

ECONOMICS (ECON)

*** ECON 001b, Economic Ideas Worth a Nobel Prize** Jose-Antonio Espin-Sanchez

This course introduces students to a selection of ideas that in the past fifty years have merited a Nobel Prize in economics. The goal of the course is twofold. First, it serves as an introduction to a wide range of economic topics. Second, by studying the most influential economic ideas, students learn firsthand how economic science has evolved. The course is not structured chronologically, but according to economic areas, such as microeconomics, macroeconomics, finance, poverty, and the environment. No prior knowledge of economics or statistics is assumed. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SO

*** ECON 002b, Social Issues in America** Rebecca Toseland

This seminar investigates how data and economics can be used to understand and solve some of the most pressing contemporary social issues in the United States. Topics include equality of opportunity, education, health, climate change, criminal justice, and discrimination. In the context of these topics, the course provides an introduction to some basic economic concepts and data analysis techniques. No prior knowledge of economics or statistics is assumed. Enrollment limited to first-year students. Preregistration required; see under First-Year Seminar Program. SO

*** ECON 108a or b, 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 or b, 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 or b, An Introduction to Macroeconomic Analysis** Staff

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 or b, Introductory Microeconomics Staff

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 116a or b, Introductory Macroeconomics Staff

An introduction that stresses how the macroeconomy works, including the determination of output, unemployment, inflation, interest rates, and exchange rates. Economic theory is applied to current events. May not be taken after ECON 111. Prerequisite: ECON 108, 110, or 115. SO o Course cr

ECON 117a or b, Introduction to Data Analysis and Econometrics Staff

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 or b, Intermediate Microeconomics Staff

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 or b, Intermediate Macroeconomics Staff

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 or b, Intermediate Data Analysis and Econometrics Staff

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 Staff

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 o Course cr

*** ECON 126b, Macroeconomic Theory** Zhen Huo

Similar to ECON 122 but with a more intensive treatment of the mathematical foundations of macroeconomic modeling, and with rigorous study of additional topics. Recommended for students considering graduate study in economics. After two terms of introductory economics, and MATH 118 or 120 or equivalent. May not be taken after ECON 122. QR, SO o Course cr

ECON 135a, Introduction to Probability and Statistics Staff

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 136b, Econometrics Staff

Continuation of ECON 135 with a focus on econometric theory and practice: problems that arise from the specification, estimation, and interpretation of models of economic behavior. Topics include classical regression and simultaneous equations models; panel data; and limited dependent variables. Recommended for students considering graduate study in economics. Prerequisites: After ECON 135 or STAT 241 and 242. May not be taken concurrently with STAT 242. QR, SO o Course cr

ECON 159a / GLBL 159a, Game Theory Staff

An introduction to game theory and strategic thinking. Ideas such as dominance, backward induction, Nash equilibrium, evolutionary stability, commitment, credibility, asymmetric information, adverse selection, and signaling are applied to games played in class and to examples drawn from economics, politics, the movies, and elsewhere. After introductory microeconomics. No prior knowledge of game theory assumed. QR, SO o Course cr

ECON 160b, Applications of Game Theory Benjamin Polak and Joyee Deb

This is a second half of the semester class on applications of game theory. We build on the learnings from introductory game theory courses like ECON/GLBL 159 or MGT 822. The course aims to introduce important ideas and tools from game theory, and use them to answer questions in social sciences, law, and business. For instance, how can we use game theory to design sound environmental policies and formulate environmental treaties? How large should juries be, and should we require unanimous verdicts? Why do bargaining parties sometimes engage in lengthy and costly legal battles? How do sellers decide the best format for an auction to sell a good? When do we see price wars? The topics include basics of mechanism design, bargaining with incomplete information, dynamic pricing, and applications of repeated games. Prerequisite: Any introductory game theory course, e.g., ECON/GLBL 159, MGT 822 or Game Theory in the SOM Core. SO ½ 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 171b / AFAM 146b / EDST 271b, Urban Inequalities and Educational Inequality Gerald Jaynes

Analysis of contemporary policy problems related to academic under performance in lower income urban schools and the concomitant achievement gaps among various racial and ethnic groups in United States K-12 education. Historical review of opportunity inequalities and policy solutions proposed to ameliorate differences in achievement and job readiness. Students benefit from practical experience and interdisciplinary methods, including a lab component with time spent in a New Haven high school. Prerequisites: Any course offered by Education Studies, or one course in history or any social science, either: Anthropology, Economics, Political Science, Psychology, Sociology. EDST 110 is preferred, although not required. SO

ECON 184b / GLBL 234b, International Economics Samuel Kortum

Introduction to conceptual tools useful for understanding the strategic choices made by countries, firms, and unions in a globalized world. After two terms of introductory economics. SO

*** ECON 185a / GLBL 237a, Global Economy** Sigridur Benediksdottir and 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 Staff

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 o Course cr

*** 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 212a / PLSC 442a, Introduction to Political Economy** John Roemer

The course is an introduction to important economic ideas: preferences and rationality, Pareto efficiency, economic equilibrium in a capitalist economy, externalities, the role of the state, uncertainty and von Neumann-Morgenstern utility, the principle of insurance, elementary game theory (Nash equilibrium), the median voter theorem, political equilibrium with party competition, distributive justice, equality of opportunity, and Arrow's impossibility theorem. These topics are essential tools for political economists. Prerequisite: One year of calculus or intermediate microeconomics with calculus. SO

*** ECON 250a, Econometric Data Science** Joshua Angrist and Zachary Liscow

This course develops the theoretical knowledge and applied skills needed to understand empirical economic research and to plan and execute empirical projects. Topics include randomized trials, regression, instrumental variables, differences-in-differences, regression-discontinuity designs, and simultaneous equations models. Prerequisite: ECON 117. Knowledge of statistics. Econometrics builds on the basic tools of probability and statistics. This course does begin with a brief probability-statistics refresher. o Course cr

ECON 251a, Financial Economics Staff

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 302b / EP&E 364b / PHIL 304b, Choice Theory and its Critics** Daniel Greco and Larry Samuelson

The aim of the course is to build up a sufficiently strong foundation in the philosophy of science to allow students to critically assess the challenge posed to the rational choice framework in social science by evidence of human irrationality. Readings are drawn from philosophy, economics (including behavioral economics), and psychology. Prerequisites: Four courses in a combination of economics, philosophy, and psychology. HU, SO

ECON 326b, Fundamentals of Economic Development Kaivan Munshi

The objective of this course is to examine some of the fundamental forces that shape the process of economic development. This course is divided into three sections: (i) Market Failure: with an analysis of credit, labor, and insurance markets in developing countries. (ii) Social Response: how community networks emerge in response to market failure. We study the positive and negative consequences of this community involvement for growth and development; in the short-run and the long-run. We also provide economic foundations for the emergence of social norms and identity, as well as the dynamic inefficiencies that they can generate with economic development. (iii) Biological Response: how biological adaptation to economic conditions in the pre-modern economy can have negative consequences for nutritional status and health in developing economies. Apart from providing a particular perspective on development, an additional objective of this course demonstrates the use of economic theory in informing empirical research. Prerequisites: Intermediate Microeconomics, Introductory Econometrics and Data Analysis. Students are expected to be familiar with calculus, basic microeconomics, and basic econometrics. SO

ECON 330a / EVST 340a, Economics of Natural Resources Staff

Microeconomic theory brought to bear on current issues in natural resource policy. Topics include regulation of pollution, hazardous waste management, depletion of the world's forests and fisheries, wilderness and wildlife preservation, and energy planning. After introductory microeconomics. QR, SO o Course cr

*** ECON 331a, The Economics of Energy and Climate Change** Staff

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 o Course cr

ECON 339b, Advance Competition Economics and Policy Fiona Scott Morton

Limits that antitrust laws, as applied and interpreted by agencies, courts, and competitors, place on firm behavior. Economic theories underlying antitrust enforcement. Whether legal rules restricting competitive behavior increase social welfare and how they affect managerial choices. The evidence and reasoning advanced in key antitrust cases; how outcomes may affect social welfare and firm strategies. Goals and procedures of US and EU antitrust agencies. SO

ECON 340b / PLSC 359b, Economics and Politics of Development Gerard Padro

This course covers recent scholarship on the political economy of development. It starts with the study of macro-historical facts and move on to micro issues, such as conflict and corruption. Prerequisite: Intermediate microeconomics and Econometrics (ECON 117 or equivalent).

ECON 350a, Mathematical Economics: General Equilibrium Theory Staff

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 351b, Mathematical Economics: Game Theory Johannes Horner

Introduction to game theory and choice under uncertainty. Analysis of the role of information and uncertainty for individual choice behavior, as well as application to the decision theory under uncertainty. Analysis of strategic interaction among economic agents, leading to the theory of auctions and mechanism design. Recommended for students considering graduate study in economics. After MATH 118, 120, and intermediate microeconomics. QR, SO o Course cr

*** ECON 360b, Capital Markets** Gary Gorton

Topics related to capital markets, with emphasis on the financial crisis of 2007–2008. The design, pricing, and trading of corporate bonds, credit derivatives, and money market instruments; bond restructuring, bond ratings, and financial crises; basic tools used to address such issues, including fixed income mathematics, binomial option pricing, and swaps. Prerequisites: intermediate microeconomics and econometrics. Note: ECON 360a "Capital Markets" is cross-listed with SOM MGT 947a and has space for up to five undergraduates.

ECON 361b, Corporate Finance Christopher Clayton

Financial management from inside the corporation or operating entity. Topics include capital budgeting and valuation, optimal capital structure, initial public offerings, mergers, and corporate restructuring. Cases and problem sets provide applications. Prerequisites: intermediate microeconomics and econometrics. 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 375b / GBLB 219b, Monetary Policy William English

Introduction to modern macroeconomic models and how to use the models to examine some of the key issues that have faced monetary policymakers during and after the global financial crisis of 2008–2009. Prerequisites: Intermediate level macroeconomics (ECON 122 or 126) and introductory econometrics. WR, SO o Course cr

*** ECON 407a / GBLB 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 o Course cr

ECON 409b, Firms, Markets, and Competition Philip Haile

Analysis of imperfectly competitive markets, focusing on the interactions among firm behavior, market structure, and market outcomes. Topics include oligopoly, collusion, predation, firm entry, advertising, and price discrimination as well as public policy implications of market behavior. After intermediate microeconomics or equivalent. QR, SO

*** ECON 410b, The Economics of Innovation** Mitsuru Igami

Study of forces that drive the process of innovation. Creativity and creative destruction; the innovator's dilemma; incentives to innovate; competitive advantage; industry evolution; intellectual property. Use of both formal theoretical models and quantitative empirical studies, as well as descriptive studies from management strategy and economic history. Prerequisites: econometrics and intermediate microeconomics.

*** 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 o Course cr

*** 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. SO o Course cr

ECON 417b, Computational Methods in Economics Tony Smith

Introduction to the basic tools of numerical analysis and how to apply them to the study of economic models in a variety of subdisciplines, including macroeconomics, labor economics, industrial organization, public finance, and environmental economics. Prerequisite: intermediate microeconomics, intermediate macroeconomics, and econometrics. SO

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. SO

ECON 424a / GBLB 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. SO o Course cr

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. QR

ECON 429b, Data Analysis and Strategy Mitsuru Igami

Study of systematic thinking about competition and strategy using key concepts of microeconomics. Analysis of data, with consideration of economic theory and statistical methods using tools in Excel and Stata. Topics include logical thinking, empirical analysis, modeling, and estimation. Prerequisite: Introductory Microeconomics; some familiarity with statistics and econometrics is helpful. SO

ECON 433a, The Economics of Space Staff

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. SO o Course cr

ECON 435b, Economic Topics in Algorithms Maximilian Schaefer

The goal of this seminar is to introduce students to algorithms commonly used in commercial applications and to the blockchain technology. Students are asked to program algorithm prototypes and to reflect on existing economic research based on the programming experience gained in the course. Prerequisites: ECON 121, ECON 117, and programming experience in R or Python. SO

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. SO

ECON 439b, Applied Econometrics: Macroeconomic and Finance Forecasting Ray Fair

This course has an applied econometrics focus. The focus is on forecasting macroeconomic and financial variables. Macroeconomic forecasting concerns forecasting variables like GDP, components of GDP like consumption, investment, and imports, inflation, the unemployment rate, interest rates, the government deficit, and exchange rates. There are various forecasting methods, some purely statistical time series techniques and some using economic theory. We consider both. Financial forecasting is more problematic, since changes in asset prices may be roughly unpredictable. We also examine topics like momentum forecasting to see if some asset prices are predictable. Prerequisites: Two courses in econometrics or statistics, or one course with special permission from the instructor. SO

* **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 academic papers analyzing (risky) arbitrage strategies. Prerequisite: intermediate microeconomics and econometrics. SO CR

* **ECON 445b, The U.S. Banking System** Michael J Pascutti

The special functions of banks in the U.S. economy. The benefits but fragile nature of the banking system. Prerequisites: intermediate macroeconomics, microeconomics, and econometrics. SO

* **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 SO

* **ECON 450b, Investment Analysis** Alex Hetherington and Chivetta Amelia

Examination of investment management in theory and practice. Discussion of asset allocation, investment strategy, and manager selection from the perspective of an institutional investor. Focus on the degree of market efficiency and opportunity for generating attractive returns. SO

* **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 Schmertzer

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. SO

* **ECON 458b, The Economics of Population** Timothy Guinnane

An overview of some basic demographic methods such as the life table and age-standardized rates, followed by consideration of the core topics in economic demography: fertility, mortality, and migration, along with their connections to the economy and economic development. The course is largely based on reading and discussion of journal articles. Prerequisites: Introductory Econometrics and Intermediate Microeconomics. SO

* **ECON 461b, Economics, Addiction, and Public Policy** Jody Sindelar

Smoking, alcoholism, illicit drugs, and obesity studied from economic and policy perspectives. Focus on causes of and solutions to problems. After introductory microeconomics. SO

* **ECON 463b / BENG 403b, The Economics and Science of Medicine** Gregory Raskin and Yashodhara Dash

This multidisciplinary class is an exploration of the background of today's bestselling medicines, their huge commercial impact, and the companies that created them. It focuses on the most compelling aspects of drug development and company formation in the context of topical issues like cancer treatment, gene editing, stem cell therapy, the opioid epidemic, and drug pricing controversies. Prerequisite: Introductory or intermediate microeconomics, introductory or intermediate Biology, Molecular Biology, Chemistry or Biomedical Engineering. SO

* **ECON 465b / EP&E 224b / GLBL 330b, Debating Globalization** Ernesto Zedillo

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 471b / EP&E 297b, Topics in Cooperative Game Theory** Pradeep Dubey

The theory and applications of cooperative games. Topics include matching, bargaining, cost allocation, market games, voting games, and games on networks. Prerequisite: intermediate microeconomics.

* **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 / GBL 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 486b, Dynamic Games** Anna Sanktjohanser

This course explores topics on dynamic games: we consider situations where agents interact repeatedly. We cover applications related to a range of fields from industrial organization (price wars and oligopoly with imperfect monitoring) to macroeconomic policy (time consistency). Students should have a solid background in multivariate calculus, be comfortable with rigorous proofs and mathematical arguments, and be willing to learn further mathematical tools as needed. Prerequisites: either ECON 121 or ECON 125, as well as completion of the mathematics requirement of the economics major. SO

* **ECON 488b, Agents & Fiduciaries: Economics and Law** Richard Brooks

The seminar introduces students to the basic models in the principal-agent literature, including moral hazard and adverse selection, as well as the legal structures that regulate agents and other fiduciaries. Prerequisite: Intermediate microeconomics. SO

* **ECON 491a and ECON 492b, The Senior Essay** Staff

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 and ECON 499b, 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