECON 102, and ECON 301 or equivalents; GPA of 3.0 or higher; or consent of the instructor.

Economic analysis of the public sector and its impact on the allocation of resources and distribution of income. Emphasis on the economics of government spending, taxation, and debt management. (ECON 805/ECON 505 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 510 Labor Economics (Units: 3)**

Prerequisite: ECON 101 or consent of the instructor.

Analysis of the operation of the labor market. Theories of wages, unemployment, unions, and income distribution.  
(This course is offered as ECON 510 and LABR 510. Students may not repeat the course under an alternate prefix.)

**ECON 511 Collective Bargaining (Units: 3)**

Prerequisite: Upper-division standing or consent of the instructor.

Collective bargaining, legislation, and case studies in labor law.  
(This course is offered as ECON 511 and LABR 511. Students may not repeat the course under an alternate prefix.)

**ECON 512 Economics of Poverty and Discrimination (Units: 3)**

Prerequisites: ECON 301 and ECON 311.

Application of economic theory to problems of poverty and discrimination. Examines the current structure of income distribution, poverty and empirical evidence on discrimination, and surveys current policy.

**ECON 515 Economics of Crime and Justice (Units: 3)**

Prerequisite: Upper-division standing or consent of the instructor.

Economic theory of choice and rationality applied to the analysis of crime. Examines social policy to minimize losses due to crime and the costs of crime control. Economics of crime generation, law enforcement, prosecution, corrections, and punishment.

**ECON 516 Law and Economics (Units: 3)**

Prerequisites: ECON 101 and ECON 102.

Application of economics to law and legal institutions. Effects of laws on resource allocation. Public regulation of the market. Antimonopoly, landlord-tenant laws, regulation of business and financial markets, environment, zoning, income and wealth distribution, and tort and property law.

**ECON 520 Industrial Organization (Units: 3)**

Prerequisites for ECON 820: Graduate standing; ECON 301; or consent of the instructor.

Prerequisites for ECON 520: Upper-division standing; ECON 301; GPA of 3.0 or higher; or consent of the instructor.

Determinants and linkages between market structure, firm conduct, and industrial performance. Including market power, nonlinear pricing, product differentiation, quality and advertising, oligopoly and strategic behavior; firm organization, ownership and control, entry and exit mergers, and antitrust.  
(ECON 820/ECON 520 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 535 Urban Economics (Units: 3)**

Prerequisite: Upper-division standing or consent of the instructor.

Analysis of the economic forces which determine a city's income, employment, land use pattern, industrial structure, and public sector. Particular attention to housing, central city-suburban relationships, transportation, local labor market, local public finance, and neighborhood economic development.  
(This course is offered as ECON 535 and USP 535. Students may not repeat the course under an alternate prefix.)

**ECON 540 Economics of Gender (Units: 3)**

Prerequisite: ECON 301.

Economic models to explain household decision-making regarding labor force participation, marriage, fertility, work sharing and resource allocation; discussion of current empirical evidence and policies to alleviate gender bias. Special focus on women and children in developing countries. [Formerly ECON 340]

**Course Attributes:**

- Am. Ethnic & Racial Minorities
- Global Perspectives
- Social Justice

**ECON 550 Environmental Economics (Units: 3)**

Prerequisites for ECON 850: Graduate standing; ECON 301; or consent of the instructor.

Prerequisites for ECON 550: Upper-division standing; ECON 301; GPA of 3.0 or higher; or consent of the instructor.

Economic causes and consequences of environmental problems. The role of regulatory instruments in mitigating environmental problems. Application of economic tools and non-market valuation techniques to analyze local and international environmental policies.  
(ECON 850/ECON 550 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 560 Economics of Growth (Units: 3)**

Prerequisites: Upper-division standing; ECON 301 and ECON 302; or consent of the instructor.

Examines basic growth models and applies these models to growth in the US, Europe, and the World.

**ECON 601 Applied Microeconomics (Units: 3)**

Prerequisites for ECON 801: ECON 301, ECON 302, ECON 731, and ECON 701.

Prerequisites for ECON 601: Upper-division standing; ECON 301, ECON 302, and ECON 311; GPA of 3.0 or higher; or consent of the instructor.

In-depth coverage of selected topics in applied microeconomics. Review of empirical and experimental findings. Techniques of applied research. Lecture, 2 units; activity, 1 unit.  
(ECON 801/ECON 601 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 605 Seminar: History of Economic Thought (Units: 3)**

Prerequisites: ECON 301 and ECON 302.

Development of economic thought. Reports and discussions based on the works of classical, neoclassical, and contemporary economics.

**ECON 611 International Trade Theory and Policy (Units: 3)**

Prerequisites for ECON 811: Graduate standing; ECON 301 and ECON 302; or consent of the instructor.

Prerequisites for ECON 611: Upper-division standing; ECON 301; GPA of 3.0 or higher; or consent of the instructor.

Basic models of trade including the Ricardian model, the Heckscher-Ohlin model, and newer theories. Policy applications, tariff, and non-tariff barriers, the WTO, and regional integration such as NAFTA and the EU.  
(ECON 811/ECON 611 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 612 International Finance and Macroeconomics (Units: 3)**

Prerequisites for ECON 812: Graduate standing; ECON 301 and ECON 302.  
Prerequisites for ECON 612: Upper-division standing; ECON 302; GPA of 3.0 or higher; or consent of the instructor.

Theory and institutions involved in exchange rates and exchange rate regimes, open economy macroeconomics, debt crises, and international institutions such as the IMF and EMU.

(ECON 812/ECON 612 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**Course Attributes:**

- Global Perspectives

**ECON 616 Experimental Economics and Game Theory (Units: 3)**

Prerequisites: Upper-division standing; ECON 301 and MATH 226; or consent of the instructor.

Introduction to the part of the economic theory that explores strategic interactions among economic agents. Game theory is used in the analysis of a number of socio-economic situations. Lecture, 2 units; activity, 1 unit.

**ECON 618 Economic Inference: Methods and Applications (Units: 3)**

Prerequisites: Restricted to upper-division standing; ECON 101, ECON 102, and ECON 311 or equivalents.

Evaluation of causal relationships between economic factors using experimental data, design, and analysis of experiments. Causal inference using observational data and non-experimental and quasi-experimental inference methods. Evaluation of incentives and outcomes in agent-based models through simulations and static and adaptive systems. Techniques and technologies for analysis of experimental data, observational data, and agent-based simulations.

**ECON 620 Economic Development (Units: 3)**

Prerequisites: ECON 101 and ECON 102 or equivalents.

Comprehensive study of the economic problems, both domestic and international, facing less developed countries. Analysis of the roles of domestic, private, and public sectors as well as international institutions such as the World Bank, the United Nations, and multinational corporations.

**ECON 635 Economics of Globalization (Units: 3)**

Prerequisites: ECON 101 and ECON 102 or consent of the instructor.

Economic debate surrounding the process of globalization. Economic causes/consequences of market integration: domestic labor markets, international trade, and multinationalization production, and the integration of financial markets.

(This course is offered as ECON 635 and I R 635. Students may not repeat the course under an alternate prefix.)

**ECON 640 Health Economics Analysis and Research (Units: 3)**

Prerequisites for ECON 840: Graduate standing; ECON 701 or equivalent; or Healthcare Administration Certificate students.

Prerequisites for ECON 640: Upper-division standing; ECON 301 and ECON 311; GPA of 3.0 or higher; or consent of the instructor.

Introduction to health economics and why health care is different from other goods. Analysis of the US healthcare market, health in development, and health evaluation. (Plus-minus ABC/NC grading only) [CSL may be available]

(ECON 840/ECON 640 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**Course Attributes:**

- Global Perspectives
- Social Justice

**ECON 651 Student Managed Fund in Environmental, Social and Governance (ESG) Investments (Units: 3)**

Prerequisite: Sophomore standing or higher.

Introduction to the fundamental concepts and principles of Environmental, Social, and Governance (ESG) investments and their application to firm valuation and portfolio selection. Discussion of the topics of financial markets, financial statement analysis, time value of money, asset valuation, risk and return, and portfolio selection within the context of ESG. Survey of critical skills in implementing the ESG principles in investments with a blend of discussions, readings, cases, and presentations.

(This course is offered as FIN 651, ECON 651, and ENVS 651. Students may not repeat the course under an alternate prefix.)

**ECON 675 Natural Resource Economics (Units: 3)**

Prerequisite: ECON 301 or consent of the instructor.

Introduction to the economics of natural resources. Models of optimal depletion of nonrenewable resources and optimal use of renewable resources. Model application to energy, forests, fisheries, water, and climate change. Focus on computation solutions using Excel and Mathematica. Lecture, 2 units; activity, 1 unit.

**ECON 680 Applied Economics and Data Analysis with R (Units: 3)**

Prerequisite for ECON 880: Graduate standing or consent of the instructor.

Prerequisites for ECON 680: Upper-division standing; ECON 312 or equivalent; GPA of 3.0 or higher; or consent of the instructor.

General programming concepts and the application of general programming skills to a variety of problems that economic analysts face in working with RAW or unstructured data. Focus on the application of these tools to economics and public policy research questions. Lecture, 2 units; laboratory, 1 unit.

ECON 600/ECON 800 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 690GW Senior Seminar: Economic Inquiry and Analysis - GVAR (Units: 3)**

Prerequisites: Upper-division standing; GE Area A2; ECON 301, ECON 302, and ECON 312; or consent of the instructor.

Economic analytical methods applied to important economic issues confronting society. Application of theory and methods learned during previous courses. Assessment of the ability to employ economic reasoning in discussion, written exercises and reports, and in-class presentations. (ABC/NC grading only)

**Course Attributes:**

- Graduation Writing Assessment

**ECON 699 Independent Study (Units: 1-3)**

Prerequisite: Consent of the instructor, major adviser, and department chair.

Supervised study of a particular problem selected by the student.

**ECON 701 Seminar: Microeconomic Theory (Units: 3)**

Prerequisites: Graduate Economics students, ECON 715 (may be taken concurrently), or consent of the instructor.

Behavior of firms and households; determination of prices and resource allocation in a decentralized economy.

**ECON 702 Seminar: Macroeconomic Theory (Units: 3)**

Prerequisites: Graduate standing; ECON 701 and ECON 715; or consent of the instructor.

An in-depth look into contemporary macroeconomic concepts, and theoretical and quantitative analysis.

**ECON 715 Mathematical Economics (Units: 3)**

Prerequisites: Classified graduate Economics student or consent of the instructor.

Economics presented mathematically. Use of matrix algebra, calculus, difference equations, and differential equations in economic analysis. Lecture, 2 units; activity, 1 unit. [Formerly ECON 615]

**ECON 731 Econometric Methods and Applications (Units: 3)**

Prerequisites: Classified graduate Economics student or consent of the instructor.

Theories of estimation. Illustrations of econometric research. Forecasting with econometric models. Computer applications. Lecture, 2 units; activity, 1 unit. [Formerly ECON 630]

**ECON 801 Applied Microeconomics (Units: 3)**

Prerequisites for ECON 801: ECON 301, ECON 302, ECON 731, and ECON 701.

Prerequisites for ECON 601: Upper-division standing; ECON 301, ECON 302, and ECON 311; GPA of 3.0 or higher; or consent of the instructor.

In-depth coverage of selected topics in applied microeconomics. Review of empirical and experimental findings. Techniques of applied research. Lecture, 2 units; activity, 1 unit. (ECON 801/ECON 601 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 805 Public Economics (Units: 3)**

Prerequisites for ECON 805: Graduate standing; ECON 301; or consent of the instructor.

Prerequisites for ECON 505: Upper-division standing; ECON 101, ECON 102, and ECON 301 or equivalents; GPA of 3.0 or higher; or consent of the instructor.

Economic analysis of the public sector and its impact on the allocation of resources and distribution of income. Emphasis on the economics of government spending, taxation, and debt management.

(ECON 805/ECON 505 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 811 International Trade Theory and Policy (Units: 3)**

Prerequisites for ECON 811: Graduate standing; ECON 301 and ECON 302; or consent of the instructor.

Prerequisites for ECON 611: Upper-division standing; ECON 301; GPA of 3.0 or higher; or consent of the instructor.

Basic models of trade including the Ricardian model, the Heckscher-Ohlin model, and newer theories. Policy applications, tariff, and non-tariff barriers, the WTO, and regional integration such as NAFTA and the EU. (ECON 811/ECON 611 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 812 International Finance and Macroeconomics (Units: 3)**

Prerequisites for ECON 812: Graduate standing; ECON 301 and ECON 302. Prerequisites for ECON 612: Upper-division standing; ECON 302; GPA of 3.0 or higher; or consent of the instructor.

Theory and institutions involved in exchange rates and exchange rate regimes, open economy macroeconomics, debt crises, and international institutions such as the IMF and EMU.

(ECON 812/ECON 612 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**Course Attributes:**

- Global Perspectives

**ECON 820 Industrial Organization (Units: 3)**

Prerequisites for ECON 820: Graduate standing; ECON 301; or consent of the instructor.

Prerequisites for ECON 520: Upper-division standing; ECON 301; GPA of 3.0 or higher; or consent of the instructor.

Determinants and linkages between market structure, firm conduct, and industrial performance. Including market power, nonlinear pricing, product differentiation, quality and advertising, oligopoly and strategic behavior; firm organization, ownership and control, entry and exit mergers, and antitrust.

(ECON 820/ECON 520 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 825 Applied Time Series Econometrics (Units: 3)**

Prerequisites: ECON 731 or equivalent or consent of the instructor.

Focus on applications of time series econometric modeling with a particular emphasis in the areas of macroeconomic forecasting, financial modeling, and economic issues that require longitudinal analysis. [Formerly ECON 725]

**ECON 830 Advanced Econometric Methods and Applications (Units: 3)**

Prerequisite: ECON 731 or consent of the instructor.

Advanced theories and applications of cross-sectional and panel data models of Econometrics. [Formerly ECON 730.]

**ECON 840 Health Economics Analysis and Research (Units: 3)**

Prerequisites for ECON 840: Graduate standing; ECON 701 or equivalent; or Healthcare Administration Certificate students.

Prerequisites for ECON 640: Upper-division standing; ECON 301 and ECON 311; GPA of 3.0 or higher; or consent of the instructor.

Introduction to health economics and why health care is different from other goods. Analysis of the US healthcare market, health in development, and health evaluation. (Plus-minus ABC/NC grading only) [CSL may be available]

(ECON 840/ECON 640 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**Course Attributes:**

- Global Perspectives
- Social Justice

**ECON 850 Environmental Economics (Units: 3)**

Prerequisites for ECON 850: Graduate standing; ECON 301; or consent of the instructor.

Prerequisites for ECON 550: Upper-division standing; ECON 301; GPA of 3.0 or higher; or consent of the instructor.

Economic causes and consequences of environmental problems. The role of regulatory instruments in mitigating environmental problems. Application of economic tools and non-market valuation techniques to analyze local and international environmental policies. (ECON 850/ECON 550 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 851 Topics in Applied Economics (Units: 3)**

Prerequisites: Graduate standing; ECON 701 and ECON 830; or consent of the instructor.

Topic to be specified in Class Schedule. May be repeated for a total of 6 units when topics vary. Lecture, 2 units; activity, 1 unit. (Plus-minus letter/NC grading only)

**ECON 880 Applied Economics and Data Analysis with R (Units: 3)**

Prerequisite for ECON 880: Graduate standing or consent of the instructor.

Prerequisites for ECON 680: Upper-division standing; ECON 312 or equivalent; GPA of 3.0 or higher; or consent of the instructor.

General programming concepts and the application of general programming skills to a variety of problems that economic analysts face in working with RAW or unstructured data. Focus on the application of these tools to economics and public policy research questions. Lecture, 2 units; laboratory, 1 unit.

ECON 600/ECON 800 is a paired course offering. Students who complete the course at one level may not repeat the course at the other level.)

**ECON 890 Graduate Seminar in Applied Economics (Units: 3)**

Prerequisites: Graduate standing; ECON 701 and ECON 702; or consent of instructor. Concurrent enrollment in ECON 825.

Preparation for the culminating experience. Create and develop an applied research topic in conjunction with the Economics faculty. Activity.

**ECON 896EXM Culminating Experience Examination (Unit: 0)**

Prerequisites: Consent of the instructor, committee chair, and approval of Advancement to Candidacy (ATC) and Culminating Experience (CE) forms by Graduate Studies before registration.

Required for students whose culminating experience consists of an examination only. Not for students enrolled in a culminating experience course numbered ECON 898 (or in some cases, course numbered ECON 890. See program's graduate advisor for further information). (CR/NC, RP)

**ECON 898 Master's Thesis (Units: 6)**

Prerequisites: Consent of the chair of the candidate's committee for the Master of Arts; consent of instructor and approval of Advancement to Candidacy (ATC) and Culminating Experience (CE) forms by Graduate Studies.

An investigation of a topic or problem in economics including developing the project, organizing and completing the written study, and defending the findings with the committee. Advancement to Candidacy (ATC) and Proposal for Culminating Experience Requirement forms must be approved by the Graduate Division before registration. (CR/NC grading only)

**ECON 899 Independent Study (Units: 1-3)**

Prerequisite: Open to graduate students who have demonstrated ability to do independent work. Enrollment by petition to the department.