Economics

The Department of Economics offers programs designed to improve the understanding of important economic problems and to provide the tools needed for the critical analysis of these problems and for dealing with them in practice.

On the undergraduate level, the department provides both for those who want to become professional economists and for those interested in a specialty related to economics, such as business, law, government, history, health care management, or environmental engineering. Still other students are simply interested in improving their understanding of society or making informed assessments of economic policies as citizens or making wise decisions about personal finances.

On the graduate level, the department provides advanced training for students preparing for careers as professional economists. The program encompasses such fields as macroeconomics, microeconomic theory, econometrics, labor economics, international economics, industrial organization, economic development, and public finance, with an emphasis on the application of economic theory and quantitative methods. Because of the small number of graduate students admitted, they can work closely with faculty in graduate courses and seminars, and have easy and informal access to faculty members.

The introductory courses AS.180.101 Elements of Macroeconomics and AS.180.102 Elements of Microeconomics are open to all students. Courses at the 200-level have Elements of Economics (AS.180.101 and AS.180.102) as prerequisites.

AS.180.301 Microeconomic Theory and AS.180.302 Macroeconomic Theory courses have AS.180.101 and AS.180.102 as well as Calculus I (AS.110.106 or equivalent) as prerequisites. All 300-level courses above 301 and 302 have Microeconomic and/or Macroeconomic Theory (AS.180.301, AS.180.302) as prerequisites (or, with permission of the instructor, corequisites), as well as Elements of Economics and Calculus. Some 300-level courses have additional prerequisites; see individual course listings. Independent study is available, subject to the consent of the department and of the faculty member with whom the student wants to work.

Subject to the consent of the instructor, graduate courses at the 600-level are open to qualified undergraduates. The 600-level courses for which advanced undergraduates are most likely to be qualified are AS.180.601 Microeconomic Theory I and AS.180.603 Macroeconomic Theory I.

Requirements for the B.A. Degree

(Also see Requirements for a Bachelor’s Degree. (http://e-catalog.jhu.edu/undergrad-students/academic-policies/requirements-for-a-bachelors-degree))

For both the economics major and minor, a minimum grade of C- or better is required for all courses meeting the requirements and courses may not be taken satisfactory/unsatisfactory. Courses from study abroad or taken at other universities may count towards requirements only if they are approved by the department’s director of undergraduate studies. Internships, independent studies, and intersessions courses do not apply towards major or minor requirements. Summer courses at universities other than Johns Hopkins DO NOT count toward the major or minor, except with prior approval of the Director of Undergraduate Studies for Economics.

Major Requirements:

**Economics Core**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>AS.180.101</td>
<td>Elements of Macroeconomics</td>
<td>3</td>
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<tr>
<td>AS.180.102</td>
<td>Elements of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>AS.180.301</td>
<td>Microeconomic Theory</td>
<td>4</td>
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<tr>
<td>AS.180.302</td>
<td>Macroeconomic Theory</td>
<td>4</td>
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<tr>
<td>AS.180.334</td>
<td>Econometrics</td>
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**Economics Electives**

Three 200- or 300-level economics courses ** 9

Two 300-level economics courses 6

**Mathematics**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>AS.110.106</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>or AS.110.108</td>
<td>Calculus I</td>
<td>4</td>
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**Statistics**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EN.550.111</td>
<td>Statistical Analysis I</td>
<td>1</td>
</tr>
<tr>
<td>or EN.550.112</td>
<td>Statistical Analysis II</td>
<td>1</td>
</tr>
<tr>
<td>or EN.550.211</td>
<td>Probability and Statistics for the Life Sciences</td>
<td>1</td>
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<tr>
<td>or EN.550.310</td>
<td>Probability &amp; Statistics for the Physical and Information Sciences &amp; Engineering</td>
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<tr>
<td>or EN.550.311</td>
<td>Probability and Statistics for the Biological Sciences and Engineering</td>
<td>1</td>
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<tr>
<td>or EN.550.420</td>
<td>Introduction to Probability</td>
<td>1</td>
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<tr>
<td>or EN.550.430</td>
<td>Introduction to Statistics</td>
<td>1</td>
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<tr>
<td>or EN.550.435</td>
<td>Public Health Biostatistics</td>
<td>1</td>
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</tbody>
</table>

** Additional Notes for Students**

- EN.550.111 (p. 1) Statistical Analysis I or equivalent (any of the Statistics courses listed above) is a prerequisite for Econometrics.
- The Senior Honors Thesis sequence (AS.180.521 (p. 1) Research in Economics and AS.180.522 (p. 1) Senior Thesis) cannot be used to satisfy any of the requirements for the major.

Course Scheduling

**Students who may major in economics:**

Freshman or sophomore year: *

<table>
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<tr>
<td>AS.180.101</td>
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<td>Elements of Microeconomics</td>
</tr>
<tr>
<td>AS.110.106</td>
<td>Calculus I</td>
</tr>
</tbody>
</table>
Krieger School of Arts and Sciences at Johns Hopkins, the Center
Founded in 2008 and housed in the Economics Department in the Center for Financial Economics (CFE)
Microeconomics requirements must take additional courses in the requirements-and-courses/arts-sciences/economics) Elements of Microeconomics and/or AS.180.102 (http://e-catalog.jhu.edu/departments-program-requirements-and-courses/arts-sciences/economics) Elements of Macroeconomics may be made. Students who use exam credits to satisfy the AS.180.101 may not be double-counted. The minor is open to all majors. A minimum grade of C- or better is required for all courses and they may not be taken satisfactory/unsatisfactory. One cannot take both the economics and financial economics minor. For economics majors, there is a restriction on double-counting: the two elective courses counting toward the minor cannot also count toward the economics major.

Minor in Financial Economics
The main objective of the minor is to provide students with training in the conceptual framework, guiding concepts, and technical tools of modern finance. The broader goal is to provide insights into the large and the small—the macro and micro—of how this framework helps us understand the workings of the economy. The minor in financial economics includes four required courses and two elective courses chosen from the list below.

**Honors Program in Economics**
Departmental honors are awarded to those students who satisfy the following requirements:

- All economics courses applied to the major have been taken in the department.
- AS.180.521 Research in Economics and AS.180.522 Senior Thesis. The thesis may not be counted as one of the five economics electives.
- A grade point average of at least 3.5 for all economics courses.

**Minor in Economics**
Students with a major in another department may be awarded a minor in economics with satisfactory work in the following courses:

- AS.180.101 Elements of Macroeconomics 3
- AS.180.102 Elements of Microeconomics 3
- Four economics courses at the 200- or 300-level (not including AS.180.203) 12

No substitution of courses in other departments for economics electives may be made. Students who use exam credits to satisfy the AS.180.101 (http://e-catalog.jhu.edu/departments-program-requirements-and-courses/arts-sciences/economics) Elements of Macroeconomics and/or AS.180.102 (http://e-catalog.jhu.edu/departments-program-requirements-and-courses/arts-sciences/economics) Elements of Microeconomics requirements must take additional courses in the department to reach a total of 6 courses.

**Center for Financial Economics (CFE)**
Founded in 2008 and housed in the Economics Department in the Krieger School of Arts and Sciences at Johns Hopkins, the Center for Financial Economics blends the study of finance and economics, providing in-depth training and cutting-edge research in both. The dual research and teaching missions of the Center are premised on the belief that a deep understanding of modern economics requires an integrated treatment of finance and the broader economic forces driving economic progress. The recent financial crisis vividly illustrates the vital need for improved understanding of these issues on the part of practitioners, policymakers, and academics.

The CFE offers an undergraduate minor, producing expertise in finance within the context of a top-notch liberal arts education. The minor will equip students with a thorough foundation in the workings of financial markets and their role in the broader economy, providing a foundation for careers in finance, business, academics, and government. The Center is working toward offering a financial economics major and a Ph.D. in financial economics.

**The Minor in Financial Economics**
The main objective of the minor is to provide students with training in the conceptual framework, guiding concepts, and technical tools of modern finance. The broader goal is to provide insights into the large and the small—the macro and micro—of how this framework helps us understand the workings of the economy. The minor in financial economics includes four required courses and two elective courses chosen from the list below.

**Required Courses**
- AS.180.101 Elements of Macroeconomics 3
- AS.180.102 Elements of Microeconomics 3
- AS.180.263 Corporate Finance 3
- AS.180.367 Investment-Portfolio Management 3

**Elective Courses (Select two of the following)**
- AS.180.242 International Monetary Economics 3
- AS.180.261 Monetary Analysis 3
- AS.180.266 Financial Markets and Institutions 3
- AS.180.336 Macroeconomic Strategies 3
- AS.180.370 Financial Market Microstructure 3
- AS.180.373 Corporate Restructuring 3
- EN.660.203 Financial Accounting 3

Total Credits 18

The minor is open to all majors. A minimum grade of C- or better is required for all courses and they may not be taken satisfactory/unsatisfactory. One cannot take both the economics and financial economics minor. For economics majors, there is a restriction on double-counting: the two elective courses counting toward the minor cannot also count toward the economics major.

**Requirements for Admission**
To apply for admission, an application must submit an official transcript of all academic work beyond secondary school and at least two letters of recommendation from previous instructors. Applicants must submit scores from the Graduate Record Examination. All applicants who have not done their undergraduate work in a university where English is the sole language of instruction must take the TOEFL. We have a minimum required score of 100 on the Internet-based test (IBT), or 250 on the computer-based test (CBT), or 600 on the old paper-based test (PBT).
Students should have knowledge of economic theory and statistics and a strong background in mathematics including differential and integral calculus and linear algebra. Admission decisions are primarily based on GRE scores (especially quantitative), academic record (especially in economics and mathematics courses), and letters of recommendation. We especially welcome applications from under-represented minorities, as diversity is important in our graduate program.

Requirements for the M.A. Degree

The department does not admit students from outside Johns Hopkins University who intend to work only for an M.A. However, it does offer this degree as an intermediate step toward the Ph.D. or as a final degree to some of those who do not complete their doctoral work.

Beyond the general university requirements, the department requires for the master's degree either two years of satisfactory graduate course work or one year of satisfactory graduate course work and an acceptable master's essay.

Requirements for the Ph.D. Degree

The departmental requirements for the doctor's degree include the following:

• Basic course work in economic theory, mathematical methods of economics, and econometrics, and additional work in specialized branches of economics depending on his/her previous training and special interests. Candidates may take relevant work in related departments, such as History, Mathematics, Mathematical Sciences, Political Science, Sociology, Anthropology, and Public Health.

• The comprehensive examination. Administered by the department, this consists of two written examinations designed to test the candidate’s grasp of micro- and macroeconomics, and a research paper. The written examinations are usually taken at the beginning of the third term, and the research paper is submitted during the fourth term.

• A dissertation. This should be an original investigation worthy of publication, prepared under the supervision of one or more members of the faculty. The candidate must submit the dissertation in final typed form at least three weeks before the date of the Graduate Board Oral Examination.

Financial Aid

The department offers a variety of forms of financial support to graduate students enrolled in the Ph.D. program. Students may receive full or partial tuition fellowships, which may be accompanied by cash stipends or teaching assistantships. The department guarantees financial aid for a minimum of five years of graduate study conditional on satisfactory performance and often for a sixth year as well. In the 2013-2014 academic year, full stipends or assistantships will carry an award of approximately $ 21,000 per year. The T. Rowe Price Fellowship, established by the T. Rowe Price Associates Foundation to honor the memory of Mr. Price, is awarded to an entering graduate student each year. It covers tuition and adds several thousand dollars to the basic stipend for three years and provides for a teaching assistantship thereafter. At the same time, it is possible that the department will be able to offer one or more of the university's Owen Fellowships to its outstanding graduate applicants. This fellowship consists of a stipend of $27,000 toward the student’s first three years. Although aid is provided on a yearly basis subject to the availability of financial support from the university, it is the department’s policy to continue aid for at least four and usually five years, provided the student is making satisfactory progress.

Carl Christ Fellowship

In the academic year 1989-90, the department established the Carl Christ Fellowship fund to honor one of its faculty members for his distinguished service and achievements. The proceeds of the fund are used to support outstanding graduate students at the dissertation stage of their research.

For further information about graduate study in economics, contact the director of graduate admissions, Department of Economics.

For current faculty and contact information go to http://econ.jhu.edu/directoryindex/faculty/

Faculty

Chair
Robert A. Moffitt
Krieger-Eisenhower Professor: labor economics, applied econometrics, public finance, population economics.

Professors
Laurence M. Ball
Macroeconomics.

Christopher Carroll
Macroeconomics.

Gregory Duffee
Carl Christ Professor: finance.

Jon Faust
Louis J. Maccini Professor, Director of the Center for Financial Economics: econometrics, macroeconomics, financial economics.

Mark Gersovitz
Development economics, public finance.

Bruce Hamilton
Professor Emeritus; Urban Economics, Public Finance, Labor Economics.

Yingyao Hu
Micro-econometrics and it’s Applications, Non-classical Measurement Error.

Olivier Jeanne
International macroeconomics.

Edi Karni
Scott and Barbara Black Professor: economics of uncertainty and information, microeconomic theory, decision theory.

M. Ali Khan
Abram G. Hutzler Professor: mathematical economics, microeconomic theory, intellectual history.

Jonathan Wright
Time series econometrics, empirical macroeconomics, finance.

Assistant Professors
Jorge Balat
Industrial Organization, Applied Microeconomics, Applied Econometrics.

Ying Chen
Game Theory, Information Economics, Political Economy.

Anton Korinek
International Finance, Macroeconomics.

Elena Krasnokutskaya
Industrial organization, applied microeconomics, applied econometrics.

Nicholas Papageorge
Health, Labor and the Economics of Innovation.

Yuya Sasaki
Econometrics.

Yuya Takahashi
Empirical Industrial Organization, Labor Economics.

Professors Emeriti

Carl F. Christ
Macroeconomics, econometrics.

Bruce W. Hamilton
Applied microeconomics.

Louis J. Maccini
Macroeconomics, applied econometrics.

Research Professor

Richard Spady
Econometrics, industrial organization.

Fellows

Robert Barbera
Center for Financial Economics.

Lecturer

Barbara Morgan
Economics of discrimination, comparative economic systems.

Joint Appointments

David Bishai
Associate Professor (Bloomberg School of Public Health): health economics.

Joshua Epstein
Professor (School of Medicine): mathematical and computational modeling of social dynamics.

Itay Fainmesser
Business Economics.

Steve H. Hanke
Professor (Geography and Environmental Engineering): applied micro- and macroeconomics and finance.

Pravin Krishna
Professor (SAIS): international trade, political economy, development.

Jian Ni
Assistant Professor (Carey Business School): industrial organization.

Mitsukuni Nishida
Assistant Professor (Carey Business School): industrial organization.

Emilia Simeonova
Health Economics.

Shubhranshu Singh
Business Administration (Marketing).

Carlos A. Vegh
Fred Sanderson Professor of International Economics.

Adjunct Professor

Trent Bertrand
Economics, Governance, Democracy, Water Resources, and Public Policy.

For current course information and registration go to https://isis.jhu.edu/classes/

Courses

This course introduces the basic tools of macroeconomics and teaches how they are applied to real world economic policy. Throughout the course, the main goals will be to a) study economic aggregates such as the overall price level; the unemployment rate and the GDP b) understand how they relate to each other. Attention will be given to fiscal and monetary policies. We will also analyze the recent financial crisis and its impact on the economic activity.
Instructor(s): R. Barbera
Area: Social and Behavioral Sciences.

AS.180.102. Elements of Microeconomics.
An introduction to the economic system and economic analysis with emphasis on demand and supply, relative prices, the allocation of resources, and the distribution of goods and services, theory of consumer behavior, theory of the firm, and competition and monopoly, including the application of microeconomic analysis to contemporary problems.
Instructor(s): B. Hamilton
Area: Social and Behavioral Sciences.

AS.180.104. Seminar in Financial Literacy.
The Seminar in Financial Literacy is a two-week seminar designed to introduce Hopkins undergraduates to the financial services industry. The goal is to provide an introduction to a variety of topics in finance, with a practical focus on exposing the students to employment options in the industry. The Seminar will consist of two weeks of lectures, delivered by distinguished Hopkins alumni, followed by a three-day trip to New York City during which we will visit various firms in the industry. By the end of the seminar, students should have developed an understanding of the structure and jargon of the financial services industry. Hence, they should be poised to profit from the firm visits and networking receptions that will take place on the trip to NYC.
Application/Registration for Experiential Learning courses/trips must be processed at the Career Center, Garland Hall 3rd Floor. -REGISTER CAREER CENTER NOT ISIS-

Prerequisites: AS.180.101
Instructor(s): D. Garcia Molina
Area: Social and Behavioral Sciences.
AS.180.117. Game Theory in Social Sciences.
Game Theory is the study of multiple person decision problems that are characterized by the social situations in which the well being of a decision maker depends not only on his own actions but also on those of others. Such problems arise frequently in economics, political science, business, military science, history, biology, etc. In this course, I will introduce the basic tools of game theoretic analysis with an emphasis on applications. In particular, you will first learn how to model different social situations as games and related equilibrium concepts. Then, you will see various examples from different fields. And, we will play several games in the class. Game theory has emerged as a branch of mathematical economics and is still quite mathematical. In this course, I will emphasize the conceptual analysis and applications, and keep the level of mathematical technicalities at the minimum. In a nutshell, we will use mostly the verbal and graphical tools.
Instructor(s): M. Uyanik  
Area: Social and Behavioral Sciences.

AS.180.171. Topics in Political Economy.
Societies make their key economic decisions under the constraints imposed by their political institutions. This course studies the interaction between economics and politics in public policy design, with topics ranging from fiscal policy to international development. Some recurring questions include why inefficient policies get enacted and how different political institutions give rise to different policy outcomes.
Instructor(s): L. Karakas  
Area: Social and Behavioral Sciences.

In recent years, the assumptions of traditional finance models that market participants are generally rational and prices of securities accurately reflect all available information came under challenge. The field of behavioral finance argues that financial markets are best understood with models in which at least some agents are not fully rational. In this course, we will examine behavioral finance models and their practical applications. This course is based on Harvard Business School cases. Recommended Course Background: AS.180.102
Instructor(s): A. Scherbina  
Area: Social and Behavioral Sciences.

The purpose of this course is to provide students an insight of how Economics can help to understand individual's legal behavior, and how the Law can affect the way economic agents behave. The course will be divided in two parts, the first one will study the economics of litigation, while the second one will study the social implications of a change in the law. For the first part we will study how litigation costs, information of the parties involved, tort regimes, and the size of the stakes in dispute affect the outcome of a litigation process. For the second part we will study actual courts decisions and their social implications such as welfare participation, business ventures and public policy making.
Prerequisites: AS.180.102 OR AS.180.301
Instructor(s): E. Garcia Morales  
Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences.

AS.180.203. Faculty Research in Economics.
This course will consist of a series of informal lectures by various professors in the Department of Economics. Each lecture will consist of a description of a professional research project which he/shel has undertaken over the course of his/her profession career. S/U grading only.
Prerequisites: Prereqs: AS.180.101 AND AS.180.102
Instructor(s): B. Hamilton.

This course provides an introduction to game theory with an emphasis on applications. Applications in economics, political science, business, military science, history, biology, theology and recreation will be covered. No prior knowledge of game theory is presumed and the required mathematical background is minimal (high school algebra and one term of calculus will be sufficient).
Instructor(s): L. Karakas  
Area: Social and Behavioral Sciences.

AS.180.228. Economic Development.
Diagnostic test on Elements of Economics is required to be taken in the second week. A review of the historical experience in presently developed economies, model of development, planning techniques, and development policies. The course is aimed at identifying major economic questions relevant to less developed economies and to showing how economic analysis can be used further to understand the obstacles to development and to formulate appropriate policies.
Prerequisites: AS.180.101 AND AS.180.102
Instructor(s): M. Gersovitz  
Area: Social and Behavioral Sciences.

Theory of comparative advantage and the international division of labor: the determinants and pattern of trade, factor price equalization, factor mobility, gains from trade and distribution of income, and theory and practice or tariffs and other trade restrictions. Recommended Course Background: AS.180.101.
Prerequisites: AS.180.102.
Instructor(s): T. Bertrand  
Area: Social and Behavioral Sciences.

AS.180.242. International Monetary Economics.
This course presents International Monetary Economics theory and applies it towards gaining an understanding of recent events and current policy issues. The theory presented in this course covers a broad range of topics including exchange rate determination, monetary and fiscal policy in an open economy, balance of payments crises, the choice of exchange rate systems, and international debt. The insights provided by these theoretical frameworks will enable us to discuss topics such as the current global financial crisis, global financial imbalances, the Chinese exchange rate regime, and proposed changes in the international financial architecture.
Prerequisites: AS.180.102; AS.180.101
Instructor(s): O. Jeanne  
Area: Social and Behavioral Sciences.

For centuries, international trade has been a source of intense debate within and among nations. Proponents of free trade claim that trade benefits all nations in terms of higher incomes, lower consumer prices, and greater product variety. Opponents point to the painful economic adjustments that accompany the removal of trade barriers. In recent years, the debate has expanded to include labor rights, the environment, health and safety, intellectual property, and national sovereignty. Through the lens of economic theory, we will evaluate the arguments put forth by proponents and opponents of free trade. We will apply these theories to several case studies, with a particular focus on the conflicts that have arisen since the establishment of the World Trade Organization.
Prerequisites: Prereq. AS.180.102
Instructor(s): P. Seneviratne  
Area: Social and Behavioral Sciences.
**AS.180.252. Economics of Discrimination.**
This course examines labor market discrimination by gender, race and ethnicity in the United States. What does the empirical evidence show, and how can we explain it? How much of the difference in observed outcomes is driven by differences in productivity characteristics and how much is due to discrimination? How have economists theorized about discrimination and what methodologies can be employed to test those theories? What has been the impact of public policy in this area; how do large corporations and educational institutions respond; and what can we learn from landmark lawsuits? The course will reinforce skills relevant to all fields of applied economics, including critical evaluation of the theoretical and empirical literature, the reasoned application of statistical techniques, and analysis of current policy issues.

**Prerequisites:** AS.180.102
Instructor(s): B. Morgan
Area: Social and Behavioral Sciences.

**AS.180.261. Monetary Analysis.**
This course analyzes the financial and monetary system of the U.S. economy and the design and implementation of U.S. monetary policy. Among other topics, we will examine the role of banks in the economy, the term structure of interest rates, the stock market, the supply of money, the role of the Federal Reserve in the economy, the objectives of monetary policy in the United States and current monetary policy practice.

**Prerequisites:** AS.180.101 and AS.180.102
Instructor(s): L. Ball
Area: Social and Behavioral Sciences.

**AS.180.263. Corporate Finance.**
This course is an introduction to the financial management of a corporation. Students study the following broad questions. How should a firm decide whether to invest in a new project? How much debt and equity should a firm use to finance its activities? How should a firm pay its investors? How do taxes affect a firm's investment and financing decisions? What determines the value of a firm? The emphasis throughout the course is on the economic principles that underlie answers to these questions.

**Prerequisites:** AS.180.101 AND AS.180.102
Instructor(s): G. Duffee
Area: Social and Behavioral Sciences.

**AS.180.266. Financial Markets and Institutions.**
Understanding design and functioning of financial markets and institutions, connecting theoretical foundations and real-world applications and cases. Basic principles of asymmetric information problems, management of risk. Money, bond, and equity markets; investment banking, security brokers, and venture capital firms; structure, competition, and regulation of commercial banks. Importance of electronic technology on financial systems.

**Prerequisites:** AS.180.101 AND AS.180.102
Instructor(s): J. Faust
Area: Social and Behavioral Sciences.

**AS.180.276. Economics of the Internet.**
This course explores the Internet from an economist's perspective, with the objective of understanding the effects on pricing and competitive behavior brought about by lower search and transaction costs in online markets. Unique features of information goods, product differentiation, market dynamics, reputation, and online auctions are among the topics examined. Dean's Teaching Fellowship course.

Instructor(s): L. Tiererova
Area: Social and Behavioral Sciences.

**AS.180.289. Economics of Health.**
Application of economic concepts and analysis to the health services system. Review of empirical studies of demand for health services, behavior of providers, and relationship of health services to population health levels. Discussion of current policy issues relating to financing and and resource allocation.

**Prerequisites:** AS.180.102
Instructor(s): D. Bishai
Area: Social and Behavioral Sciences.

**AS.180.301. Microeconomic Theory.**
An introduction to the modern theory of allocation of resources, starting with the theories of the individual consumer and producer, and proceeding to analysis of systems of interacting individuals, first in the theory of exchange, then to systems which include production as well.

**Prerequisites:** Corequisite/Prerequisite: AS.180.101 180.101 must be taken EITHER BEFORE (prerequisite) enrolling in 180.301 or AT THE SAME TIME (corequisite).

**Prerequisites:** AS.180.102 AND (AS.110.106 OR AS.110.107 OR AS.110.108 OR AS.110.109 OR equivalent)
Instructor(s): A. Trujillo; Y. Chen
Area: Social and Behavioral Sciences.

**AS.180.302. Macroeconomic Theory.**
The course provides a treatment of macroeconomic theory including a static analysis of the determination of output, employment, the price level, the rate of interest, and a dynamic analysis of growth, inflation, and business cycles. In addition, the use and effectiveness of monetary and fiscal policy to bring about full employment, price stability, and steady economic growth will be discussed.

**Prerequisites:** Coreq for AS.180.302: AS.180.102[C];AS.180.101 and Calculus 1 or equivalent
Instructor(s): A. Korinek
Area: Social and Behavioral Sciences.

**AS.180.303. Topics in International Macroeconomics and Finance.**
The course will review selected topics in international macroeconomics and finance. The topics for the Fall of 2015 include: financial globalization; international portfolio diversification; the problems posed by "sudden stops" in capital flows to emerging markets; global imbalances and global demand rebalancing; how different exchange rate regimes have fared in the global financial crisis; sovereign default in the light of the Argentine experience; and the ongoing Russian currency and financial crisis. The course involves mathematical modeling as well as data analysis.

**Prerequisites:** AS.180.101 AND AS.180.102
Instructor(s): O. Jeanne
Area: Social and Behavioral Sciences.

**AS.180.305. Time Series Analysis in Economics.**
The objective of this course is to study time series with a focus on forecasting. While econometric theory is briefly touched, most of the emphasis is on applied time series modeling and forecasting. Students at the end of the course will be able to use Eviews to model and forecast time series using macroeconomic or financial data.

**Area:** Humanities.

**AS.180.306. The Business of Sports.**
This course uses data from the sports industry to test standard microeconomic theories of individual and firm behavior. The major focus of this course will be applied empirical analysis.
Instructor(s): B. Phelan
Area: Social and Behavioral Sciences.
In this seminar, we will discuss broad ranging views on the future of finance. Most classes will involve presentations by and discussions with experts in the field on their perspectives regarding how finance will evolve in light of the current turmoil and rapidly changing conditions. We will place an emphasis on bringing in speakers with a wide range of views, including controversial views. Speakers will come from the finance industry, government, and academics. The grade will be based on classroom participation and a term paper.
Prerequisites: AS.180.301 AND (AS.180.263 OR AS.180.367)
Instructor(s): J. Wright; R. Barbera.

AS.180.308. Financial Regulations in the US.
This course begins with the time of the great Framers and adopts a historical approach to U.S. financial regulations. By examining all major crises and the respective policy responses, the course will provide a narrative on the evolution of the regulatory landscape in America. Students will also be exposed to influential academic papers that address the essentiality (and even the redundancies and failures) of key aspects of financial regulations, including deposit insurance, bank capital and liquidity requirements, and supervisory rules. Dean’s Teaching Fellowship course. Recommended courses: AS.180.261 and AS.180.266
Instructor(s): H. Nguyen
Area: Social and Behavioral Sciences.

AS.180.309. Economics of Uncertainty and Information.
In this course we’ll discuss the theory of decision making in the face of risk, the theory of risk aversion and its applications to financial and insurance markets. Building on the theory of individual decision making under risk, we will study the economic implications of asymmetric information, the type of market failures produced by adverse selection and moral hazard problems, and the models that were advanced to analyze these problems, including incentive contracts, screening and signaling equilibria.
Prerequisites: AS.180.301
Instructor(s): E. Karni.

This course explores the economic rationale for, and consequence of, antitrust laws. In addition to economic analysis we will study landmark antitrust cases.
Prerequisites: AS.180.301
Area: Social and Behavioral Sciences.

Students study economic principles and state-of-the-art mathematical models used to value fixed securities and their derivatives. The course emphasizes advanced practical applications as well as theory. Students will develop their own computer code for price fixed-income instruments and evaluate their risks.
Prerequisites: AS.180.367
Instructor(s): G. Duffee
Area: Social and Behavioral Sciences.

AS.180.320. The Marginal Revolution.
This course aims to answer the question “Who, when and where do modern economic theories come from?” By looking at the innovative concept of “marginalism” developed by Walras, Jevons, and Menger in the 1870’s, we can put contemporary ideas in an historical perspective as well as gain a richer understanding of today’s economics discipline. The class uses both primary and secondary sources, and will be discussion oriented.
Prerequisites: AS.180.301
Instructor(s): N. Johnson
Area: Humanities, Social and Behavioral Sciences.

The goal of this course is to use economic models to investigate life events such as going to school, getting married, and having children. The course will focus on individual behavior and outcomes in six important stages of the life cycle: early childhood, schooling, adolescence, marriage and divorce, child bearing years, and retirement. While the course is designed to introduce students to a variety of economic theory and empirical techniques, the material is designed to prepare upper level students to write a proposal on an original research question.
Prerequisites: AS.180.301
Instructor(s): G. Pauley
Area: Social and Behavioral Sciences.

AS.180.328. Economics of Auctions.
A successfully designed auction depends on the idiosyncrasies of the market being studied. Students will learn the core auction formats and some classic theoretical results that provide a benchmark for even the most recent auctions research. Additionally, students will learn simple empirical strategies that allow these models (and the behavior they predict) to be married with real world data. Students will develop the tools needed for analyzing and conducting auctions research.
Prerequisites: AS.180.301
Instructor(s): J. Balat
Area: Social and Behavioral Sciences.

AS.180.334. Econometrics.
Introduction to the methods of estimation in economic research. The first part of the course develops the primary method employed in economic research, the method of least squares. This is followed by an investigation of the performance of the method in a variety of important situations. The development of a way to handle many of the situations in which ordinary least squares is not useful, the method of instrumental variables, concludes the course.
Prerequisites: EN.550.111 OR EN.550.420 OR EN.550.310 OR AS.280.345 OR EN.560.435 OR EN.550.311; Prereq or Coreq: AS.180.301 or AS.180.302
Instructor(s): E. Krasnokutskaya
Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences.

AS.180.335. Topics in Econometrics.
Area: Social and Behavioral Sciences.

Will sketch out a strategy for anticipating economic turning points. Business cycle basics, monetary policy/financial market/real economy interactions will be reviewed. Long-term growth issues will be explored.
Prerequisites: AS.180.101 AND AS.180.102 AND AS.180.302 or Perm. Req’d.
Instructor(s): R. Barbera
Area: Social and Behavioral Sciences.
AS.180.346. Identification and Estimation in Econometrics.
This is an advanced undergraduate course, introducing a list of frontier theories and methods of identification and estimation for popular econometric models. The course is designed as preparation material for undergraduate students who in the future plan to advance to graduate studies in economics, business, public health, public policies and international studies. Recommended Course Background: AS.180.301.
Prerequisites: AS.180.334
Instructor(s): Y. Sasaki
Area: Social and Behavioral Sciences.

AS.180.350. Economics of Social Networks.
A detailed analysis of why certain social networks are likely to emerge and what the structure of these networks means for a wide range of social and economic interactions.
Prerequisites: AS.180.301
Instructor(s): M. Smirnov
Area: Social and Behavioral Sciences.

AS.180.351. Labor Economics.
The course discusses various issues in labor markets from the perspective of economic theory. We first study the major forces at work that shape labor market behavior; firms' labor demand and workers' labor supply. Then we discuss the equilibrium behavior of employment and wages. Using these tools, we also cover various applied topics in labor economics, such as minimum wage regulations, male-female wage differentials, human capital investment, worker mobility, and unemployment.
Prerequisites: Prereq: AS.180.301
Instructor(s): Y. Takahashi
Area: Social and Behavioral Sciences.

Empirical data may not contain all the variables suggested by economic theories. This course introduces methodologies to identify and estimate economic models containing unobservables. Recommended Course Background: AS.180.301 and AS.180.334.
Instructor(s): Y. Hu
Area: Social and Behavioral Sciences.

AS.180.355. Economics of Poverty/Inequality.
This course focuses on the economics of poverty and inequality. It covers the measurement of poverty and inequality, facts and trends over time, the causes of poverty with inequality with a focus on those related to earnings and the labor market, and public policy toward poverty and inequality, covering both taxation and government expenditure programs. By the nature of the material, the course is fairly statistical and quantitative. Students should have an intermediate understanding of microeconomic concepts. Basic knowledge of regression analysis is also helpful.
Prerequisites: AS.180.301
Instructor(s): R. Moffit
Area: Social and Behavioral Sciences.

AS.180.363. Sex, Drugs and Dynamic Optimization: The Economics of Risky Behavior.
We apply the tools of economic analysis to understand behaviors that are enjoyable today, but may have negative consequences in the future.
Prerequisites: AS.180.301 AND AS.180.302 AND AS.180.334 or permission of the instructor
Instructor(s): N. Papageorge
Area: Social and Behavioral Sciences.

AS.180.367. Investment-Portfolio Management.
Prerequisites: Prereqs: AS.180.301 AND ( EN.550.111 OR EN.550.112 OR EN.550.310 OR EN.550.311 OR EN.550.420 OR EN.550.430)
Instructor(s): J. Wright
Area: Social and Behavioral Sciences.

Seminar on quantitative concepts, decision-making, and strategy in business organizations. Overall context is ‘value’ – how it is measured and maximized long term. Microeconomic theory of the firm, competitive analysis, corporate finance.
Prerequisites: Prereqs: AS.180.301 AND (EN.550.111 OR AS.180.367 OR AS.180.263 ) or permission of the instructor.
Instructor(s): J. Knapp
Area: Social and Behavioral Sciences.

Prerequisites: AS.180.301
Instructor(s): C. Fohlin
Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences.

AS.180.371. Industrial Organization.
Investigation of firm behavior in markets characterized by imperfect competition. Imperfect competition lies in between monopoly and perfect competition and characterizes most major industries in modern capitalist economies. Central issues to be covered in the course include what determines the intensity of competition? What determines the extent of entry and exit? How is it that some firms consistently dominate their industries?
Prerequisites: Prereq: AS.180.301
Instructor(s): E. Krasnokutskaya
Area: Social and Behavioral Sciences.

AS.180.372. Finance and Macroeconomy.
This class is conducted as a round table discussion on current topics at the intersection of finance, monetary policy, and macroeconomics. Students will be expected to read assigned material, participate in the discussion, and take a final exam.
Prerequisites: AS.180.101 AND (AS.180.263 OR AS.180.367) or by instructor permission.
Instructor(s): J. Faust
Area: Social and Behavioral Sciences.

AS.180.373. Corporate Restructuring.
The objective of this course is to familiarize students with financial, legal and strategic issues associated with corporate restructuring process. Main focus of the course is on the restructuring of financially distressed firms. The course surveys a variety of restructuring methods (out-of-court workouts, exchange offers, prepackaged bankruptcies, Chapter 11 bankruptcies, insolvency practices in other countries) available to troubled firms. A small portion of the course is concerned with restructuring employee contracts and equity claims (equity carve-outs, spin-offs, tracking stock). AS.180.263 Corporate Finance recommended.
Prerequisites: AS.180.301
Instructor(s): H. Eraslan
Area: Social and Behavioral Sciences.
This course provides an introduction to evolutionary theory and its applications to modern economics. We start by introducing formal models of the driving forces of evolution: mutation, selection, and survival of the fittest. Next we investigate how these forces have shaped human preferences and behaviors that are typically taken as given in economic models. Finally, we discuss the evolution of social systems like the economy we live in.
Instructor(s): A. Korinek
Area: Social and Behavioral Sciences.

Economists increasingly incorporate insights from psychology into models of rational decision-making. Known as "behavioral economics", this line of research considers how, for example, emotions, rules-of-thumb, biased beliefs and time-inconsistent preferences influence how we make choices. Behavioral economics increasingly pervades policy discussions on topics as diverse as: obesity, the role of media, subprime mortgages and voting patterns. Behavioral models are certainly novel, but do they help us to design superior social policies? With the goal of preparing students to address this question, this course (1) provides a thorough overview of the main contributions of behavioral economics, highlighting departures from more traditional economic models and (2) emphasizes how behavioral economic models might (or might not) improve how we think about social policy.
Prerequisites: Prereqs: AS.180.301 AND AS.180.334 or knowledge of statistical analysis up to the level of multi-variate regression.
Instructor(s): N. Papageorge
Area: Social and Behavioral Sciences.

AS.180.390. Health Economics & Developing Countries.
Prerequisites: AS.180.301
Instructor(s): M. Gersovitz
Area: Social and Behavioral Sciences.

AS.180.391. Economics of China.
Discussion of the economic experience of Post-War China, primarily emphasizing topics rather than historical narrative: agriculture, industry including corporate governance and public enterprises, international trade, population, migration, education, health, public finances among other topics.
Prerequisites: AS.180.301 OR AS.180.228
Instructor(s): M. Gersovitz.

AS.180.393. Economics of Africa.
Discussion of the economic experience of post-colonial Africa emphasizing topics rather than a historical narrative: agriculture, manufacturing, trade, population, education, health, public finances among others. Students are responsible for a research paper, topic choice and paper development in close consultation with the instructor, students to give a class presentation on paper findings. Course qualifies as writing intensive for the writing requirement.
Prerequisites: AS.180.228 or permission of instructor
Instructor(s): M. Gersovitz
Area: Social and Behavioral Sciences.

Instructor(s): J. Faust; R. Moffitt; Staff.

Instructor(s): Staff.

Prerequisites: AS.180.228 or permission of instructor
Area: Social and Behavioral Sciences.

Instructor(s): Staff.

Instructor(s): M. Gersovitz
Area: Social and Behavioral Sciences.

AS.180.504. Independent Study.
Prerequisites: AS.180.228 or permission of instructor
Area: Social and Behavioral Sciences.

AS.180.507. Independent Study.
Instructor(s): N. Papageorge; Staff.

AS.180.511. Independent Study.
Instructor(s): M. Gersovitz
Area: Social and Behavioral Sciences.

AS.180.512. Independent Study.
Instructor(s): G. Duffee
Area: Social and Behavioral Sciences.

AS.180.513. Independent Study.
Instructor(s): L. Ball
Area: Social and Behavioral Sciences.

AS.180.514. Independent Study.
Instructor(s): O. Jeanne; Staff
Area: Social and Behavioral Sciences.

AS.180.515. Independent Study.
Instructor(s): R. Jeffrey; Staff
Area: Social and Behavioral Sciences.

AS.180.516. Independent Study.
Instructor(s): G. Duffee; Staff
Area: Social and Behavioral Sciences.

AS.180.517. Independent Study.
Instructor(s): O. Jeanne; Staff
Area: Social and Behavioral Sciences.

AS.180.518. Independent Study.
Instructor(s): M. Gersovitz
Area: Social and Behavioral Sciences.

AS.180.519. Independent Study.
Instructor(s): N. Papageorge; Staff
Area: Social and Behavioral Sciences.

AS.180.520. Independent Study.
Instructor(s): O. Jeanne; Staff
Area: Social and Behavioral Sciences.

The assignment in this course is to complete the initial stages of research for the Senior Honors Thesis in Economics. Students will work independently under the supervision of a research/thesis advisor. The contact (in spring of junior year) should be the course instructor listed for this course. He/she will coordinate registration and grade-reporting, and will also be available to discuss research ideas and to help put students in touch with possible thesis advisors. Open to Senior and Junior Economics majors. Note: This course cannot be counted as one of the five elective economics courses required for the Economics major.
Instructor(s): B. Hamilton; O. Jeanne; Staff
Area: Social and Behavioral Sciences.

Students enrolled in this course will complete the Senior Honors Thesis under the supervision of a thesis advisor (who will have been chosen by the student prior to registration for AS.180.521). The formal course instructor will be in charge of overseeing registration and submitting grades. He/she will also be available for discussions of progress or problems on the thesis. Please note that your thesis advisor can be any faculty member in the Department of Economics, and need not be the same person as the course instructor. (This course cannot be counted as one of the 5 elective economics courses required for the Economics Major.)
Prerequisites: AS.180.521
Instructor(s): O. Jeanne; Staff.

AS.180.552. Internship.
Instructor(s): G. Duffee
Area: Social and Behavioral Sciences.

AS.180.570. Independent Study.
Instructor(s): L. Ball
Area: Social and Behavioral Sciences.

AS.180.597. Research.
Instructor(s): N. Papageorge; Staff
Area: Social and Behavioral Sciences.

AS.180.599. Independent Study.
Instructor(s): N. Papageorge; Staff; T. Woutersen
Area: Social and Behavioral Sciences.

AS.180.601. Microeconomic Theory I.
A systematic presentation of microeconomic theory in both its partial equilibrium and general equilibrium aspects. Topics covered include preferences and utility, exchange, production, theory of the firm, capital and interest, competition and monopoly, stability of equilibrium, and welfare economics.
Instructor(s): E. Karni; M. Khan
Area: Social and Behavioral Sciences.

First term: a systematic presentation of microeconomic theory both its partial equilibrium and general equilibrium aspects. Topics covered will include preferences and utility, exchange, production, theory of the firm, capital and interest, competition and monopoly, stability of equilibrium, and welfare economics. Second term: a more intensive discussion of selected topics, emphasizing recent contributions.
Instructor(s): E. Karni; Y. Chen
Area: Social and Behavioral Sciences.

AS.180.603. Macroeconomic Theory I.
A comprehensive treatment of macroeconomic theory, including static analysis of aggregate output employment, the rate of interest, and the price level; aggregative theory of investment, consumption, demand and supply of money; empirical work on aggregative relationships.
Instructor(s): C. Carroll.
First term: a comprehensive treatment of macroeconomic theory, including static analysis of aggregate output employment, the rate of interest, and the price level; aggregative theory of investment, consumption, demand and supply of money; empirical work on aggregative relationships. Second term: the macrodynamic theory of growth, cycles, unemployment and inflation, and selected subjects.
Instructor(s): A. Korinek.

AS.180.605. Advanced Macroeconomics.
Topics of recent research in macro-economics. Content will vary from year to year. Likely topics include implicit contract theory, search theory and unemployment, disequilibrium macroeconomic models, monetary policy and the control of inflation, contract-based rational expectations models, imperfect competition in macrodynamic models, business cycle models, empirical tests of rational expectations models, theories of investment behavior, and debt neutrality.
Instructor(s): E. Sager.

AS.180.606. Advanced Macroeconomics II.
Topics of recent research in macroeconomics. Prof. Ball’s course covers nominal rigidities, dynamic-consistency theories of inflation, inflation inertia and the costs of disinflation, monetary policy, costs and benefits of price stability, benefits of output stabilization, alternative policy rules, measuring inflation, unemployment, efficiency-wage theories, the behavior of the NAIRU, macro in middle-income countries, high inflation and stabilization, currency crises. Prof. Carroll’s course analyzes implications of the buffer-stock and habit formation theories of consumption for comovement of aggregate variables and asset pricing. The models are applied to study the phenomena of declining U.S. saving rate, the dynamic relationship between saving rates and growth, and the equity premium puzzle.
Prerequisites: AS.180.603 AND AS.180.604
Instructor(s): L. Ball.

AS.180.607. Macroecnonometrics I.
The course is an attempt to provide a framework for discussing the techniques that are used in macroeconomic analysis. Generally the bias that it has is one of looking at these from the perspective of someone analyzing macroeconomic data for policy analysis. Consequently, many of the applications considered are drawn from the type of research conducted in central banks and finance ministries. Its emphasis is therefore upon the issues raised by the analysis of time series of macro-economic data. Today there is an emerging literature that looks at micro-economic data as well as conducting cross-country studies. We will tend to ignore that material as the methods used in such research are essentially those of micro-econometrics, although sometimes with adjustments made to reflect the nature of macro-economic time series.
Prerequisites: AS.180.633-634
Instructor(s): J. Faust.

AS.180.608. Macroeconometrics II.
Instructor(s): J. Wright.

AS.180.611. Economics of Uncertainty.
A review of the theory of decision making under uncertainty and its applications to problems of optimal insurance, portfolio selection, savings decisions and optimal search. Alternative approaches to decision making under uncertainty will be surveyed. Attitudes towards risk will be characterized and the issues of measurement and comparability of these attitudes discussed, both in the univariate and multivariate cases; applications will be given. The theory of optimal search will be developed with emphasis on its usefulness for the study of labor markets and unemployment.
Instructor(s): E. Karni.

A course describing developments in the theory of choice of uncertainty, responding to evidence that observed behavior is inconsistent with the predictions of expected utility theory. The course will cover rank-dependent models of choice under risk and uncertainty, multiple prior models of choice in the absence of well-defined probabilities and the problem of responding to ‘unknown unknowns’, that is the problem that any model of a decision problem is necessarily incomplete and may be overturned by unanticipated contingencies. Recommended Course Background: AS.180.611-AS.180.612
Instructor(s): J. Quiggin.

This course traces the extent to which modern economic theory, particularly as it pertains to pure competition in market and non-market games under the rationality postulate, is grounded in the language of probability and measure theory. Special attention will be paid to the formal expression of ideas such as economic and numerical negligibility, on the one hand, and diffuseness and conditional independence of information, on the other. Towards this end, the course will develop rigorous formulations of basic ideas of (conceptual rather than computational) probability and apply them: first, to develop the fundamental theorems of welfare economics, including the core theorems; and second, to large anonymous and non-anonymous games as well as to finite-agent games with private information. The course will be self-contained from the technical point of view but will presuppose a level of mathematical maturity that ought typically to be achieved by taking courses such as AS.180.615 and AS.180.601.
Instructor(s): M. Khan.

A course in mathematics for economists not planning to work in quantitative areas, or for those whose mathematics background is weak. The emphasis is on optimization theory; also included are topics in advanced calculus and linear algebra.
Instructor(s): E. Karni.

AS.180.616. Mathematical Methods in Economics II.
This is a continuation of AS.180.615 and is a course in dynamic aspects of optimization models. Techniques of dynamic programming and the calculus of variations will also be developed.
Prerequisites: AS.180.615 or Perm. req’d
Instructor(s): Staff.
The course covers a set of numerical methods that facilitate computation and estimation of equilibrium outcomes in economic environments. The emphasis is put on dynamic models and their applications in multi-agent settings. Topics covered include, among others: solving dynamic programs in discrete and continuous time, approximate dynamic programming, dynamic games, approximations of Markov perfect dynamics, and CCP estimation of dynamic systems.
Instructor(s): P. Jeziorski
Area: Social and Behavioral Sciences.

AS.180.618. Game Theory.
This course is an introduction to cooperative and non-cooperative games. Its focus is non-cooperative game theory with applications in economics. Topics include foundations of solution concepts, refinements of Nash equilibrium, repeated games, games with incomplete information, differential games, and experimental testing of hypotheses.
Prerequisites: AS.180.601
Instructor(s): H. Eraslan.

Corequisites: AS.180.601, AS.180.603
Instructor(s): M. Gersovitz.

AS.180.632. Topics in Applied Microeconometrics.
This course teaches methods for using micro-data to recover structural parameters of microeconomic models. We cover static models, but focus largely on single-agent dynamic programming, including “full solution” methods along with innovations that permit circumvention of daunting computational tasks. Additional topics will be partially based on students’ interests, but will likely include: general equilibrium models, static and dynamic games, matching models, unobserved heterogeneity, structural methods with experimental data and biased expectations. The goal is to teach students to use structural methods in their own research, and so we will delve into the nuts and bolts of structural work, examining how researchers actually get from raw data to results. This includes: how the sub-sample for analysis is chosen, how the model is specified, how the programming problem is solved, which moments are generated, how these are matched to the analogous moments in the data and, importantly, how identification is established.
Instructor(s): N. Papageorge.

Mathematical models of economic behavior and the use of statistical methods for testing economic theories and estimating economic parameters. Subject matter will vary from year to year; statistical methods, such as linear regression, multivariate analysis, and identification, estimation and testing in simultaneous equation models, will be stressed.
Prerequisites: AS.180.636 and AS.180.601
Instructor(s): Y. Hu.

AS.180.636. Statistical Inference.
Theory and applications of statistical inference. Topics include probability and sampling, distribution theory, estimation, hypothesis testing, and simple regression analysis. Statistical applications will be drawn from economics. Limited to graduate students in Economics except by permission of the chair. Recommended Course Background: AS.110.201, AS.110.302
Instructor(s): Y. Sasaki.

AS.180.637. Microeconometrics I.
This is an advanced graduate course on major econometric techniques and models that are used in empirical microeconomics. The first half of the course introduces econometric theories of nonlinear extremal estimation, nonparametric estimation, and semiparametric estimation. The second half of the course illustrates applications of these theories to limited dependent variable models, selection models, and endogenous treatment models with unobserved heterogeneity.
Prerequisites: AS.180.601 AND AS.180.602 AND AS.180.633 AND AS.180.636
Instructor(s): Y. Sasaki.

AS.180.638. Microeconometrics II.
This course introduces techniques that are used in applied research in microeconomics. Focus is on a particular class of models, namely discrete choice models. Well-known models in this class are the logit and probit models. Models that have better properties involve high-dimensional integrals, and this leads us to a discussion of simulation estimation. Finally, dynamic decision models for forward-looking agents who face irreversible decisions are introduced. As an application some models in economic demography are considered.
Prerequisites: AS.180.601 AND AS.180.602
Instructor(s): Y. Hu.

This is a graduate course in international trade. It will develop basic analytical tools and frameworks used in the general equilibrium analysis of international trade. Recent research topics will be discussed in the second half of the course.
Prerequisites: AS.180.601 AND AS.180.603
Instructor(s): P. Krishna.

AS.180.642. International Monetary Economics.
A link between the balance of payments and asset accumulation/decumulation, microeconomics of international finance and open-economy macroeconomics. The section on open-economy macroeconomics covers approaches to balance-of-payments adjustments, theories of exchange rate determination and monetary, fiscal, and exchange-market policies under fixed and flexible rate regimes.
Instructor(s): O. Jeanne.

AS.180.643. Game Theory.
This course covers topics such as repeated games, dynamic games, bargaining and strategic communication.
Prerequisites: AS.180.602
Instructor(s): Y. Chen
Area: Social and Behavioral Sciences.

AS.180.651. Labor Economics I.
Theories of the allocation of time and supply of labor, human capital, demand for labor, market equilibrium, and income distribution. As time allows, other topics, such as unemployment, unions, and compensating differences are discussed. Corequisite: AS.180.601
Instructor(s): R. Moffitt.

The course covers a set of numerical methods that are used to compute and estimate economic models. We focus on dynamic models and their applications in IO and labor economics, including dynamic discrete choice; dynamic games, two-step methods (CCP b sed), general equilibrium models. We also cover several technical tools, such as numerical integration, approximation, and optimization.
Instructor(s): Y. Takahashi.
AS.180.662. Asset Pricing.
This course is an introduction and guide to the most important issues in asset pricing. It begins with classic concepts such as the Capital Asset Pricing Model and the Arbitrage Pricing Theory and continues through continuous-time dynamic no-arbitrage models. It covers both basic theory and classic empirical research. Recommended Course Background: AS.180.604, AS.180.633, AS.180.636 or instructor's permission.
Instructor(s): G. Duffee.

AS.180.671. Industrial Organization.
This course covers methods in applied empirical Industrial Organization. The focus will be on the use of econometric analysis and data both for descriptive and measurement purposes, and to test the predictions of economic theories. The course will cover demand estimation, cost and production function estimation, and estimation of auction models.
Prerequisites: AS.180.601
Instructor(s): J. Balat.

AS.180.672. Advanced Economics of Labor.
This course is for graduate students at the 3rd year and above who wish to participate in a semester in-depth readings and discussion topics in labor economics and in econometric methods typically used in labor economics and in many other applied microeconomics fields. Students will have to participate in discussions of materials in each class and will have to conduct some kind of related research project. The topics covered in each semester are partly a function of student interest and their dissertation topics.
Instructor(s): R. Moffitt
Area: Social and Behavioral Sciences.

The goal of this workshop is to foster active discussion of a research topic among the students and faculty with the ultimate objective of producing new research. The topic and the papers are to be discussed with the input of the participants based on their research interests. Each week one or two participants will lead the discussion. All the participants will be expected to read and think about the papers to be discussed before the presentation Economics Graduate Students Only.
Prerequisites: AS.180.602
Instructor(s): H. Eraslan.

This is a weekly seminar series that brings in speakers from other universities to present their research in the field of applied microeconomics. Graduate Students only.
Instructor(s): R. Moffitt.

This is a seminar series devoted to the presentation of research in microeconomic theory, typically by speakers from outside the department. Graduate students only.
Instructor(s): Y. Chen.

This course features lectures by economists from other universities. They present research findings at the frontier of the field. Graduate students only.
Instructor(s): O. Jeanne.

The purpose of this seminar is to train students to do research in economics. This course is for second year graduate students in the Ph.D program in Economics. Graduates Students Only.
Instructor(s): E. Karni.

AS.180.698. Research/Teaching Practicums.
The purpose of the Ph.D. program in economics is to train students to teach and to do research in economics. This course is for graduate students in the Ph.D. program in economics to obtain graduate credit for work off campus that provides training and the development of skills in teaching and research. Before the practicum is begun, the graduate student must identify a sponsoring faculty member or seek permission from the student’s faculty adviser. The faculty member or adviser must sign a form that certifies that graduate credit will be granted, verifies the nature of the work to be performed by the student, and explains how the practicum helps to fulfill a degree requirement. Once completed, the sponsoring faculty member or adviser submits a grade of pass or fail for the student. The course may be used for curricular practical training. Economic majors/Graduate students only.
Instructor(s): L. Ball.

AS.180.899. Independent Study.
Instructor(s): Staff.
Cross Listed Courses

Sociology

AS.230.374. Poverty and Public Policy.
This course examines the causes and consequences of U.S. urban poverty, its implications for health and wellbeing, and explores strategies for addressing it. We cover the major theoretical explanations scholars have advanced to explain the persistence of urban poverty including labor markets, residential segregation, welfare policy, family structure, and the criminal justice system. Within each topic area, students are introduced to a range of interventions aimed at alleviating urban poverty. Students will conduct a formal policy analysis of 20 pages and participate in a mock congressional hearing. Enrollment restricted to Social Policy minors only.
Prerequisites: Students that took AS.360.372 may not take AS.230.374.
Instructor(s): K. Edin
Area: Social and Behavioral Sciences.

Interdepartmental

This course will introduce students to basic concepts in economics, political science and sociology relevant to the study of social problems and the programs designed to remedy them. It will address the many inequalities in access to education and health care, unequal treatment in the criminal justice system, disparities in income and wealth, and differential access to political power. The focus will be on designing effective policies at the national and local level to address these pressing issues. This course is open to all students, but will be required for the new Social Policy Minor. The course is also recommended for students who are interested in law school, medical school, programs in public health, and graduate school in related social science fields. Cross list with Sociology, Economics and Political Science. Freshman, Sophomore and Juniors only.
Instructor(s): B. Morgan; D. Schlozman; K. Edin
Area: Social and Behavioral Sciences.

AS.360.372. Poverty and Public Policy.
This course examines the causes and consequences of U.S. urban poverty, its implications for health and wellbeing, and explores strategies for addressing it. We cover the major theoretical explanations scholars have advanced to explain the persistence of urban poverty including labor markets, residential segregation, welfare policy, family structure, and the criminal justice system. Within each topic area, students are introduced to a range of interventions aimed at alleviating urban poverty. Students will conduct a formal policy analysis of 20 pages and participate in a mock congressional hearing. Permission of instructor required.
Instructor(s): K. Edin
Area: Social and Behavioral Sciences.

This course analyzes the distinctive US welfare state in historical and comparative perspective. We begin with a survey of the policy context, an historical overview from the poorhouses through the Great Society, and a tour of welfare states across the rich democracies. We then survey developments – and explain the actual workings of policy – across jobs, education, welfare, pensions, and health care. We explore the institutional and political factors behind their divergent trajectories through conservative revival and the age of Obama. Students will write a seminar paper exploring policy development over time in a program or area of their choosing. Enrollment restricted to Social Policy minors only.
Instructor(s): D. Schlozman
Area: Social and Behavioral Sciences.

AS.360.528. Problems in Applied Economics.
This course focuses on a monetary approach to national income determination and the balance of payments. Money and banking, as well as commodity and financial markets, are dealt with under both central banking, as well as alternative monetary regimes. Particular emphasis is placed on currency board systems. Students learn how to properly conduct substantive economic research, utilizing primary data sources, statistical techniques and lessons from economic history. Findings are presented in the form of either memoranda or working papers of publishable quality. Exceptional work may be suitable for publication through the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. Advanced excel programming skills are required and students are expected to be pre-screened for research at the Library of Congress in Washington, D.C.. Bloomberg certification is a requisite.
Prerequisites: EN.660.203
Instructor(s): S. Hanke
Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences.

Geography Environmental Engineering

EN.570.428. Problems in Applied Economics.
This course focuses on a monetary approach to national income determination and the balance of payments. Money and banking, as well as commodity and financial markets, are dealt with under both central banking, as well as alternative monetary regimes. Particular emphasis is placed on currency board systems. Students learn how to properly conduct substantive economic research, utilizing primary data sources, statistical techniques and lessons from economic history. Findings are presented in the form of either memoranda or working papers of publishable quality. Exceptional work may be suitable for publication through the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. Advanced excel programming skills are required and students are expected to be pre-screened for research at the Library of Congress in Washington, D.C.. Bloomberg certification is a pre-requisite.
Prerequisites: EN.660.203 AND AS.180.101 AND AS.180.102
Instructor(s): S. Hanke
Area: Social and Behavioral Sciences.
This course focuses on company valuations, using the proprietary Hanke-Guttridge Discounted Free Cash Flow Model. Students use the model and primary data from financial statements filed with the Securities and Exchange Commission to calculate the value of publicly-traded companies. Using Monte Carlo simulations, students also generate forecast scenarios, project likely share-price ranges and assess potential gains/losses. Stress is placed on using these simulations to diagnose the subjective market expectations contained in current objective market prices, and the robustness of these expectations. During the weekly seminar, students’ company valuations are reviewed and critiqued. A heavy emphasis is placed on research and writing. Work products are expected to be of publishable quality.
Prerequisites: EN.660.203 AND (EN.570.428 OR AS.360.528)
Instructor(s): S. Hanke
Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences.

EN.570.504. Financial Market Research.
This course investigates the workings of financial, foreign exchange, and commodity futures markets. Research is focused on price behavior, speculation, and hedging in these markets. Extensive research and writing of publishable quality are required. Exceptional work may be suitable for publication through the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. An approved research proposal is a pre-requisite.
Instructor(s): S. Hanke.