ECONOMICS (ECON)

* ECON 108a, Quantitative Foundations of Microeconomics  Tolga Koker
  Introductory microeconomics with a special emphasis on quantitative methods and examples. Intended for students with limited or no experience with calculus. Enrollment limited. Online preregistration is required; visit economics.yale.edu/undergraduate-program for more information. May not be taken after ECON 110 or 115. QR, SO

* ECON 110a, An Introduction to Microeconomic Analysis  Staff
  Similar to ECON 115, but taught as a lecture discussion with limited enrollment. Enrollment limited to first-years and sophomores. Online preregistration is required; visit economics.yale.edu/undergraduate-program for more information. May not be taken after ECON 108 or 115. QR, SO

* ECON 111a, An Introduction to Macroeconomic Analysis  William Hawkins
  Similar to ECON 116, but taught as a lecture discussion with limited enrollment. Enrollment limited to first-years and sophomores. Online preregistration is required; visit economics.yale.edu/undergraduate-program for more information. May not be taken after ECON 116. Prerequisite: ECON 108, 110, or 115. SO

ECON 115a, Introductory Microeconomics  Cormac O’Dea
An introduction to the basic tools of microeconomics to provide a rigorous framework for understanding how individuals, firms, markets, and governments allocate scarce resources. The design and evaluation of public policy. May not be taken after ECON 108 or 110. QR, SO o Course cr

ECON 117a, Introduction to Data Analysis and Econometrics  John Eric Humphries
Introduction to data analysis from the beginning of the econometrics sequence; exposure to modern empirical economics; and development of credible economic analysis. This course emphasizes working directly and early with data, through such economic examples as studies of environmental/natural resource economics, intergenerational mobility, discrimination, and finance. Topics include: probability, statistics, and sampling; selection, causation and causal inference; regression and model specification; and machine learning and big data. Prerequisites: ECON 108, 110, 115, or equivalent and familiarity with single variable calculus. Students who have taken ECON 131 may not receive major credit for this course. QR, SO o Course cr

ECON 121a, Intermediate Microeconomics  Evangelia Chalioti
The theory of resource allocation and its applications. Topics include the theory of choice, consumer and firm behavior, production, price determination in different market structures, welfare, and market failure. After introductory microeconomics and completion of the mathematics requirement for the major or its equivalent. Elementary techniques from multivariate calculus are introduced and applied, but prior knowledge is not assumed. May not be taken after ECON 125. QR, SO o Course cr

ECON 122a, Intermediate Macroeconomics  Michael Peters
Contemporary theories of employment, finance, money, business fluctuations, and economic growth. Their implications for monetary and fiscal policy. Emphasis on empirical studies, financial and monetary crises, and recent policies and problems. After two terms of introductory economics and completion of the mathematics requirement for the major or its equivalent. May not be taken after ECON 126. QR, SO o Course cr

ECON 123a, Intermediate Data Analysis and Econometrics  Costas Meghir
Comprehensive and theoretical examination of econometrics, with further exploration of topics covered in ECON 117. A term research project addresses a research question chosen by the student, and involves the application of learned methods to a relevant data set. Prerequisites: ECON 108, 110, 115, or equivalent; ECON 117; and familiarity with single variable calculus. QR, SO o Course cr

ECON 125a, Microeconomic Theory  Ryota Iijima
Similar to ECON 121 but with a more intensive treatment of consumer and producer theory, and covering additional topics including choice under uncertainty, game theory, contracting under hidden actions or hidden information, externalities and public goods, and general equilibrium theory. Recommended for students considering graduate study in economics. After introductory economics, and MATH 118 or 120 or equivalent. May not be taken after ECON 121. QR, SO

ECON 135a, Introduction to Probability and Statistics  Yusuke Narita
Foundations of mathematical statistics: probability theory, distribution theory, parameter estimation, hypothesis testing, regression, and computer programming. Recommended for students considering graduate study in economics. Prerequisites: Introductory microeconomics and MATH 118 or MATH 120 and MATH 222; or MATH 120 and MATH 225. QR, SO o Course cr

ECON 170a, Health Economics and Public Policy  Howard Forman
Application of economic principles to the study of the U.S. health care system. Emphasis on basic principles about the structure of the U.S. system, current problems, proposed solutions, and the context of health policy making and politics. After introductory microeconomics. SO

* ECON 185a / GLBL 237a, Global Economy  Aleh Tsyvinski
A global view of the world economy and the salient issues in the short and the long run. Economics of crises, fiscal policy, debt, inequality, global imbalances, climate change. The course is based on reading, debating, and applying cutting edge macroeconomic research. SO
ECON 186a, European Economic History, 1700–1815  Timothy Guinnane
European economic growth and development from the late seventeenth century through the first stages of the British industrial revolution. The role of institutional development, trade and imperialism, agricultural improvements, and industrialization. Particular attention to comparisons between Britain and other parts of Europe. After ECON 115 or 121, and ECON 116 or 122. SO

* ECON 209a / EP&E 313a, Economic Analysis of Law  Robin Landis
This course is intended to provide an introduction to the economic analysis of law. We examine the economic rationale(s) underlying various legal doctrines of both common law and statutory law, as well as the economic consequences of different legal doctrines. Previous coursework in economics, while helpful, is not a prerequisite for the course. SO

ECON 251a, Financial Economics  Eduardo Davila
Introduction to the economic analysis of investment decisions and financial markets. Topics include time discounting, portfolio choice, equilibrium pricing, arbitrage, market efficiency, equity valuation, fixed-income securities, derivative pricing, and financial intermediation. Prerequisite: Introductory microeconomics. QR, SO o Course cr

ECON 265a, History of Economic Thought  Robert Dimand
The objective of this course is to give an overview of how economic analysis has developed, and an introduction to the varied ways in which some of the great economists of the past have gone about studying how the economy functions. We discuss the relevance of their theories to public policy and the role of the state, and consider the roles of pre-analytic vision, improvements in analytical technique, and external events (such as the Great Depression or Global Financial Crisis) in the development of economic analysis. Prerequisites: ECON 115 and ECON 116. SO

ECON 302a, International Environmental Economics  Ana Fieler
An introduction to international environmental economics, and to research that combines the two fields. Methods for designing * ECON 331a, The Economics of Energy and Climate Change  William Nordhaus
The essentials of energy and environmental economics, with applications. Analysis of core topics in public goods, intertemporal choice, uncertainty, decision theory, and exhaustible resources. Applications include energy security, nuclear power, the relationship between nuclear power and nuclear proliferation, and climate change. Enrollment limited. Prerequisite: two terms of introductory economics. SO

ECON 350a, Mathematical Economics: General Equilibrium Theory  John Geanakoplos
An introduction to general equilibrium theory and its application to finance and the theory of money. Recommended for students considering graduate study in economics, or a career in quantitative finance. Prerequisites: After MATH 118 or 120, and intermediate microeconomics. QR, SO o Course cr

ECON 363a, The Global Financial Crisis  Andrew Metrick
Comprehensive survey of the causes, events, policy responses, and aftermath of the recent global financial crisis. Study of the dynamics of financial crises in a modern economy. Prerequisite: Successful completion of a course in introductory economics. SO

ECON 365b, CPSC 365b, Algorithms  Staff
Paradigms for algorithmic problem solving: greedy algorithms, divide and conquer, dynamic programming, and network flow. NP completeness and approximation algorithms for NP-complete problems. Algorithms for problems from economics, scheduling, network design and navigation, geometry, biology, and optimization. Provides algorithmic background essential to further study of computer science. Either CPSC 365 or CPSC 366 may be taken for credit. Prerequisites: CPSC 202 and 223. QR

* ECON 407a / GLBL 310a, International Finance  Ana Fieler
A study of how consumers and firms are affected by the globalization of the world economy. Topics include trade costs, the current account, exchange rate pass-through, international macroeconomic co-movement, multinational production, and gains from globalization. Prerequisite: intermediate macroeconomics or equivalent. SO

* ECON 411a, Economics of Uncertainty and Information  Soenje Reiche
Individual and collective choice in the presence of uncertainty and asymmetric information. Implications of such decision making for economic phenomena. Basic analytical tools for studying decisions under uncertainty. Asset markets, adverse selection, screening, signaling, moral hazard, incomplete contracts, bilateral trade with asymmetric information, and mechanism design. Prerequisites: intermediate microeconomics and econometrics. SO

* ECON 412a, International Environmental Economics  Samuel Kortum
Introduction to international and environmental economics and to research that combines the two fields. Methods for designing and analyzing environmental policy when economic activity and pollution cross political borders. Effects of market openness on the environment and on environmental regulation; international economics and climate change. Prerequisites: intermediate microeconomics and econometrics. SO

ECON 414a, Economic Models of New Technology  Evangelia Chalioti
Analysis of firms’ incentives to innovate, focusing on the effects of market power on the intensity of innovative activity. Topics include strategic investment in innovation, patent races, the diffusion of knowledge, intellectual property (IP) protection systems, IP licensing,
research joint ventures, litigation, venture capital, and conflicts between IP rights and antitrust regulation. Prerequisites: intermediate microeconomics and econometrics.

**ECON 419a, Financial Time Series Econometrics**  
Xiaohong Chen  
This is an advanced course covers basic univariate and multivariate models and methods used to analyze financial and economic time series data and panel time series data. Topics include: classic linear models; serial dependence, autocorrelation in error variances (ARCH, GARCH); methods that allow for nonlinearity, tail dependence, comovements, conditional value at risk, fat-tails, nonstationarity; vector autoregressive models; factor models; Markov switching, latent factors, measurement errors, stochastic volatility; empirical asset pricing models. The aim of the course is to help students write their senior essays and start their own research in economics and finance. Prerequisites: ECON 117 and 123, or ECON 135 and 136.

**ECON 424a / GLBL 308a, Central Banking**  
William English  
Introduction to the different roles and responsibilities of modern central banks, including the operation of payments systems, monetary policy, supervision and regulation, and financial stability. Discussion of different ways to structure central banks to best manage their responsibilities. Prerequisites: Intermediate Microeconomics, Intermediate Macroeconomics, and Introductory Econometrics.

**ECON 425a / CPSC 455a, Economics and Computation**  
Yang Cai  
A mathematically rigorous investigation of the interplay of economic theory and computer science, with an emphasis on the relationship of incentive-compatibility and algorithmic efficiency. Our main focus is on algorithmic tools in mechanism design, algorithms and complexity theory for learning and computing Nash and market equilibria, and the price of anarchy. Case studies in Web search auctions, wireless spectrum auctions, matching markets, and network routing, and social networks. Prerequisite: CPSC 365 or permission of the instructor. Familiarity with basic microeconomic theory is helpful but not required.

**ECON 433a, The Economics of Space**  
Costas Arkolakis  
The aim of this course is to analyze the ways that geography determines economic outcomes. We discuss and analyze data on regional economic activity and how economic shocks propagate in space. We pair those data with simple models where geography plays a crucial role in the determination of economic activity and discuss how changes in this geography lead some regions to grow and economic outcomes to diverge. Various policies that affect the spatial allocation of economic activity, such as infrastructure investment, local taxes, and transfers, are analyzed. Prerequisites: MATH 118, 120, or permission of instructor.

**ECON 438a, Applied Econometrics: Politics, Sports, Microeconomics**  
Ray Fair  
This course has an applied econometrics focus. Topics include voting behavior, betting markets, and various issues in sports. The aim of the course is to help students prepare original empirical research using econometric tools and to read empirical papers in economics and other social sciences. Students write three empirical papers. The first can be an extension of an existing article, where some of the results are duplicated and then extended. The second is similar to the first with no example provided. The third is an original paper within the range of topics covered in the course, where data are collected and analyzed using relevant econometric techniques. Prerequisites: Two courses in econometrics or statistics, or one course with special permission from the instructor.

**ECON 444a, Market Inefficiencies and the Limits of Arbitrage**  
Michael J Pascutti  
The role of hedge funds in the United States financial markets and hedge fund behavior; understanding what hedge funds do, why they exist, and how they are different from other investment vehicles. Study of investment strategies that provide opportunity and risk for investors and study of empirical papers analyzing (risky) arbitrage strategies. Prerequisite: intermediate microeconomics and econometrics.

**ECON 449a / EP&E 244a / PLSC 374a, The Economic Analysis of Conflict**  
Gerard Padro  
In this course we apply microeconomic techniques, theoretical and empirical, to the analysis of internal violent conflict, including civil wars, terrorism and insurgencies, its causes and consequences. Topics include forced migration, ethnic conflict, long-term consequences of war and individual choices to participate in violence. Readings comprise frontier research papers and students will learn to critically engage with cutting-edge research designs. Prerequisites: Intermediate econometrics.

**ECON 451a, Economics of Blockchains**  
Dirk Bergemann  
In recent years, cryptocurrencies and blockchains have seen broad experimentation and adoption across many areas in the modern economy. However, the foundations of blockchains can be traced back to many classical results in the study of incentives and distributed systems, such as in economics, cryptography, and computer science. This seminar aims to introduce students to the theoretical underpinning of blockchain technology and help develop skills in economic analysis. We cover the related literature and more recent developments and applications such as Bitcoin, decentralized exchanges, and smart contracts. We explore this novel field through the lens of mechanism design, i.e., aligning the incentives of strategic agents to induce desirable outcomes in an economic system. Prerequisites: ECON 121, ECON 159, or ECON 351. Exposure to computer science is not required, but highly recommended.

**ECON 456a, Private Equity Investing**  
Michael Schmertzler  
A case-oriented study of principal issues and investment types found in substantial private equity portfolios. Discussion of enterprise valuation, value creation, business economics, negotiation, and legal structure, based on primary source materials and original cases. Prerequisite: ECON 251 or ECON 252 or ECON 255.
Facets of contemporary economic globalization, including trade, investment, and migration. Challenges and threats of globalization: inclusion and inequality, emerging global players, global governance, climate change, and nuclear weapons proliferation. Prerequisite: background in international economics and data analysis. Preference to seniors majoring in Economics or EP&E. **SO RP**

* **ECON 467a / GLBL 307a, Economic Evolution of the Latin American and Caribbean Countries**  Ernesto Zedillo
Economic evolution and prospects of the Latin American and Caribbean (LAC) countries. Topics include the period from independence to the 1930s; import substitution and industrialization to the early 1980s; the debt crisis and the "lost decade"; reform and disappointment in the late 1980s and the 1990s; exploration of selected episodes in particular countries; and speculations about the future. Prerequisites: intermediate microeconomics and macroeconomics. **SO**

* **ECON 472a, Economics of Artificial Intelligence and Innovation**  Evangelia Chalioti
This course studies the economics of innovation and the effects of artificial intelligence on different industries. Topics include economics of the intellectual property (IP) protection system; strategic choices in innovation and competition; patent races; measurement and big data; the sharing and digitalized economy; collective intelligence and decisions; online auctions; venture capital; legal and social infrastructure. Prerequisites: ECON 115 or equivalent; ECON 121. **SO**

* **ECON 475a / EP&E 286a, Discrimination in Law, Theory, and Practice**  Gerald Jaynes
How law and economic theory define and conceptualize economic discrimination; whether economic models adequately describe behaviors of discriminators as documented in court cases and government hearings; the extent to which economic theory and econometric techniques aid our understanding of actual marketplace discrimination. Prerequisites: introductory microeconomics and at least one additional course in Economics, African American Studies, Ethnicity, Race, and Migration, or Women's, Gender, and Sexuality Studies.

* **ECON 480a / GLBL 311a, Banking Crises and Financial Stability**  Sigridur Benediktsdottir
Focus on systemic risk, banking crises, financial stability and macroprudential policies. Additional emphasis on systemic risk and prudential policies in peripheral European economies and emerging economies. Prerequisites: ECON 115 and 116, or equivalent. **SO**

* **ECON 491a, The Senior Essay**  Rebecca Toseland and Giovanni Maggi
Senior essays are an opportunity for students to engage in independent, original economic research. Essays are not reviews of the literature, rather each should be an examination of a hypothesis using the tools of economics. In particular, the essay must contain original research and/or analysis. They can be theoretical, empirical or computational. The senior essays that receive A's and are awarded prizes are typically those that use economics tools (and, where appropriate, data) to offer fresh insights on questions. Students enrolling in this one-term course need to find an advisor. There are no page requirements or formatting requirements. Generally, essays run about 30 pages. Advice regarding bibliographies, graphs, etc. should be given by your advisor. For further information, including relevant dates and deadlines, please see economics.yale.edu/undergraduate/senior-essay.

* **ECON 498a, Directed Reading**  Staff
Junior and senior economics majors desiring a directed reading course in special topics in economics not covered in other graduate or undergraduate courses may elect this course, not more than once, with written permission of the director of undergraduate studies and of the instructor. The instructor meets with the student regularly, typically for an hour a week, and the student writes a paper or a series of short essays. Junior and senior majors may take this course for a letter grade, but it does not meet the requirement for a department seminar. The application form may be found here: https://economics.yale.edu/sites/default/files/files/Undergraduate/Forms/2022%20Spring%20Forms/Econ%20499%20DIRECTED_READING_FORM_spring_2022%20fillable.pdf