

ECONOMICS (COURSE 14)

General Economics and Theory

14.00 Undergraduate Internship in Economics

Prereq: Permission of instructor

U (IAP, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

For Course 14 students participating in off-campus internship experiences in economics. Before registering for this subject, students must have an employment offer from a company or organization and must identify a Course 14 supervisor. Upon completion of the internship, student must submit a letter from the employer describing the work accomplished, along with a substantive final report from the student approved by the MIT supervisor. Subject to departmental approval. Consult departmental undergraduate office.

Consult D. Donaldson

14.000 Graduate Internship in Economics

Prereq: Permission of instructor

G (IAP, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

For Course 14 students participating in off-campus internship experiences in economics. Before registering for this subject, students must have an employment offer from a company or organization and must identify a Course 14 supervisor. Upon completion of the internship, student must submit a letter from the employer describing the work accomplished, along with a substantive final report from the student approved by the MIT supervisor. Subject to departmental approval. Consult departmental graduate office.

Consult R. Caballero

14.001 Data Economics and Development Policy Summer Internship (New)

Prereq: Permission of department

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Summer)

0-24-0 units

Provides students in the blended DEDP Master's program the opportunity to synthesize their coursework and professional experience in development economics and data analysis. In the context of a summer internship, students apply the knowledge gained in the program towards a project with a host organization, typically in the development sector. Students will be supported in finding a suitable opportunity or research project. All internship placements are subject to approval by the program director. Each student must write a capstone project report. Restricted to blended DEDP MASc students.

E. Duflo

14.003 Microeconomic Theory and Public Policy

Subject meets with 14.03

Prereq: 14.01 or permission of instructor

G (Fall, Spring)

4-0-8 units

Applies microeconomic theory to analysis of public policy. Builds from microeconomic model of consumer behavior; extends to operation of single and multiple markets and analysis of why markets sometimes fail. Empirical examples to evaluate theory, focusing on the casual effects of policy interventions on economic outcomes. Topics include minimum wages and employment, food stamps and consumer welfare, economics of risk and safety regulation, the value of education, and gains from international trade. Graduate students are expected to complete additional assignments.

D. Autor, N. Agarwal

14.01 Principles of Microeconomics

Prereq: None

U (Fall, Spring)

3-0-9 units. HASS-S

Introduces microeconomic concepts and analysis, supply and demand analysis, theories of the firm and individual behavior, competition and monopoly, and welfare economics. Applications to problems of current economic policy. Taught in two formats - lecture/recitation and recitation only - each with 3 sessions per week. Same content and exams.

J. Gruber, C. Rothschild

14.02 Principles of Macroeconomics

Prereq: None

U (Fall, Spring)

3-0-9 units. HASS-S

Provides an overview of macroeconomic issues including the determination of national income, economic growth, unemployment, inflation, interest rates, and exchange rates. Introduces basic macroeconomic models and illustrates key principles through applications to the experience of the US and other economies. Explores a range of current policy debates, such as the economic effects of monetary and fiscal policy, the causes and consequences of the 2008 global financial crisis, and the factors that influence long-term growth in living standards. Lectures are recorded and available for students with scheduling conflicts.

*M. Beraja, R. Caballero***14.03 Microeconomic Theory and Public Policy**

Subject meets with 14.003

Prereq: 14.01 or permission of instructor

U (Fall, Spring)

4-0-8 units. HASS-S

Applies microeconomic theory to analysis of public policy. Builds from microeconomic model of consumer behavior; extends to operation of single and multiple markets and analysis of why markets sometimes fail. Empirical examples to evaluate theory, focusing on the casual effects of policy interventions on economic outcomes. Topics include minimum wages and employment, food stamps and consumer welfare, economics of risk and safety regulation, the value of education, and gains from international trade.

*D. Autor, N. Agarwal***14.04 Intermediate Microeconomic Theory**

Prereq: Calculus II (GIR) and 14.01

U (Fall)

4-0-8 units. HASS-S

Analysis of consumer and producer decisions including analysis of competitive and monopolistic markets. Price-based partial and general equilibrium analysis. Introduction to game theory as a foundation for the strategic analysis of economic situations. Imperfect competition, dynamic games among firms. Failures of general equilibrium theory and their resolutions: externalities, public goods, incomplete information settings, signaling, screening, insurance, alternative market mechanisms, auctions, design of markets.

*R. Townsend***14.05 Intermediate Macroeconomics**

Prereq: 14.01 and (14.02 or permission of instructor)

U (Spring)

4-0-8 units. HASS-S

Uses the tools of macroeconomics to investigate various macroeconomic issues in depth. Topics range from economic growth and inequality in the long run to economic stability and financial crises in the short run. Surveys many economic models used today. Requires a substantial research paper on the economics of long-run economic growth.

*A. Simsek***14.06 Advanced Macroeconomics**

Prereq: 14.01 and 14.02

U (Spring)

4-0-8 units. HASS-S

Blends a thorough study of the theoretical foundations of modern macroeconomics with a review of useful mathematical tools, such as dynamic programming, optimal control, and dynamic systems. Develops comfort with formal macroeconomic reasoning and deepens understanding of key macroeconomic phenomena, such as business cycles. Goes on to study more specific topics, such as unemployment, financial crises, and the role of fiscal and monetary policy. Special attention to reviewing relevant facts and disentangling them from their popular interpretations. Uses insights and tools from game theory. Includes applications to recent and historical events.

*G. M. Angeletos***14.07 Financial Markets and the Macroeconomy**

Prereq: 14.01 and 14.02

U (Fall)

4-0-8 units. HASS-S

Analyzes the macroeconomic effects of financial markets, with emphasis on understanding financial crises. Surveys the benchmark theories of asset pricing, investment, and the capital structure. Topics include risk, arbitrage, financial market equilibrium, and market efficiency. Also introduces financial frictions, and analyzes the mechanisms by which frictions cause financial crises; focuses on asymmetric information, leverage, financial intermediation, belief disagreements, asset bubbles, fire sales, bank runs, interconnections, and complexity.

A. Simsek

14.08 Technical Topics in Economics

Prereq: 14.01

U (Fall, Spring)

4-0-8 units

Can be repeated for credit.

Considers technical issues of current research interest in economics.

*Consult Department Headquarters***14.09 Reading Seminar in Economics**

Prereq: 14.04 and 14.06

U (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

Reading and discussion of particular topics in economics. Open to undergraduate students by arrangement with individual faculty members. Consult Department Headquarters.

*D. Donaldson***14.10 Reading Seminar in Economics**

Prereq: 14.04 and 14.06

U (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Reading and discussion of particular topics in economics. Open to undergraduate students by arrangement with individual faculty members. Consult Department Headquarters.

*D. Donaldson***14.11 Topics in Economics**

Prereq: 14.01

U (Fall)

Not offered regularly; consult department

4-0-8 units. HASS-S

Can be repeated for credit.

Considers issues of current research interest in economics.

*Consult Department Headquarters***14.12 Economic Applications of Game Theory**

Prereq: 14.01 and (6.041B or permission of instructor)

U (Fall)

4-0-8 units. HASS-S

Analysis of strategic behavior in multi-person economic settings. Introduction to solution concepts, such as rationalizability, backwards induction, Nash equilibrium, subgame-perfect equilibrium, and sequential equilibrium, with a strong emphasis on the assumptions behind these solution concepts. Issues of incomplete information, such as signaling and reputation formation. Applications drawn from microeconomics and political economy.

*M. Yildiz***14.121 Microeconomic Theory I**

Prereq: 14.04 and permission of instructor

G (Fall; first half of term)

3-0-3 units

Covers consumer and producer theory, markets and competition, general equilibrium and the welfare theorems; featuring applications, uncertainty, identification and restrictions models place on data. Enrollment limited; preference to PhD students.

*P. Pathak***14.122 Microeconomic Theory II**

Prereq: 14.121 and permission of instructor

G (Fall; second half of term)

3-0-3 units

Introduction to game theory. Topics include normal form and extensive form games, and games with incomplete information. Enrollment limited.

*G. Ellison***14.123 Microeconomic Theory III**

Prereq: 14.121, 14.122, and permission of instructor

G (Spring; first half of term)

3-0-3 units

Models of individual decision-making under certainty and uncertainty. Additional topics in game theory. Enrollment limited.

*D. Fudenberg***14.124 Microeconomic Theory IV**

Prereq: 14.123 or permission of instructor

G (Spring; second half of term)

3-0-3 units

Introduction to statistical decision theory, incentive contracting (moral hazard and adverse selection), mechanism design and incomplete contracting. Enrollment limited.

*A. Wolitzky***14.125 Market Design**

Prereq: 14.124

G (Spring)

4-0-8 units

Theory and practice of market design, building on ideas from microeconomics, game theory and mechanism design. Prominent case studies include auctions, labor markets, school choice, prediction markets, financial markets, and organ exchange clearinghouses.

P. Pathak

14.126 Game Theory

Prereq: 14.122

G (Spring)

3-0-9 units

Rigorous investigation of the evolutionary and epistemic foundations of solution concepts, such as rationalizability and Nash equilibrium. Covers classical topics, such as repeated games, bargaining, and supermodular games as well as new topics such as global games, heterogeneous priors, psychological games, and games without expected utility maximization. Applications provided when available.

D. Fudenberg, M. Yildiz

14.129 Advanced Contract Theory

Prereq: 14.121, 14.281, or permission of instructor

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring; first half of term)

3-0-3 units

Recent developments in contract theory. Includes advanced models of moral hazard, adverse selection, mechanism design and incomplete contracts with applications to theory of the firm, organizational design, and financial structure.

Consult R. Townsend

14.13 Psychology and Economics

Subject meets with 14.131

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Fall)

4-0-8 units. HASS-S

Introduces the theoretical and empirical literature of behavioral economics. Examines important and systematic departures from the standard models in economics by incorporating insights from psychology and other social sciences. Covers theory and evidence on time, risk, and social preferences; beliefs and learning; emotions; limited attention; and frames, defaults, and nudges. Studies applications to many different areas, such as credit card debt, procrastination, retirement savings, addiction, portfolio choice, poverty, labor supply, happiness, and government policy. Students participate in surveys and experiments in class, review evidence from lab experiments, examine how the results can be integrated into models, and test models using field and lab data. Students taking graduate version complete additional assignments.

F. Schilbach

14.130 Reading Economic Theory

Prereq: 14.121 and 14.451

G (Fall)

2-0-10 units

Can be repeated for credit.

Class will read and discuss current research in economic theory with a focus on game theory, decision theory, and behavioral economics. Students will be expected to make one presentation and to read and post comments on every paper by the day before the paper is presented. Permission of the instructor required, and auditors are not allowed.

D. Fudenberg

14.131 Psychology and Economics (New)

Subject meets with 14.13

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Fall)

4-0-8 units

Introduces the theoretical and empirical literature of behavioral economics. Examines important and systematic departures from the standard models in economics by incorporating insights from psychology and other social sciences. Covers theory and evidence on time, risk, and social preferences; beliefs and learning; emotions; limited attention; and frames, defaults, and nudges. Studies applications to many different areas, such as credit card debt, procrastination, retirement savings, addiction, portfolio choice, poverty, labor supply, happiness, and government policy. Students participate in surveys and experiments in class, review evidence from lab experiments, examine how the results can be integrated into models, and test models using field and lab data. Students taking graduate version complete additional assignments.

F. Schilbach

14.137[J] Psychology and Economics

Same subject as 9.822[J]

Prereq: None

G (Spring)

4-0-8 units

Examines "psychology appreciation" for economics students. Aims to enhance knowledge and intuition about psychological processes in areas relevant to economics. Increases understanding of psychology as an experimental discipline, with its own distinct rules and style of argument. Topics include self-knowledge, cognitive dissonance, self-deception, emotions, social norms, self-control, learning, mental accounting, memory, individual and group behavior, and some personality and psycho-analytic models. Within each of these topics, we showcase effective and central experiments and discuss their role in the development of psychological theory.

Term paper required.

D. Prelec

14.147 Topics in Game Theory

Prereq: 14.126

G (Spring; first half of term)

4-0-8 units

Advanced subject on topics of current research interest.

A. Wolitzky

14.15[J] Networks

Same subject as 6.207[J]

Prereq: 6.041B or 14.30

U (Spring)

4-0-8 units. HASS-S

Highlights common principles that permeate the functioning of diverse technological, economic and social networks. Utilizes three sets of tools for analyzing networks--random graph models, optimization, and game theory--to study informational and learning cascades; economic and financial networks; social influence networks; formation of social groups; communication networks and the Internet; consensus and gossiping; spread and control of epidemics; control and use of energy networks; and biological networks.

A. Wolitzky

14.16 Strategy and Information

Prereq: 14.01 or permission of instructor

U (Spring)

4-0-8 units. HASS-S

Advanced course in game theory provides rigorous overview of equilibrium concepts for non-cooperative games in static and dynamic settings. Covers iterated strict dominance, rationalizability, Nash equilibrium, subgame perfection, sequential, perfect and proper equilibria, the intuitive criterion, and iterated weak dominance. Applications to auctions, bargaining, and repeated games. Introduces solution concepts for cooperative games and their non-cooperative implementations, as well as matching theory.

M. Yildiz

14.160 Behavioral Economics

Prereq: 14.122

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Fall)

4-0-8 units

Covers recent theory and empirical evidence in behavioral economics. Topics include deviations from the neoclassical model in terms of (i) preferences (present bias, reference dependence, social preferences), (ii) beliefs (overconfidence, projection bias), and (iii) decision-making (cognition, attention, framing, persuasion), as well as (iv) market reactions to such deviations. Applications will cover a large range of fields, including labor and public economics, industrial organization, health economics, finance, and development economics.

Consult F. Schilbach

14.18 Mathematical Economic Modeling

Prereq: 14.04, 14.12, 14.15[J], or 14.19

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Fall, Spring)

4-0-8 units. HASS-S

Guides students through the process of developing and analyzing formal economic models and effectively communicating their results. Topics include decision theory, game theory, voting, and matching. Instruction and practice in oral and written communication provided. Prior coursework in microeconomic theory and/or proof-based mathematics required.

A. Wolitzky

14.19 Market Design

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Fall)

4-0-8 units. HASS-S

Covers the design and operation of organized markets, building on ideas from microeconomic and game theory. Topics may include mechanism design, auctions, matching markets, and other resource allocation problems.

P. Pathak

14.191 Independent Research Paper

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

0-12-0 units

Can be repeated for credit.

Under supervision of a faculty member approved by Graduate Registration Officer, student writes a substantial, probably publishable research paper. Must be completed by the end of a student's second year to satisfy the departmental minor requirement.

Staff

14.193 Advanced Seminar in Economics

Prereq: 14.121 and 14.451

G (Fall, Spring, Summer)

Units arranged

Can be repeated for credit.

Reading and discussion of current topics in economics. Open to advanced graduate students by arrangement with individual members of the staff.

Consult Department headquarters

14.195 Reading Seminar in Economics

Prereq: 14.121

G (Fall, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

Reading and discussion of current topics in economics. Open to advanced graduate students by arrangement with individual members of the staff.

Staff

14.197 Independent Research

Prereq: None

G (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

Under supervision of a faculty member approved by Graduate Registration Officer, student conducts independent research.
Staff

14.198, 14.199 Teaching Introductory Economics

Prereq: None

G (Fall, Spring)

2-0-2 units

Can be repeated for credit.

Required of teaching assistants in introductory economics (14.01 and 14.02), under supervision of the faculty member in charge of the subject.

14.198: J. Gruber, C. Rothschild. 14.199: R. Caballero, M. Beraja

Industrial Organization

14.20 Industrial Organization and Competitive Strategy

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units. HASS-S

Analyzes the behavior and performance of firms in markets, with a particular focus on strategic interactions. Topics include monopoly power, behavior of firms in oligopoly markets, static and dynamic measurement of market performance, competition policy, pricing and product choice decisions, advertising, research and development, and theory of the firm. Requires attendance and team participation in a Competitive Strategy Game.

N. Rose

14.21 Health Economics

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

3-0-9 units. HASS-S

Applies theoretical and empirical tools of economics to problems of health and medical care delivery. Concentrates on selected topics such as decision-making under uncertainty, cost-benefit analysis, health insurance, physician remuneration, government regulation, health care systems of developing countries, and the economics of AIDS.

J. E. Harris

14.26 Economics of Incentives: Theory and Applications

Prereq: 14.01

U (Spring)

4-0-8 units. HASS-S

Provides a rigorous, but not overly technical introduction to the economic theory of incentives and organization together with a varying set of applications. These include, among others, the optimal design of sales and CEO incentive schemes; the impact of incentives on risk taking and innovation; tournament design; the analysis of venture capital and other forms of financial incentive contracts; relational and behavioral aspects of incentive contracts; and various organizational design problems.

*B. Holmstrom***14.27 Economics and E-Commerce**

Prereq: 14.01 and (6.041B or 14.30)

U (Fall)

4-0-8 units. HASS-S

Uses theoretical economic models and empirical evidence to help understand the growth and future of e-commerce. Economic models help frame class discussions of, among other topics, content provision, privacy, piracy, sales taxation, group purchasing, price search, and advertising on the internet. Empirical project and paper required.

*S. Ellison***14.271 Industrial Organization I**

Prereq: 14.04

G (Fall)

5-0-7 units

Covers theoretical and empirical work dealing with the structure, behavior, and performance of firms and markets and core issues in antitrust. Topics include: the organization of the firm, monopoly, price discrimination, oligopoly, and auctions. Theoretical and empirical work are integrated in each area.

*G. Ellison, M. Whinston***14.272 Industrial Organization II**

Prereq: 14.271

G (Spring)

5-0-7 units

A continuation of 14.271. Topics covered include horizontal mergers and demand estimation, vertical integration and vertical restraints, natural monopoly and its regulation, public enterprise, political economy of regulation, deregulation of telecommunications, electric power, cable television, transportation sectors, and financial, risk and environmental regulation.

*N. Rose, M. Whinston***14.273 Advanced Topics in Industrial Organization**

Prereq: 14.271

G (Spring)

5-0-7 units

Empirical analysis of theoretically derived models of market behavior. Varied topics include demand estimation, differentiated products, production functions, analysis of market power, entry and exit, vertical relationships, auctions, matching markets, network externalities, dynamic oligopoly, moral hazard and adverse selection. Discussion will focus on methodological issues, including identification, estimation, counter-factual analysis and simulation techniques.

*N. Agarwal, T. Salz***14.281 Contract Economics**

Prereq: 14.124

G (Fall)

4-0-8 units

Covers theoretical research on contracts in static as well as dynamic settings. Emphasis is on canonical models in contracting (agency theory, mechanism design, incomplete contracting) illustrated by major areas of application (e.g. compensation, labor and capital markets, property rights, organizational design, corporate finance).

*D. Garrett***14.282 Introduction to Organizational Economics**

Prereq: 14.124

G (Fall)

5-0-7 units

Begins with survey of contract theory for organizational economists, then introduces the main areas of the field, including the boundary of the firm; decision-making, employment, structures and processes in organizations; and organizations other than firms.

*R. Gibbons, J. Van Reenen***14.283 Advanced Topics in Organizational Economics I**

Prereq: 14.282

G (Spring; first half of term)

2-0-4 units

Builds on the work done in 14.282 to develop more in-depth analysis of topics in the field.

R. Gibbons

14.284 Advanced Topics in Organizational Economics II

Prereq: 14.282

G (Spring; second half of term)

2-0-4 units

Builds on the work done in 14.282 to develop more in-depth analysis of topics in the field.

J. Van Reenen

Statistics and Econometrics

14.30 Introduction to Statistical Methods in Economics

Subject meets with 14.300

Prereq: Calculus II (GIR)

U (Fall)

4-0-8 units. REST

Self-contained introduction to probability and statistics with applications in economics and the social sciences. Covers elements of probability theory, statistical estimation and inference, regression analysis, causal inference, and program evaluation. Couples methods with applications and with assignments involving data analysis. Uses basic calculus and matrix algebra. Students taking graduate version complete additional assignments. May not count toward HASS requirement.

A. Abadie, K. Evdokimov

14.300 Introduction to Statistical Methods in Economics

Subject meets with 14.30

Prereq: Calculus II (GIR)

G (Fall)

4-0-8 units

Self-contained introduction to probability and statistics with applications in economics and the social sciences. Covers elements of probability theory, statistical estimation and inference, regression analysis, causal inference, and program evaluation. Couples methods with applications and with assignments involving data analysis. Uses basic calculus and matrix algebra. Students taking graduate version complete additional assignments.

A. Abadie, K. Evdokimov

14.310 Data Analysis for Social Scientists

Prereq: None

G (Spring)

Not offered regularly; consult department

4-0-8 units

Introduces methods for harnessing data to answer questions of cultural, social, economic, and policy interest. Presents essential notions of probability and statistics. Covers techniques in modern data analysis: regression and econometrics, prediction, design of experiment, randomized control trials (and A/B testing), machine learning, data visualization, analysis of network data, and geographic information systems. Projects include analysis of data with a written description and interpretation of results; may involve gathering of original data or use of existing data sets. Applications drawn from real world examples and frontier research. Instruction in use of the statistical package R. Students taking graduate version complete additional assignments.

Consult E. Duflo

14.32 Econometric Data Science

Subject meets with 14.320

Prereq: 14.30

U (Fall, Spring)

4-4-4 units. Institute LAB

Introduces multiple regression methods for causal inference and descriptive analysis in economics and related disciplines. Extensions include instrumental variables methods, analysis of randomized experiments and quasi-experimental research designs, and regression with time series data. Develops the skills needed to conduct - and critique - empirical studies in economics and related fields. Students complete an empirical project with a written description and interpretation of results; this may involve original data collection or use of existing data sets. Applications drawn from real-world examples and frontier research. Familiarity with statistical programming languages is helpful. Students taking graduate version complete additional assignments.

A. Mikusheva, B. Frandsen

14.320 Econometric Data Science (New)

Subject meets with 14.32

Prereq: 14.300

G (Fall, Spring)

4-4-4 units

Introduces multiple regression methods for causal inference and descriptive analysis in economics and related disciplines. Extensions include instrumental variables methods, analysis of randomized experiments and quasi-experimental research designs, and regression with time series data. Develops the skills needed to conduct - and critique - empirical studies in economics and related fields. Students complete an empirical project with a written description and interpretation of results; this may involve original data collection or use of existing data sets. Applications drawn from real-world examples and frontier research. Familiarity with statistical programming languages is helpful. Students taking graduate version complete additional assignments.

A. Mikusheva, B. Frandsen

14.33 Research and Communication in Economics: Topics, Methods, and Implementation

Prereq: 14.32 and (14.01 or 14.02)

U (Fall, Spring)

3-4-5 units. Institute LAB

Exposes students to the process of conducting independent research in empirical economics and effectively communicating the results of the research. Emphasizes econometric analysis of an assigned economic question and culminates in each student choosing an original topic, performing appropriate analysis, and delivering oral and written project reports.

D. Donaldson, S. Jaeger

14.36 Advanced Econometrics

Subject meets with 14.387

Prereq: 14.32

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units

Emphasizes econometric theory, methods, and applications using regression, instrumental variables, differences-in-differences, regression discontinuity designs, machine learning and big data sets, and problems related to standard errors and statistical inference. Includes a project with a theoretical, written and data-analytic component. Familiarity with Stata or a similar statistical programming language recommended. Students taking graduate version complete additional assignments.

J. Angrist, V. Chernozhukov

14.381 Statistical Method in Economics

Prereq: Calculus II (GIR) and permission of instructor

G (Fall)

5-0-7 units

Introduction to probability and statistics as background for advanced econometrics and introduction to the linear regression model. Covers elements of probability theory; sampling theory; asymptotic approximations; decision-theory approach to statistical estimation focusing on regression, hypothesis testing; and maximum-likelihood methods. Includes simple and multiple regression, estimation and hypothesis testing. Illustrations from economics and application of these concepts to economic problems. Enrollment limited.

A. Mikusheva, K. Evdokimov

14.382 Econometrics

Prereq: 14.381 or permission of instructor

G (Spring)

5-0-7 units

Covers key models as well as identification and estimation methods used in modern econometrics. Presents modern ways to set up problems and do better estimation and inference than the current empirical practice. Introduces generalized method of moments and the method of M-estimators in addition to more modern versions of these methods dealing with important issues, such as weak identification or biases arising in high dimensions. Also discusses the bootstrap and explores very high dimensional formulations, or "big data." Students gain practical experience by applying the methods to real data sets. Enrollment limited.

W. Newey

14.384 Time Series Analysis

Prereq: 14.382 or permission of instructor

G (Fall)

5-0-7 units

Studies theory and application of time series methods in econometrics, including spectral analysis, estimation with stationary and non-stationary processes, VARs, factor models, unit roots, cointegration, estimation of DSGE models, and Bayesian methods. Enrollment limited.

A. Mikusheva

14.385 Nonlinear Econometric Analysis

Prereq: 14.382 or permission of instructor

G (Fall)

5-0-7 units

Studies micro-econometric models, including large sample theory for estimation and hypothesis testing, generalized method of moments, estimation of censored and truncated specifications, quantile regression, structural estimation, nonparametric and semiparametric estimation, panel data, bootstrapping, and simulation methods. Methods illustrated with economic applications. Enrollment limited.

A. Abadie, K. Evdokimov

14.386 New Econometric Methods

Prereq: 14.382

G (Spring)

4-0-8 units

Focuses on recent developments in econometrics, especially structural estimation. Topics include nonseparable models, models of imperfect competition, auction models, duration models, and nonlinear panel data. Results illustrated with economic applications.

A. Abadie, W. Newey

14.387 Applied Econometrics

Subject meets with 14.36

Prereq: 14.382

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring)

4-0-8 units

Emphasizes econometric theory, methods, and applications using regression, instrumental variables, differences-in-differences, regression discontinuity designs, machine learning and big data sets, and problems related to standard errors and statistical inference. Includes a project with a theoretical, written and data-analytic component. Students taking graduate version complete additional assignments.

J. Angrist, V. Chernozhukov

14.389 Econometrics Paper

Prereq: 14.32 or 14.382

G (IAP)

0-0-3 units

Paper in econometrics required of all PhD candidates. Paper due at the end of IAP.

A. Abadie

14.391 Workshop in Economic Research

Prereq: 14.124 and 14.454

G (Fall)

2-0-10 units

Can be repeated for credit.

Develops research ability of students through intensive discussion of dissertation research as it proceeds, individual or group research projects, and critical appraisal of current reported research. Workshops divided into various fields, depending on interest and size.

Staff

14.392 Workshop in Economic Research

Prereq: 14.124 and 14.454

G (Spring)

2-0-10 units

Can be repeated for credit.

Develops research ability of students through intensive discussion of dissertation research as it proceeds, individual or group research projects, and critical appraisal of current reported research.

Workshops divided into various fields, depending on interest and size.

Staff

14.399 Seminar in Data Economics and Development Policy (New)

Prereq: Permission of instructor

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring)

2-0-10 units

Group study of current topics in development policy and research. Includes student presentations and invited speakers. Restricted to blended DEDP MASc students.

E. Duflo

National Income and Finance

14.41 Public Finance and Public Policy

Subject meets with 14.410

Prereq: 14.01

U (Spring)

4-0-8 units. HASS-S

Explores the role of government in the economy, applying tools of basic microeconomics to answer important policy questions such as government response to global warming, school choice by K-12 students, Social Security versus private retirement savings accounts, government versus private health insurance, setting income tax rates for individuals and corporations. Students taking the graduate version complete additional assignments.

J. Gruber

14.410 Public Finance and Public Policy

Subject meets with 14.41

Prereq: 14.01

G (Spring)

4-0-8 units

Explores the role of government in the economy, applying tools of basic microeconomics to answer important policy questions such as government response to global warming, school choice by K-12 students, Social Security versus private retirement savings accounts, government versus private health insurance, setting income tax rates for individuals and corporations. Students taking the graduate version complete additional assignments.

J. Gruber

14.416[J] Asset Pricing

Same subject as 15.470[J]

Prereq: None

G (Fall)

4-0-8 units

See description under subject 15.470[J].

L. Kogan, L. Schmidt

14.42 Environmental Policy and Economics

Subject meets with 14.420

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units. HASS-S

Investigates the proper role of government in the regulation of the environment. Presents tools necessary to estimate the costs and benefits of a variety of environmental policies. Focuses on both conceptual thinking and quantitative evaluation of environmental issues. Gives particular attention to climate change: defines the major concepts underlying the climate problem; examines the measurement of climate damages as well as the costs of mitigating them; and discusses the various policy options available to communities, countries, and international coalitions. Completion of 14.30 or equivalent statistics subject strongly recommended. Students taking graduate version complete additional assignments. *Consult Department Headquarters*

14.420 Environmental Policy and Economics

Subject meets with 14.42

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring)

4-0-8 units

Investigates the proper role of government in the regulation of the environment. Presents tools necessary to estimate the costs and benefits of a variety of environmental policies. Focuses on both conceptual thinking and quantitative evaluation of environmental issues. Gives particular attention to climate change: defines the major concepts underlying the climate problem; examines the measurement of climate damages as well as the costs of mitigating them; and discusses the various policy options available to communities, countries, and international coalitions. Completion of 14.30 or equivalent statistics subject strongly recommended. Students taking graduate version complete additional assignments. *Consult Department Headquarters*

14.43[J] Economics of Energy, Innovation, and Sustainability

Same subject as 15.0201[J]

Prereq: 14.01 or 15.0111

U (Spring)

4-0-8 units

Credit cannot also be received for 15.020

See description under subject 15.0201[J].

J. Li

14.44[] Energy Economics and Policy

Same subject as 15.037[]

Prereq: 14.01 or 15.0111

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units. HASS-S

Credit cannot also be received for 14.444[], 15.038[]

Analyzes business and public policy issues in energy markets and in the environmental markets to which they are closely tied. Examines the economic determinants of industry structure and evolution of competition among firms in these industries. Investigates successful and unsuccessful strategies for entering new markets and competing in existing markets. Industries studied include oil, natural gas, coal, electricity, and transportation. Topics include climate change and environmental policy, the role of speculation in energy markets, the political economy of energy policies, and market power and antitrust. Two team-based simulation games, representing the world oil market and a deregulated electricity market, act to cement the concepts covered in lecture. Students taking graduate version complete additional assignments. Limited to 60.

C. Knittel

14.440[] Advanced Corporate Finance

Same subject as 15.473[]

Prereq: None

G (Spring)

3-0-9 units

See description under subject 15.473[]. Primarily for doctoral students in finance, economics, and accounting.

D. Thesmar, A. Schoar

14.441[] Corporate Finance

Same subject as 15.471[]

Prereq: None

G (Spring)

3-0-9 units

See description under subject 15.471[].

A. Schoar, D. Thesmar

14.442[] Advanced Asset Pricing

Same subject as 15.472[]

Prereq: None

G (Fall)

3-0-9 units

See description under subject 15.472[]. Primarily for doctoral students in finance, economics, and accounting.

H. Chen, D. Greenwald, J. Parker

14.444[] Energy Economics and Policy

Same subject as 15.038[]

Prereq: 14.01 or 15.0111

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring)

4-0-8 units

Credit cannot also be received for 14.44[], 15.037[]

Theoretical and empirical perspectives on individual and industrial demand for energy, energy supply, energy markets, and public policies affecting energy markets. Discusses aspects of the oil, natural gas, electricity, and nuclear power sectors. Examines energy tax, price regulation, deregulation, energy efficiency and policies for controlling pollution and CO₂ emissions. Students taking the graduate version complete additional assignments. Limited to 60.

C. Knittel

14.448[] Current Topics in Finance (New)

Same subject as 15.474[]

Prereq: None

G (Spring)

3-0-9 units

See description under subject 15.474[]. Primarily for doctoral students in accounting, economics, and finance.

A. Malenko, C. Palmer, L. Schmidt, A. Verdelhan

14.449[] Current Research in Financial Economics (New)

Same subject as 15.475[]

Prereq: Permission of instructor

G (Fall, Spring)

3-0-3 units

See description under subject 15.475[]. Restricted to doctoral students.

L. Schmidt

14.451 Dynamic Optimization Methods with Applications

Prereq: 14.06 and permission of instructor

G (Fall; first half of term)

3-0-3 units

Provides an introduction to dynamic optimization methods, including discrete-time dynamic programming in non-stochastic and stochastic environments, and continuous time methods including the Pontryagin maximum principle. Applications may include the Ramsey model, irreversible investment models, and consumption choices under uncertainty. Enrollment limited.

A. Simsek

14.452 Economic Growth

Prereq: 14.451 and permission of instructor

G (Fall; second half of term)

3-0-3 units

Introduces the sources and modeling of economic growth and income differences across nations. Topics include an introduction to dynamic general equilibrium theory, the neoclassical growth model, overlapping generations, determinants of technological progress, endogenous growth models, measurement of technological progress, the role of human capital in economic growth, and growth in a global economy. Enrollment limited.

*D. Acemoglu***14.453 Economic Fluctuations**

Prereq: 14.452 and permission of instructor

G (Spring; first half of term)

3-0-3 units

Investigation of why aggregate economic activity fluctuates, and the role of policy in affecting fluctuations. Topics include the link between monetary policy and output, the economic cost of aggregate fluctuations, the costs and benefits of price stability, and the role of central banks. Introduction to real business cycle and new Keynesian models. Enrollment limited.

*G. M. Angeletos***14.454 Economic Crises**

Prereq: 14.453 and permission of instructor

G (Spring; second half of term)

3-0-3 units

Provides an overview of models of the business cycle caused by financial markets' frictions and shocks. Topics include credit crunch, collateral shocks, bank runs, contagion, speculative bubbles, credit booms, leverage, safe asset shortages, capital flows and sudden stops. Enrollment limited.

*R. Caballero***14.46 Innovation Policy and the Economy**

Prereq: None

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units. HASS-S; CI-H

Designed for students interested in how to best design innovation-related public policies. Addresses questions such as whether the patent system helps or hinders innovation, how the US National Institutes of Health (NIH) should allocate its funding across diseases, and whether the US would benefit from raising caps on the employment of skilled immigrants through the H-1B visa program. Presentations and writing assignments strengthen skills for effective communication.

*H. Williams***14.461 Advanced Macroeconomics I**

Prereq: 14.122 and 14.452

G (Fall)

5-0-7 units

Advanced subject in macroeconomics that seeks to bring students to the research frontier. Topics vary from year to year, covering a wide spectrum of classical and recent research. Topics may include business cycles, optimal monetary and tax policy, monetary economics, banking, and financial constraints on investment and incomplete markets.

*M. Beraja, I. Werning***14.462 Advanced Macroeconomics II**

Prereq: 14.461

G (Spring)

5-0-7 units

Advanced topics in financial frictions and obstacles to trade; DSGE and micro founded macro models; analysis and design of financial systems; liquidity, payments systems, and monetary policy; intermediation, financial markets and platforms; business cycles, transitions, and financial crises; implementation and coordination game.

*G. M. Angeletos, R. Caballero***14.47[] Global Energy: Politics, Markets, and Policy**

Same subject as 11.167[], 15.2191[], 17.399[]

Prereq: None

U (Spring)

3-0-9 units. HASS-S

Credit cannot also be received for 11.267[], 15.219[]

See description under subject 15.2191[]. Preference to juniors, seniors, and Energy Minors.

V. Karplus

14.471 Public Economics I

Prereq: 14.04

G (Fall)

4-0-8 units

Theory and evidence on government taxation policy. Topics include tax incidence; optimal tax theory; the effect of taxation on labor supply and savings; taxation and corporate behavior; and tax expenditure policy.

J. Poterba, I. Werning

14.472 Public Economics II

Prereq: 14.471

G (Spring)

3-0-9 units

Theory and evidence on government expenditure policy and on regulatory and tax responses to problems of market failure. Focuses on social insurance programs such as social security and unemployment insurance, and on the causes and consequences of rising health expenditures.

A. Finkelsein

14.473 Public Policy in Health Economics

Prereq: 14.122

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring)

4-0-8 units

Theory and evidence on the economics of the health care sector, with a particular emphasis on the economics of technological change and innovation.

Consult H. Williams

International, Interregional, and Urban Economics

14.54 International Trade

Prereq: 14.01 and 14.02

U (Fall)

4-0-8 units. HASS-S

Provides an introduction to theoretical and empirical topics in international trade. Offers a brief history of globalization. Introduces the theory of comparative advantage and discusses its implications for international specialization and wage inequality. Studies the determinants and consequences of trade policy, and analyzes the consequences of immigration and foreign direct investment.

A. Costinot

14.581 International Economics I

Prereq: 14.04

G (Fall)

5-0-7 units

Covers a variety of topics, both theoretical and empirical, in international trade, international macroeconomics, and economic geography. Focuses on general equilibrium analysis in neoclassical economies. Considers why countries and regions trade, and what goods they trade; impediments to trade, and why some countries deliberately erect policy to impede; and implications of openness for growth. Also tackles normative issues, such as whether trade openness is beneficial, whether there are winners and losers from trade and, if so, how they can possibly be identified.

A. Costinot, D. Donaldson

14.582 International Economics II

Prereq: 14.06

G (Spring)

5-0-7 units

Building on topics covered in 14.581, revisits a number of core questions in international trade, international macroeconomics, and economic geography in the presence of increasing returns, imperfect competition, and other distortions. Stresses their connection to both macro and micro (firm-level) data for questions related to trade policy, inequality, industrial policy, growth, and the location of economic activities. Focuses on both theoretical models, empirical findings, and the challenging task of putting those two together.

D. Atkin, A. Costinot

Labor Economics and Industrial Relations

14.64 Labor Economics and Public Policy

Prereq: 14.30 or permission of instructor

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units. HASS-S

Provides an introduction to the labor market, how it functions, and the important role it plays in people's lives. Topics include supply and demand, minimum wages, labor market effects of social insurance and welfare programs, the collective bargaining relationship, discrimination, human capital, and unemployment. Completion of or concurrent enrollment in 14.03 or 14.04 recommended.

Consult J. Angrist

14.661 Labor Economics I

Prereq: 14.04 and 14.32

G (Fall)

5-0-7 units

A systematic development of the theory of labor supply, labor demand, and human capital. Topics include wage and employment determination, turnover, search, immigration, unemployment, equalizing differences, and institutions in the labor market. Particular emphasis on the interaction between theoretical and empirical modeling.

*D. Acemoglu, P. Pathak***14.662 Labor Economics II**

Prereq: 14.04 and 14.32

G (Spring)

5-0-7 units

Theory and evidence on the determinants of earnings levels, inequality, intergenerational mobility, skill demands, and employment structure. Particular focus on the determinants of worker- and firm-level productivity; and the roles played by supply, demand, institutions, technology and trade in the evolving distribution of income.

*D. Autor, S. Jager***Economic History****14.70[J] Medieval Economic History in Comparative Perspective**

Same subject as 21H.134[J]

Prereq: None

U (Fall)

3-0-9 units. HASS-S; CI-H

See description under subject 21H.134[J].

*S. Bobrycki***14.73 The Challenge of World Poverty**

Prereq: None

U (Fall)

4-0-8 units. HASS-S; CI-H

Designed for students who are interested in the challenge posed by massive and persistent world poverty. Examines extreme poverty over time to see if it is no longer a threat, why some countries grow fast and others fall further behind, if growth or foreign aid help the poor, what we can do about corruption, if markets or NGOs should be left to deal with poverty, where to intervene, and how to deal with the disease burden and improve schools.

*D. Atkin, E. Duflo***Economic Development****14.74 Foundations of Development Policy**

Subject meets with 14.740

Prereq: 14.01

U (Spring)

4-0-8 units. HASS-S

Explores the foundations of policy making in developing countries, with the goal of spelling out various policy options and quantifying the trade-offs between them. Topics include education, health, fertility, adoption of technological innovations, financial markets (credit, savings, and insurance), markets for land and labor, political factors, and international considerations (aid, trade, and multinational firms). Some basic familiarity with probability and/or statistics is useful for this class. Students taking graduate version complete additional assignments.

*D. Atkins, D. Donaldson***14.740 Foundations of Development Policy**

Subject meets with 14.74

Prereq: 14.01

G (Spring)

4-0-8 units

Explores the foundations of policy making in developing countries, with the goal of spelling out various policy options and quantifying the trade-offs between them. Topics include education, health, fertility, adoption of technological innovations, financial markets (credit, savings, and insurance), markets for land and labor, political factors, and international considerations (aid, trade, and multinational firms). Some basic familiarity with probability and/or statistics is useful for this class. Students taking graduate version complete additional assignments.

*D. Atkins, D. Donaldson***14.75 Political Economy and Economic Development**

Subject meets with 14.750

Prereq: 14.01

U (Fall)

4-0-8 units. HASS-S

Explores the relationship between political institutions and economic development, covering key theoretical issues as well as recent empirical evidence. Topics include corruption, democracy, dictatorship, and war. Discusses not just what we know on these topics, but how we know it, covering how to craft a good empirical study or field experiment and how to discriminate between reliable and unreliable evidence. Some basic familiarity with probability and/or statistics is useful for this class. Students taking graduate version complete additional assignments.

A. Banerjee, B. Olken

14.750 Political Economy and Economic Development (New)

Subject meets with 14.75

Prereq: 14.01

G (Fall)

4-0-8 units

Explores the relationship between political institutions and economic development, covering key theoretical issues as well as recent empirical evidence. Topics include corruption, democracy, dictatorship, and war. Discusses not just what we know on these topics, but how we know it, covering how to craft a good empirical study or field experiment and how to discriminate between reliable and unreliable evidence. Some basic familiarity with probability and/or statistics is useful for this class. Students taking graduate version complete additional assignments.

A. Banerjee, B. Olken

14.76 Firms, Markets, Trade and Growth (New)

Subject meets with 14.760

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: U (Spring)

4-0-8 units. HASS-S

Examines how industrial development and international trade have brought about rapid growth and large-scale reductions in poverty for some developing countries, while globalization has simply increased inequality and brought little growth for others. Also considers why, in yet other developing countries, firms remain small-scale and have not integrated with global supply chains. Draws on both theoretical models and empirical evidence to better understand the reasons for these very different experiences and implications for policy. Students taking graduate version complete additional assignments.

D. Atkin, D. Donaldson

14.760 Firms, Markets, Trade and Growth (New)

Subject meets with 14.76

Prereq: 14.01

Acad Year 2018-2019: Not offered

Acad Year 2019-2020: G (Spring)

4-0-8 units

Examines how industrial development and international trade have brought about rapid growth and large-scale reductions in poverty for some developing countries, while globalization has simply increased inequality and brought little growth for others. Also considers why, in yet other developing countries, firms remain small-scale and have not integrated with global supply chains. Draws on both theoretical models and empirical evidence to better understand the reasons for these very different experiences and implications for policy. Students taking graduate version complete additional assignments.

D. Atkin, D. Donaldson

14.770 Introduction to Collective Choice and Political Economy

Prereq: None

G (Fall)

4-0-8 units

Broad introduction to political economy. Covers topics from social choice theory to political agency models, including theories of voter turnout and comparison of political institutions.

D. Acemoglu, B. Olken

14.771 Development Economics: Microeconomic Issues

Prereq: 14.121 and 14.122

G (Fall)

5-0-7 units

A rigorous introduction to core micro-economic issues in economic development, focusing on both key theoretical contributions and empirical applications to understand both why some countries are poor and on how markets function differently in poor economies. Topics include human capital (education and health); labor markets; credit markets; land markets; firms; and the role of the public sector.

E. Duflo, B. Olken

14.772 Development Economics: Macroeconomics

Prereq: 14.121 and 14.451

G (Spring)

5-0-7 units

Dynamic models of growth and development emphasizing migration, modernization, risk and finance, and technological change; static and dynamic models of political economy; the dynamics of income distribution and institutional change; SME and larger firm structure in developing countries; development, transparency, and information systems; and functioning of financial markets and institutions in emerging markets, their design and regulation.

*A. Banerjee, R. Townsend***14.773 Political Economy: Institutions and Development**

Prereq: 14.121 and 14.451

G (Spring)

5-0-7 units

Economists and policymakers increasingly realize the importance of political institutions in shaping economic performance, especially in the context of understanding economic development. Work on the determinants of economic policies and institutions is in its infancy, but is growing rapidly. Subject provides an introduction to this area. Topics covered: the economic role of institutions; the effects of social conflict and class conflict on economic development; political economic determinants of macro policies; political development; theories of income distribution and distributional conflict; the efficiency effects of distributional conflict; the causes and consequences of corruption; the role of colonial history; and others. Both theoretical and empirical approaches discussed. Subject can be taken either as part of the Development Economics or the Positive Political Economy fields.

*D. Acemoglu, A. Banerjee***14.781[*J*] Political Economy I: Theories of the State and the Economy**Same subject as 15.678[*J*], 17.100[*J*]

Prereq: Permission of instructor

G (Spring)

3-0-9 units

See description under subject 17.100[*J*].*M. Piore, S. Berger***14.THG Graduate Thesis**

Prereq: Permission of instructor

G (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Program of research and writing of thesis; to be arranged by the student with supervising committee.

*Staff***14.THU Thesis**

Prereq: 14.33

U (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Program of research and writing of thesis.

*Staff***14.UR Undergraduate Research**

Prereq: 14.02

U (Fall, IAP, Spring, Summer)

Units arranged [P/D/F]

Can be repeated for credit.

Participation in research with an individual faculty member or research group, independent research or study under the guidance of a faculty member. Admission by arrangement with individual faculty member.

*Consult D. Donaldson***14.URG Undergraduate Research**

Prereq: 14.02

U (Fall, IAP, Spring, Summer)

Units arranged

Can be repeated for credit.

Participation in research with an individual faculty member or research group, independent research or study under the guidance of a faculty member. Admission by arrangement with individual faculty member.

Consult D. Donaldson