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 110b, 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 111b, 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 110 or 115. Prerequisite: ECON 108, 110, or 115.  QR, 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

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.  QR, SO

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, or equivalent and familiarity with single variable calculus. Students who have taken ECON 131 may not receive major credit for this course.  QR, SO

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

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

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
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. Q8, SO

* 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. Q8, 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. Q8, SO

ECON 136b, Econometrics  Yuichi Kitamura
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. Q8, SO

ECON 159b / GLBL 159b, Game Theory  Marina Halac
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. Q8, SO

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 182b / HIST 135b, American Economic History  Staff
The growth of the American economy since 1790, both as a unique historical record and as an illustration of factors in the process of economic development. The American experience viewed in the context of its European background and patterns of industrialization overseas. After introductory microeconomics. WR, 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 21a, 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. Q8, SO

ECON 252b, Financial Markets  Robert Shiller
An overview of the ideas, methods, and institutions that permit human society to manage risks and foster enterprise. Description of practices today and analysis of prospects for the future. Introduction to risk management and behavioral finance principles to understand the functioning of securities, insurance, and banking industries. After two terms of introductory economics. SO

ECON 30b, International Trade: Data and Analysis  Guillermo Noguera
The goal of this course is to provide students with rigorous theoretical and empirical tools to analyze questions of current interest in international trade. The emphasis is on applying economic concepts to international trade data, using both computable economic models and empirical regression methods. This course is primarily intended for junior and senior economics majors. Students benefit from having a background in MATH 118 or MATH 120, statistics/econometrics, and intermediate microeconomics. If you do not satisfy these requisites, instructor's approval is necessary. SO
* ECON 302b / PHIL 304b, Homo Economicus and Human Irrationality  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. Prerequisite: ECON 121 or two prior courses in philosophy.  
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 epigenetic adaptation to economic conditions in the pre-modern economy can determine nutritional status and health in developing economies. Apart from providing a particular perspective on development, an additional objective of this course is to demonstrate the use of economic theory in informing empirical research. Prerequisites: ECON 121 and Introductory Econometrics (ECON 117, 123, 132, or higher).  
SO

ECON 330a / EVST 340a, Economics of Natural Resources  Robert Mendelsohn  
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

* ECON 338a / EAST 338a / GLBL 318a, Inside the Next China  Stephen Roach  
The transitional imperatives of the Next China take on new meaning in a post-pandemic, conflict-prone climate. This seminar offers a deep dive into this transition, with special emphasis on China's AI-enabled push to indigenous innovation. Focus is also directed at reforms of debt-intensive state-owned enterprises as well as the development of a modern financial system and a fully-convertible currency. A rethinking of China’s relationship challenges, especially with the United States, is an over-arching theme of the seminar. Prerequisite: Introductory macroeconomics.  
SO

ECON 339b, Advance Competition Economics and Policy  Fiona Scott Morton  
Limits antitrust laws, as applied and interpreted by agencies, courts, and competitors, place on firm behavior. Economic theories underlyng 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 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

ECON 351b, Mathematical Economics: Game Theory  Philipp Strack  
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

* 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  
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.

ECON 363a, The Global Financial Crisis  Andrew Metrick and Timothy Geithner  
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 366b, Algorithms  James Glenn  
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 366b / CPSC 366b, Intensive Algorithms  Yang Cai
Mathematically sophisticated treatment of the design and analysis of algorithms and the theory of NP completeness. Algorithmic paradigms including greedy algorithms, divide and conquer, dynamic programming, network flow, approximation algorithms, and randomized algorithms. Problems drawn from the social sciences, Data Science, Computer Science, and engineering. For students with a flair for proofs and problem solving. Either CPSC 365 or CPSC 366 may be taken for credit. Prerequisites: MATH 244 and CPSC 223.  QR

ECON 375b / GLBL 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

* ECON 403b / GLBL 332b, Trade and Development  Guillermo Noguera
For some developing countries, international trade has brought about rapid growth and large-scale reductions in poverty. Meanwhile for other developing countries, international trade has simply increased inequality and brought little growth. This course draws on both theoretical models and empirical evidence to better understand the reasons for these very different experiences. Topics include: standard models of trade, trade and poverty in developing countries, the impact of trade on inequality and growth, the role of firms and multinationals in developing countries, trade policy, foreign direct investment, trade and technology transfer, the Chinese and Indian experience.
Prerequisites: Intermediate microeconomics and one econometrics/statistics course.  SO

* 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 408b / GLBL 238b, International Trade Policy  Giovanni Maggi
Analysis of issues concerning international trade policy and agreements, including recent academic research. Welfare analysis of trade policy; the political economy of trade policy; international trade agreements. Attention to both theoretical methods and empirical research. Prerequisites: intermediate microeconomics and ECON 184.  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 411b, 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 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

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 420a, Applied Microeconometrics  Timothy Armstrong
Advanced study of econometric theory and applied econometrics, providing students opportunity and ability to conduct high-level empirical research, combining economics, econometrics, and data. Recommended for students planning to write or currently writing an empirical senior essay. Prerequisites: ECON 121, and either ECON 123 or ECON 136.  SO

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.  SO

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 428b, Economics of Cities: Regional and Urban Economics Staff
Why do cities exist? Why do firms cluster? Why some U.S. cities have prospered in recent decades while others have declined? What are the structural roots of our housing crises today? This course takes cities as our laboratory and asks important aspects that are reshaping the very fabric of our cities and neighborhoods. Prerequisites: ECON 121, ECON 136. SO

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 432a, Economics of Social Catastrophes: Climate Change and Pandemics William Nordhaus
The course covers the history, science, sociology, statistics, and economic impacts of catastrophes, focusing on pandemics and climate change. The course ranges in content from humanistic through social sciences to epidemiology, and some parts are highly technical. Prerequisites: Introductory economics (two terms) and either one term of microeconomics or one term of environmental economics. SO

* ECON 434a, Labor Economics: Inequality and Social Mobility Orazio Attanasio
The objective of this advanced course is to study various aspects of inequality and social mobility and to understand their trends over time and their drivers. Although we briefly study some international comparisons, the focus of the course is inequality in the US and, to a less extent, the UK. We consider inequalities among different countries only tangentially. Prerequisites: ECON 121 and Econometrics. 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. Prerequisite: One or two econometrics courses. 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: At least one semester of econometrics, preferably two; and intermediate macroeconomics. 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

* 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 447b, Networks and Development Kavian Munshi
This course examines the emerging literature on networks and economic development. This course is divided into four sections: (i) Commitment—how communities can harness their pre-existing social connections to circumvent market imperfections in developing economies. (ii) Labor markets and Migration—how community networks can both facilitate and hinder the mobility of their members. (iii) Inter-group Interactions—how communities interact with each other in developing economies and societies. (iv) How information spreads, through social connections, in developing economies. Apart from providing a particular perspective on development, an additional objective of this course is to demonstrate the use of economic theory in informing empirical research. Prerequisites: Intermediate Microeconomics, Introductory Econometrics and Data Analysis. SO

* ECON 449b / EP&E 244b / PLSC 374b, The Economic Analysis of Conflict Gerard Padro
Introduction to the microeconomic analysis of internal conflict. In particular, how conflict imposes economic costs on the population and how people react to conflict. Topics include the correlates of war; the economic legacies of conflict on human capital, local institutions, households’ income, and firms performance; and the causes and impacts of forced displacement. Prerequisites: Intermediate microeconomics and econometrics. SO
* **ECON 450b, Investment Analysis**  Dean Takahashi and David Swensen
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.

* **ECON 452a, Development Economics: Focus on South Asia**  Zack Barnett-Howell
Advanced development economics course on applied microeconomics research using studies and data from South Asia. Students learn how to read, analyze, and critique empirical economics. Students learn how to develop their own research topic and conduct exploratory analysis of data which they gather. Prerequisites: Introductory Microeconomics and Introductory Econometrics.

* **ECON 453a, The Economics of Gender**  Joseph Altonji
This seminar course is about the economics of gender and has a focus on labor and marriage markets. Students are given an overview of gender differences in these markets, as well as some potential reasons for those differences. The course also discusses policies that can affect the gender gaps. Prerequisites: ECON 112 or 125, and ECON 117, or equivalent.

* **ECON 455a, 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: Econometrics, or ECON 255, or permission of instructor.

* **ECON 456b, The Economics of Science**  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.

* **ECON 457b, 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.

* **ECON 458b, Institutions and Incentives in Economic Development**  Mark Rosenzweig
Assessment of alternative policies and programs designed to promote economic development; examination of fundamental problems of underdeveloped areas and consideration of how and whether such programs resolve them. The roles of indigenous institutions in low-income countries in alleviating problems of underdevelopment. Prerequisites: intermediate microeconomics and econometrics.

* **ECON 459b, 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.

* **ECON 461b, 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 462a, The Economics and Psychology of Poverty**
This course focuses on the growing body of psychology and economics literature studying how poverty affects economic decision-making through psychological and behavioral mechanisms. Prerequisites: Intermediate microeconomics (ECON 121 or equivalent) and basic statistics (ECON 117 or equivalent).

* **ECON 463b, 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: Econometrics, or ECON 255, or permission of instructor.

* **ECON 465b, Investment Analysis**  Dean Takahashi and David Swensen
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.

* **ECON 467a, 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.

* **ECON 468b, Institutions and Incentives in Economic Development**  Mark Rosenzweig
Assessment of alternative policies and programs designed to promote economic development; examination of fundamental problems of underdeveloped areas and consideration of how and whether such programs resolve them. The roles of indigenous institutions in low-income countries in alleviating problems of underdevelopment. Prerequisites: intermediate microeconomics and econometrics.

* **ECON 471b, 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.

* **ECON 475a, 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 479a, The Economics and Psychology of Poverty**
This course focuses on the growing body of psychology and economics literature studying how poverty affects economic decision-making through psychological and behavioral mechanisms. Prerequisites: Intermediate microeconomics (ECON 121 or equivalent) and basic statistics (ECON 117 or equivalent).
* ECON 481a / EP&E 298a, Empirical Microeconomics  Guillermo Noguera
Introduction to empirical microeconomics and its methodologies. Academic research in the field explored using tools from economic
theory and econometrics. Topics include approaches to identification, environmental effects on health, and the economics of crime,
gender, and race. Prerequisites: intermediate microeconomics and econometrics.  

* ECON 486a, 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.  

* ECON 491a and ECON 492b, The Senior Essay  Ebonya Washington and Rebecca Toseland
Students wishing to write a senior essay must choose their topics and advisers by Monday, October 5, 2020. One-term senior essays are
due on Wednesday December 9 by 4:30 pm. Two-term senior essays are due by 4:30 pm on Wednesday, April 7, 2020. Essays should be
submitted electronically to the Economics department (qazi.azam@yale.edu) by the due date. Late essays will not be accepted without a
dean's excuse. Advisers are chosen with the assistance of the DUS, lecturer and TA. The format and character of the departmental senior
essay may vary to suit the interest of the student and the demands of the topic, but it is expected that the tools and concepts of economic
analysis will be employed and that the essay will contain original research. Paper lengths may vary; the normal expectation is thirty pages.
Students may receive up to two credits for the senior essay, though it counts as only one departmental seminar whether one or two terms
are taken. Please see the canvas page for an introductory video. Senior essay Q&A sessions with the DUS, lecturer and TA for the course
will be held on August 13 at 9 am, August 18 at 7 pm and September 1 at 4 pm. RSVP at https://economics.yale.edu/webform/undergrad-
info-session to receive the zoom link. You'll receive the link just prior to the meeting start time. Senior essay prospectus forms are due
Monday, October 5, 2020. Students who do not turn the prospectus in on time will not be permitted to write an essay.  

* ECON 498a and ECON 499b, Directed Reading  Ebonya Washington
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.