Economics

Co-Directors of the Undergraduate Program:
Grace Tsiang, Ro 229A, 702-3410, gtsiang@uchicago.edu;
Victor Lima, Ro 229B, 702-4213, vlima@uchicago.edu
Department Secretary: Shayna Sheinfeld, Ro 229, 834-6672
Department Administrator: Robert Herbst, Ro 229C, 834-1972

E-mail: fherbst@uchicago.edu
Web: economics.uchicago.edu/undergrad.html
(To subscribe to the Econmajor mailing list, use Mailing List link.)

Program of Study

The B.A. program in economics is intended to equip students with the basic tools to understand the operation of a modern economy: the origin and role of prices and markets, the allocation of goods and services, and the factors that enter into the determination of income, employment, and the price level.

Students who need to acquire a good overview of basic concepts because they have limited knowledge of or no prior course work in economics must begin their study with Introduction to Microeconomics (ECON 19800) and Introduction to Macroeconomics (ECON 19900). ECON 19800 and 19900 do not count towards the economics major.

First-year students who are considering a major in economics should take calculus at the highest level for which they qualify.

Program Requirements

Core Curriculum. The B.A. degree in economics requires thirteen courses. These include the core curriculum, which consists of price theory (ECON 20000 and 20100) and macroeconomics (ECON 20200 and 20300). Three mathematics courses are required (see following section). STAT 23400 and ECON 21000 typically meet a requirement for two courses in econometrics. Students then choose a minimum of four additional economics courses to broaden their exposure to areas of applied economics or economic theory.

Mathematics Requirements. Students majoring in economics must also take three mathematics courses beyond the general education requirement. These consist of the third quarter of calculus (MATH 13300, 15300, or 16300), followed by a two-quarter sequence (MATH 19520-19620, 20300-20400 or 20700-20800) to be taken concurrently with ECON 20000-20300. Students taking MATH 13300 are strongly encouraged to finish MATH 19520 before enrolling in ECON 20000. Students should take calculus at the highest level for which they qualify. Students with *B* or higher in MATH 16100 and 16200

may take ECON 20000 concurrently with MATH 16300. Students with *A-* or higher in MATH 15100 and 15200 may take ECON 20000 concurrently with MATH 15300. Students considering graduate study in economics should read the section "Preparation for Ph.D. Program in Economics" at the end of this program description.

Statistics and Econometrics. Students majoring in economics must take either STAT 23400 or 24400, which is typically followed by ECON 21000. Students who took STAT 22000 before Autumn Quarter 2005 will be eligible to proceed to ECON 21000. Students who took AP statistics in high school are encouraged to review and expand on that training by taking either STAT 23400 or 24400-24500. The best preparation for ECON 20900 (honors section of Econometrics A) is MATH 20300, followed by STAT 24400.

No later than the end of their third year, students should complete their statistics and econometrics requirements, which are prerequisites or strongly recommended for a number of upper-level economics courses. These include courses such as the Panel Data and Time Series Econometrics (ECON 21100 and ECON 21200), Labor Economics (ECON 24000), and Topics in Finance (ECON 25000). Completing these courses also enables students to begin acquiring research experience in preparation for writing a B.A. paper.

Electives. To broaden knowledge of economics applications students must register for at least four economics elective courses, three of which must be an economics course numbered higher than ECON 20300. The fourth elective may be: (1) another economics course numbered higher than 20300; or (2) MATH 20500, 20900, or 27300 (see following Preparation for Ph.D. Programs in Economics section); or CMSC 10500 or 15100; or STAT 24700 or 25100. Students should use courses from the second group to augment (rather than to substitute for) economics electives.

No more than one Graduate School of Business (GSB) course may be counted toward the major. No GSB accounting course may be used as an economics elective. Students who wish to register for GSB courses must also petition the Associate Dean of Students in the College for approval. For an economics elective credit, a separate petition must be submitted to the undergraduate economics program prior to registration for the course (before the end of the quarter prior to registration).

NOTE: Students wishing to substitute other courses for those listed in the previous paragraphs must obtain written permission from one of the directors of the undergraduate economics program *before* registering for the course. Departmental approval is a prerequisite for registration in graduate (30000-level) courses.

Summary of Requirements

General Education		MATH 13100-13200, 15100-15200, or 16100-16200*
Major	1	MATH 13300, 15300, or 16300**
	4	ECON 20000-20100-20200-20300
	1	STAT 23400 or 24400
	1	ECON 20900 or 21000
	2	MATH 19520-19620 (students are encouraged to take prior to or concurrently with ECON 20000-20100); or MATH 20300-20400; or MATH 20700-20800
	4	electives: These courses must include three economics courses numbered higher than ECON 20300 and must follow guidelines in preceding Electives section.
	13	

* *Credit may be granted by examination.*

** *Students who complete MATH 16300 can also use 19520 and 20100 as their two additional math courses.*

Grading. Of the thirteen courses required for the major in economics, twelve must be taken for quality grades and one may be taken for *P/F* grading. For students who are majoring in economics, only quality grades are acceptable for ECON 20000, 20100, 20200, 20300, 20900, and 21000, and for STAT 23400 and 24400. Nonmajors may take these courses for *P/F* grading with consent of instructor.

Honors. To be considered for honors, students must meet the following requirements: (1) a GPA of 3.5 or higher in the major and a GPA of 3.2 or higher overall, (2) participation in the honors workshop and sole authorship of an independent research paper on a topic in economics, and (3) a faculty sponsor's letter evaluating this independent research paper. At the beginning of the student's fourth year, the economics honors committee must have a letter from an economics faculty sponsor expressing willingness to oversee the student's writing of an independent research paper and recommending the student be admitted into the honors workshop program. Honors papers should be outgrowths of economics electives or research assistant work for the faculty sponsor.

Honors workshop participation (ECON 29800) is mandatory throughout the year. Students may register for one quarter of ECON 29800 in either Autumn, Winter, or Spring Quarter; ECON 29800 will count as one economics elective.

The research paper, a transcript, and a recommendation letter from the faculty sponsor evaluating the independent research paper must be submitted to the

undergraduate economics program office for consideration by the economics honors committee no later than the end of fifth week of the quarter in which the student plans to graduate. Students wishing to qualify for honors should (1) engage in preparatory course work in the area of interest no later than Spring Quarter of their third year and (2) consult with the program advisors no later than Winter Quarter of their third year.

This program may accept a B.A. paper or project used to satisfy the same requirement in another major if certain conditions are met and with the consent of the other program chair. Approval from both program chairs is required. Students should consult with the chairs by the earliest B.A. proposal deadline (or by the end of third year, when neither program publishes a deadline). A consent form, to be signed by both chairs, is available from the College adviser. It must be completed and returned to the College adviser by the end of Autumn Quarter of the student's year of graduation.

Preparation for Ph.D. Programs in Economics. Students preparing to study economics at the graduate level should augment the standard curriculum with higher-level mathematics and statistics courses. MATH 19900 is a transition course for students who took MATH 13300 or 15300. Such students often choose to complete some or all of the Mathematics Major with Specialization in Economics, especially MATH 20300-20400 or 20700-20800. They can take MATH 19600 to acquire knowledge of linear algebra; MATH 16300 and 19900 also provide some coverage of linear algebra. Material on differential equations in MATH 20100 can also be useful. In addition, students who are interested in pursuing graduate study are encouraged to take appropriate courses from other departments in the social sciences and to seek research assistant jobs during their third and fourth years. It is important that such students consult early in the second year with one of the directors of the undergraduate program to design a plan of course work and research.

Faculty

F. Alvarez, K. Basu, G. Becker, P. Bondarenko, T. Chaney, S. Ertac, T. Evans, R. Fogel, J. Fox, W. Fuchs, D. Galenson, L. Hansen, J. Heckman, A. Hortaçsu, S. Kortum, S. Levitt, V. Lima, J. List, R. Lucas, Jr., H. Margolis, D. Meltzer, A. Menendez, C. Mulligan, K. Murphy, R. Myerson, D. Neal, M. Peski, P. Reny, A. Sanderson, S. Schennach, A. Shaikh, R. Shimer, H. Sonnenschein, N. Stokey, C. Syverson, B. Szentes, G. Tolley, R. Townsend, G. Tsiang

Courses: Economics (ECON)

16900. Public Choice. *PQ: ECON 20100, or PBPL 22200, or consent of instructor.* This course is an introduction to major ideas in the literature that seeks to apply the economic notion of rational choice to the context of politics and social choice. Authors include Samuelson, Arrow, Buchanan, Olson, and Downs. *H. Margolis. Winter.*

17800. Public Policy Analysis. (=PBPL 22200) *PQ: ECON 20000 or PBPL 20000. This course does not meet requirements for the economics major.* This course

reviews and augments the basic tools of microeconomics developed in ECON 20000, and applies these tools to policy problems. We examine situations in which private markets are likely to produce unsatisfactory results, suggesting a potential rationale for government intervention. Our goal is to allow students to comprehend, develop, and respond to economics arguments when formulating or evaluating public policy. *J. Leitzel. Winter.*

19800. Introduction to Microeconomics. By way of economic theory, applications, and contemporary issues, this course treats (1) the behavior and decision making on the part of individuals, business firms, and governments; and (2) the function of costs, prices, incentives, and markets in the American economy. We discuss contemporary topics (e.g., distribution of income, the environment, education, sports, health care). *A. Sanderson. Autumn, Spring.*

19900. Introduction to Macroeconomics. By way of theory and public policy applications, this course covers current major domestic and international macroeconomic issues in the U.S. economy, including the determination of income and output, inflation, unemployment, and economic growth; money, banking, and the Federal Reserve System; federal spending, taxation, and deficits; and international trade, exchange rates, and the balance of payments. *A. Sanderson. Autumn, Winter.*

20000. The Elements of Economic Analysis I. *PQ: One year of calculus. ECON 19800 is required of students without a prior microeconomics course; finishing MATH 19520 is strongly recommended for students who are taking MATH 13300. Students who are majoring in economics must follow guidelines in the preceding Mathematics Requirements section.* This course develops the economic theory of consumer choice. This theory characterizes optimal choices for consumers given their incomes and preferences, as well as the relative prices of different goods. This course develops tools for analyzing how these optimal choices change when relative prices and consumer incomes change. Finally, this course presents several measures of consumer welfare. Students learn how to evaluate the impact of taxes and subsidies using these measures. *Autumn, Spring.*

20100. The Elements of Economic Analysis II. *PQ: ECON 20000. ECON 19800 is required of students without a prior microeconomics course.* This course is a continuation of ECON 20000. The first part of this course discusses markets with one or a few suppliers. The second part focuses on demand and supply for factors of production and the distribution of income in the economy. This course also includes some elementary general equilibrium theory and welfare economics. *Autumn, Winter.*

20200. The Elements of Economic Analysis III. *PQ: ECON 20000 required; ECON 20100 recommended. ECON 19900 is required of students without a prior macroeconomics course.* As an introduction to macroeconomic theory and policy, this course covers the determination of aggregate demand (i.e., consumption, investment, the demand for money), aggregate supply, and the interaction

between aggregate demand and supply. We also discuss activist and monetarist views of fiscal and monetary policy. *Winter, Spring.*

20300. The Elements of Economic Analysis IV. *PQ: ECON 20200 or equivalent. ECON 19900 is a prerequisite for students without a prior macroeconomics course.* This is a course in money and banking, monetary theories, the determinants of the supply and demand for money, the operation of the banking system, monetary policies, financial markets, and portfolio choice. *Autumn, Spring.*

20400. Directed Readings in the History of Economic Thought. *PQ: ECON 20300 or consent of instructor.* To better understand economic thought as work in progress, students in this course explore the evolution of economic. We read: observations of economic activity by early writers such as Xenophon and Aristotle; and observations on money by Oresme and Bodin; more systematic treatments on exchange and commerce by Smith, Ricardo, Marx, and Marshall; and twentieth-century debates. Students acquaint themselves with the cultural contexts of these writers, as well as the modern-day theories regarding the economic questions raised. Our goal is to have a better understanding of the roots of prevailing economic ideas. *G. Tsiang. Winter.*

20600. Economics of Information. *PQ: ECON 20100.* This course begins with a short section on uncertainty (i.e., risk aversion, contingent claims, gambling, risk sharing). We then study various adverse selection and moral hazard problems. Specific applications include job market signaling, re-sale markets, insurance markets, search models, and sovereign debt. This course is intended for students who enjoy analyzing theoretical (mathematical) models and may be of special interest to students who are planning to study economics at the graduate level. *N. Stokey, Winter; R. Myerson, Autumn.*

20700. Game Theory and Economic Applications. *PQ: ECON 20100. Either ECON 20700 or 20710 may be used as an economics elective, but not both.* This course introduces the basic ideas and applications of game theory. Topics include models of games in extensive and strategic form, equilibria with randomization, signaling and beliefs, reputation in repeated games, bargaining games, investment hold-up problems, and mediation and incentive constraints. *Spring.*

20710. Game Theory: A Formal Approach. *PQ: ECON 20100 and MATH 20300, or consent of instructor. Either ECON 20700 or 20710 may be used as an economics elective, but not both.* This course is a rigorous introduction to game theory with an emphasis on formal methods. Definitions of a game, preferences, chance moves, and Nash Equilibrium and its extensions are provided. Applications are given to classical games (such as chess), bargaining, and economic models. This course is intended for students who are planning to study economics at the graduate level and for students with an interest in a mathematical approach to basic issues in the social sciences. *H. Sonnenschein. Autumn.*

20800. Theory of Auctions. *PQ: ECON 20100.* In part, this course covers the analysis of the standard auction formats (i.e., Dutch, English, sealed-bid) and

describes conditions under which they are revenue maximizing. We introduce both independent private-value models and interdependent-value models with affiliated signals. Multi-unit auctions are also analyzed with an emphasis on Vickrey's auction and its extension to the interdependent-value setting. *Spring.*

20900. Introduction to Econometrics: Honors. *PQ: ECON 20300, and STAT 24400 or 24500 required; MATH 19620 or 25000 recommended.* This foundations course in econometrics is intended for students who are planning to study economics at the graduate level. The topics are essentially the same as those covered in ECON 21000, but this course gives a more systematic introduction to the application of statistical theory to economic applications. *V. Lima. Winter.*

21000. Econometrics A. *PQ: ECON 20100 and 20200, STAT 23400, and MATH 19620 or 20000 or 25000. Required of students who are majoring in economics; those students are encouraged to meet this requirement by the end of their third year.* Econometrics A covers the single and multiple linear regression model, the associated distribution theory, and testing procedures; corrections for heteroskedasticity, autocorrelation, and simultaneous equations; and other extensions as time permits. Students also apply the techniques to a variety of data sets using PCs. *Autumn, Winter, Spring.*

21100. Econometrics B. *PQ: ECON 20900 or 21000.* This course provides students with a basic understanding of how econometrics, economic theory, and knowledge of institutions can be used to draw credible inferences on economic relationships. Topics include multivariate linear regression, causal inference, omitted variables bias, fixed and random effects models, simultaneous equation models, the propensity score, and discrete choice models. Students have the opportunity to apply these techniques to empirical questions in industrial organization, as well as in environmental, labor, and public economics. *Spring.*

21200. Time Series Econometrics. *PQ: ECON 20900 or 21000.* This course examines time series models and the testing of such models against observed evolution of economic quantities. Topics include autocorrelation and heteroskedasticity in time series applications of the general linear model. Students see the applications of these time series models in macroeconomics and finance. *P. Bondarenko. Autumn.*

21500. Methods and Models in Spatial Economics. *PQ: ECON 20100, and STAT 22000 or 23400.* This course introduces students to economic theories of spatial location and the tools for analyzing geo-coded information. Early writers such as Von Thunen articulated the influence of transportation costs in explaining the clustering of economic activity; economists such as Krugman and Glaeser more recently have reconsidered spatial implications in the economics of agglomeration. Geographic Information Systems (GIS) are computer programs that enable visualization of spatial patterns in quantitative information. Students have computer lab time to learn GIS software and to learn how to integrate sources of information (domestic and international) to these geo-coded tools.

We emphasize practical methods to integrate GIS and remotely sensed data into economic analysis. *J. Felkner. Winter.*

21800. Experimental Economics. *PQ: ECON 20100.* This course provides the necessary tools to be an avid consumer of the experimental literature and instructs students on how to become a producer of that literature. Topics include a summary of recent experimental findings and details on how to gather and analyze data using experimental methods. *J. List. Spring.*

21900. Introduction to Computational Economics. *PQ: CMSC 10500 or 10600, one or two applied economics courses, and consent of instructor.* This course introduces basic computational methods in the context of economic problems. Mathematical topics include numerical optimization, solution methods for nonlinear equations, and Monte Carlo simulation. Applications include computing consumer demand, producer demand, and competitive equilibrium in a variety of environments (e.g., taxation, uncertainty). We also examine Nash equilibria and simulation of dynamic economic processes. Modern computational software that is well-suited for economic analysis is introduced. *K. Judd. Autumn.*

22100/32100. Colonization, Servitude, and Slavery: The Early American Experience. *PQ: ECON 20100.* This course considers economic analysis of the early American labor market, drawing on new research on the economic and social history of the colonies. Topics include the English background and economic stimulus to colonization, the economics of the Jamestown experiment, mortality in the early colonies, the economics of white indentured servitude, opportunities for immigrants, the economics of the transatlantic slave trade, the growth of black slavery, and the wealth of the colonies. *D. Galenson. Winter.*

22200/32000. Topics in American Economic History. *PQ: ECON 20100.* Economic analysis is applied to important issues in American economic history. Typical topics include the economics of colonization, transatlantic slave trade, role of indentured servitude and slavery in the colonial labor market, sources of nineteenth-century economic growth, economic causes and effects of nineteenth-century immigration, expansion of education, and economics of westward migration. *D. Galenson. Autumn, Winter.*

22300/32300. Business Ethics in Historical Perspective. (=GSBD 56400) *College students must use the undergraduate number to register.* This course examines the way that religious and political movements affect the ethics of business. We focus on contemporary issues and relate them to long cycles in religiosity in the United States, long-term factors influencing political images of business, and factors influencing domestic conceptions of the proper economic relationships between the United States and the rest of the world. *R. Fogel. Winter.*

22500/32200. Population and the Economy. *PQ: ECON 20100 or consent of instructor. College students must use the undergraduate number to register.* This course deals with the effects of swings in population on the stability of the economy and opportunities for business. Topics include the effects of demographic changes on

markets for labor and capital, on savings rates and the structure of investment, on taxes and government expenditures, and on household behavior. Problems of planning for the consequences of population changes, including methods of forecasting, are also considered. *R. Fogel. Autumn.*

22700/32400. Economics and Demography of Marketing. *PQ: ECON 20000 and 20100, or equivalent.* This course examines the factors that influence long-term, intermediate-term, and short-term variations in the demand for both consumer and producer commodities and services: the evolution of markets and methods of distribution in America since 1800, variations in the life cycles of products, the role of demographic factors in analysis of product demand, and the influence of business cycles on product demand. Much attention is given to the use of existing online databases for the estimation of a variety of forecasting models. *R. Fogel. Spring.*

22800. European Economic History. *PQ: ECON 20100.* This course introduces major themes in the economic history of Europe from ancient times through World War II. We aim to provide economists with some knowledge of the origins of the economic institutions of Western capitalism. We also use economic theory to explain the existence of certain institutional arrangements—including some that, on the surface, appear perplexing to us today. We then examine the reasons why certain European countries, despite an slow start and a seemingly poor resource base, managed to jump ahead of the rest of Europe in the seventeenth and eighteenth centuries. Finally, we explore why Europe (and her former colonies) jumped ahead of the rest of the world, including China and the Middle East. *M. Guglielmo. Spring.*

23200. Topics in Macroeconomics. *PQ: ECON 20300 and MATH 20300.* This course focuses on the use of dynamic general equilibrium models to study questions in macroeconomics. Particular topics include long-run growth and dynamic fiscal policy (Ricardian equivalence, tax smoothing, capital taxation), labor market search, industry investment, and asset pricing. On the technical side, the course covers basic optimal control (Hamiltonians) and dynamic programming (Bellman equations). *N. Stokey. Winter.*

23300. Introduction to Quantitative Macroeconomic Models. *PQ: ECON 20300 required; STAT 23400, 24400, or 25100 recommended.* This course introduces quantitative macroeconomics and dynamic stochastic general equilibrium (DSGE) models. Starting from a basic real business cycle model, students learn how to solve for the recursive law of motion, using MATLAB programs. A variety of further applications, including models for monetary and fiscal policy analysis, are discussed. *H. Uhlig. Winter.*

24000. Introduction to Labor Economics. *PQ: ECON 20100 and 21000.* Topics include the theory of time allocation, the payoffs to education as an investment, detecting wage discrimination, unions, and wage patterns. Most of the examples are taken from U.S. labor data, although we discuss immigration

patterns and their effects on U.S. labor markets. Some attention is also given to the changing characteristics of the workplace. *Spring.*

24101. Public Policy and Wage Inequality. (=PBPL 24101) *PQ: ECON 20100.* Over roughly the last two decades, the United States has seen a dramatic increase in wage inequality. This course explores potential explanations for this phenomenon and specifically examines the role that public policy may have played. We deal extensively with analyses of minimum wage laws, trade agreements, affirmative action enforcement, and government education and training programs. In addition to focusing on changes in policy over time within the United States, we explore comparisons between U.S. policy and corresponding policies in other developed countries. *Spring.*

24102. Topics in Labor and Macroeconomics. *PQ: ECON 20300 and advanced knowledge of mathematics.* This course covers issues in labor and macroeconomics (e.g., human capital accumulation, unemployment, job search, labor turnover, career dynamics). We use dynamic methods throughout (e.g., difference and differential equations; discrete and continuous time optimization). This course is intended for students who are planning to study economics at the graduate level. *This course is offered only in odd numbered years. R. Shimer. Spring.*

24500. Topics in Microeconomics: Family. *PQ: ECON 20300 and 21000.* This course introduces models in topics that include household production, marriage, fertility, religion, social markets, addiction, self-control, information cascades, and discrimination. Readings consist of empirical papers that test these models. *V. Lima. Winter.*

25000. Introduction to Finance. *PQ: ECON 20300, STAT 22000, and prior or concurrent registration in ECON 21000.* This course develops the tools to quantify the risk and return of financial instruments. These are applied to standard financial problems faced by firms and investors. Topics include arbitrage pricing, the capital asset pricing model, and the theory of efficient markets and option pricing. *W. Fuchs. Autumn.*

25100. Financial Economics B; Speculative Markets. *PQ: ECON 20100, STAT 23400.* This course focuses on the description, pricing, and hedging of basic derivative claims on financial assets. We study the characteristics, uses, and payoffs of a variety of contracts where the underlying claims include commodities, foreign currencies, bonds, stocks, or stock indices. We examine contracts such as options, swaps, and futures contracts. We use a unified approach (the technique of portfolio replication) to study pricing of these claims. Students also gain an understanding of strategies for hedging of the risks inherent in holding these derivative claims. *F. Alvarez. Spring.*

25500. Topics in Economic Growth and Development. *PQ: ECON 20200 and 21000.* This course examines current issues in the economics of developing countries. The focus is on macroeconomic models of economic growth and

technological change. We also cover some microeconomic studies of land, labor, and credit markets in less-developed countries. *K. Basu. Autumn.*

25510. Microeconomic Issues in Development. *PQ: ECON 20100 and 21000.* This is a course on micro-economic issues in developing countries, with a focus on empirical papers and on policy evaluation. In part, this course covers health, education policy, household economics, gender inequality, corruption, globalization, and microfinance. Course readings and discussions are centered on the current research on these topics with a focus on using this knowledge to design effective policies. *E. Oster. Winter.*

25610. Topics in East Asian Economies. *PQ: ECON 20300.* This course focuses on the application of economic analysis to economic policy issues encountered in East Asia. Topics include sources of economic growth, commercial policy, regional economic integration, inflation and stabilization, fiscal deficits, the choice of an exchange rate regime, and debt problems. *Spring.*

25620. Topics in Latin American Economies. *PQ: ECON 20300.* This course examines current issues in the economies of Latin America. Topics include sources of economic growth, commercial policy, regional economic integration, inflation and stabilization, fiscal deficits, the choice of an exchange rate regime, and debt problems. *A. Menendez. Spring.*

26010. Introduction to Public Finance. *PQ: ECON 20300 or consent of instructor.* This course examines the role of the government in the U.S. economy. We consider the efficiency and equity arguments for government intervention and analyze empirical evidence on the effects of tax and expenditure policy on economic outcomes. Topics include government-provided goods (with a focus on education), social insurance programs, government provision of health insurance, welfare programs, and tax policy. The effects of potential future policy changes (e.g., vouchers in K–12 education, individual accounts for Social Security) are also discussed. *T. Evans. Spring.*

26500. Environmental Economics. (=ENST 26500, PPHA 32800) *PQ: ECON 20100.* This course applies theoretical and empirical economic tools to environmental issues. We discuss broad concepts such as externalities, public goods, property rights, market failure, and social cost-benefit analysis. These concepts are applied to areas that include nonrenewable resources, air and water pollution, solid waste management, and hazardous substances. We emphasize analyzing the optimal role for public policy. *G. Tolley, S. Shaikh. Winter.*

26510. Advanced Topics in Environmental Economics. (=ENST 26510) *PQ: ECON 26500, 21000, or 20900.* This course applies theoretical and empirical economic tools to a number of environmental issues. We discuss broad concepts that include externalities, public goods, property rights, market failure, and benefit-cost analysis. These concepts are applied to a number of areas that include

nonrenewable resources, air and water pollution, solid waste management, and hazardous substances. We emphasize analyzing the optimal role for public policy. *J. List. Spring.*

26600/36500. Economics of Urban Policies. (=GEOG 26600/36600, LLSO 26202, PBPL 24500) *PQ: ECON 20100.* This course covers tools needed to analyze urban economics and address urban policy problems. Topics include a basic model of residential location and rents; income, amenities, and neighborhoods; homelessness and urban poverty; decisions on housing purchase versus rental (e.g., housing taxation, housing finance, landlord monitoring); models of commuting mode choice and congestion and transportation pricing and policy; urban growth; and Third World cities. *G. Tolley, J. Felkner. Spring.*

27000. Introduction to International Economics. (=PBPL 27000) *PQ: ECON 20300 or consent of instructor.* This course deals with the pure theory of international trade: the real side of international economics. Topics include the basis for and gains from trade; the theory of comparative advantage; and effects of international trade on the distribution of income, tariffs, and other barriers to trade. *S. Kortum. Autumn.*

27100. Introduction to Banking and International Finance. *PQ: ECON 27000*. This course examines international monetary problems and policies, as well as introduces the techniques with which economists analyze macroeconomic interactions between countries. Topics include open economy macro-economics, central banking, and assessment of monetary policy regimes over recent history. *Spring.*

27300. Regulation of Vice. (=PBPL 27300) *PQ: ECON 20000.* This course concerns government policy with respect to the traditional vices of drinking, smoking, gambling, illicit sex, and the recreational use of drugs. Among the policies considered are prohibition, taxation, treatment, decriminalization, and legalization. The intellectual framework employed to evaluate various policies is primarily economic, though other disciplines are also drawn upon. *J. Leitzel. Spring.*

27900. Economies in Transition: China, Russia, and Beyond. (=PBPL 27100) *PQ: ECON 20000 or consent of instructor.* The ongoing postsocialist transitions are examined (particularly those of Russia and China). The basic tool of analysis is the emerging "economics of transition." Various programs of macroeconomic stabilization, price liberalization, and privatization are analyzed; and their effects on inflation, unemployment, and living standards are assessed. We cover issues highlighted in the "post-Washington consensus" (e.g., corporate governance, competition policy, the role of the state). *This course is offered in alternate years. J. Leitzel. Winter.*

28000. Introduction to Industrial Organization. *PQ: ECON 20100.* This course extends the analysis from ECON 20100, with a focus on understanding the

way firms make decisions and the effects of those decisions on market outcomes and welfare. The course examines the structure and behavior of firms within industries. Topics include oligopolistic behavior, the problems of regulating highly concentrated industries, and the implementation of U.S. antitrust policy. *A. Hortacsu. Winter.*

28050. Topics in Industrial Organization. *PQ: ECON 28000; no exceptions will be made.* This course is intended for students who wish to explore research topics in the area of industrial organization. Topics, which may vary somewhat from year to year, cover the econometric methods applied to this field and the theory of regulation and antitrust. These are applied to the economics of electronic commerce and the Internet and to the economics of research-intensive and high-technology industries (e.g., computer software, hardware, electricity, financial services, pharmaceuticals, biotechnology). *A. Hortacsu. Spring.*

28100. The Economics of Sports. *PQ: ECON 20100.* This is a course in microeconomics that applies traditional product and factor market theory and quantitative analysis to contemporary economic issues in professional and college athletics. Topics include the sports business; market structures and outcomes; the market for franchises; barriers to entry, rival leagues, and expansion; cooperative, competitive, and collusive behavior among participants; labor markets, productivity, and compensation of players; racial discrimination; public policies and antitrust legislation; and financing of stadiums. *A. Sanderson. Spring.*

28600. Introduction to the Economic Analysis of Law. (=PBPL 28605) *PQ: ECON 20100.* This course examines the structure of law from an economic basis. Topics include property rights, contracts, torts, the Coase theorem, and criminal law. *J. Letizel. Autumn.*

28700. The Economics of Crime. (=PBPL 23200) *PQ: ECON 20100 required; ECON 21000 or STAT 23400 strongly recommended.* This course uses theoretical and empirical economic tools to analyze a wide range of issues related to criminal behavior. Topics include the police, prisons, gang behavior, guns, drugs, capital punishment, labor markets and the macroeconomy, and income inequality. We emphasize the analysis of the optimal role for public policy. *S. Levitt. Spring.*

29700. Undergraduate Reading and Research. *PQ: Consent of directors of the undergraduate program. Students are required to submit the College Reading and Research Course Form. R. Herbst. Autumn, Winter, Spring.*

29800. Undergraduate Honors Workshop. *PQ: Faculty sponsorship and consent of honors workshop supervisors. For details, see the preceding Honors section. G. Tsiang, V. Lima. Autumn, Winter, Spring.*