**Economics**

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**Courses**

Visit online course listings to view semester offerings for L11 Econ.

**L11 Econ 1011 Introduction to Microeconomics**  
Determination of prices; distribution of national income; theory of production. For a thorough introduction to economics, Econ 1021 also should be taken.  
Credit 3 units. A&S IQ: SSC, AN Arch: NSM, SSC Art: NSM, SSC EN: S

**L11 Econ 1021 Introduction to Macroeconomics**  
Business fluctuations: inflation, recession; monetary and fiscal policy; economic development. For a thorough introduction to economics, Econ 1011 should also be taken.  
Credit 3 units. A&S IQ: SSC, AN Arch: NSM, SSC Art: NSM, SSC EN: S

**L11 Econ 105 The Endgame of Entrepreneurship: Leveraging Capitalism for Good**  
Historically, profit has been a key driver of human behavior. In this course, students will learn to take advantage of the profit-seeking motive of capitalism while also learning from the mistakes and unintended consequences capitalism has caused throughout history. Students will apply these learnings toward profit-seeking solutions for the United Nations’ Sustainable Development Goals, which are global challenges that call us to work together with boldness and urgency. We will explore how skills from entrepreneurship and venture creation can be used to improve water, climate, education and gender equality globally and here in St. Louis. In interdisciplinary teams, students will learn how to define a problem; listen to customers, competitors and collaborators; create value; measure impact; and communicate their vision. Bold entrepreneurial spirit and skills learned in this course will guide students in their further studies at Washington University and beyond. This course does not count for Economics major/minor elective credit. This course is for first-year (non-transfer) students only.  
Same as I60 BEYOND 105  
Credit 3 units. A&S: FYBB A&S IQ: SSC Arch: SSC Art: SSC BU: BA, ETH EN: S

**L11 Econ 2391 Economies as Cultural Systems**  
Many contemporary approaches to economics downplay or bracket the importance of culture in the workings of economic systems. In this class we will focus on approaches to distribution and exchange in which culture and social institutions figure prominently, if not pre-eminent. We will sample a diverse array of economies, from gift exchange to the ceremonial destruction of wealth, from Melanesia to Wall Street, in order to evaluate some of the assumptions that undergird market capitalism. These assumptions include the perception of market actors exclusively as calculative, maximizing individuals. Topics to be covered include the Industrial Revolution; utilitarianism; economic anthropology; the formal vs. substantivist debates; ethnography of finance, and Marxist sociology.  
Same as L48 Anthro 3391  
Credit 3 units. A&S IQ: LCD, SSC Arch: SSC Art: SSC BU: ETH EN: S

**L11 Econ 290 Sophomore Research Seminar**  
How do you find an economically-relevant research topic? What are the different types of economic papers? How do you write like an economist? This seminar is aimed to help sophomores develop research skills in economics. Work will consist of an original research paper to be completed by the student by the end of the semester under supervision of the instructor. The paper will describe an economic problem, survey the relevant research literature, and outline a contribution to the field.  
Credit 3 units. EN: S

**L11 Econ 296 Undergraduate TA**  
In this course, an advanced undergraduate can assist a faculty member in the teaching of an undergraduate Economics class. Students can enroll after their selection by a supervising faculty member, which occurs after an application (on the department website) is submitted and reviewed, perhaps in conjunction with an interview with the supervising faculty member. Students can enroll in only one section per semester. Students will be expected, at a minimum, to attend lectures and hold office hours. Specific grading duties will be determined by the supervising faculty member, in accord with Arts & Sciences policies. The typical number of units earned is 2, with the possibility of a maximum of 3, per semester. This course can be repeated for P/F credit. Prerequisite: instructor permission. Units: variable - 2 typical; 3 maximum.  
Credit variable, maximum 3 units.

**L11 Econ 326 American Economic History**  
Basic theoretical concepts applied to analyze the changing structure and performance of the American economy from colonial times to the present. Prerequisites: Econ 1011 & 1021.  
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC BU: BA EN: S

**L11 Econ 328 History of Economic Analysis**  
The purpose of this course is to introduce students to some of the theories and doctrines that constitute the main paradigms from which economists and policy makers approach the world. Rather than focusing on the whole history of economic thinking, we will focus on practical issues, including questions such as the following: What determines the wage of labor? Why is monopoly considered a bad thing? At what level does an interest rate become usury? We will consider how these questions have been framed and answered at different points in time and in different cultures. Important components of this course are participation in in-class discussion and essays submitted on the practical issues discussed throughout the semester. Prerequisites: Econ 1011 and Econ 1021.  
Credit 3 units. A&S IQ: SSC EN: S

**L11 Econ 3311 Financial Markets and Analysis**  
This course is a rigorous introduction to financial markets, financial institutions, and their purpose and functions in the economy. In financial markets, trade is essentially “money now” for “money in the future.” As such, financial decisions must often take into account future events, whether those be related to individual stocks, portfolios, or the market as a whole. This course explores the topics related to the level and structure of interest rates and of stock prices, portfolio choice, basic investment theory, and arbitrage pricing theory, among others. Prerequisites: Econ 1011 and Econ 1021.  
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

**L11 Econ 335 Money and Banking**  
Money and the monetary system; money creation by the banking system; central bank functions; monetary theory and economic policy. Prerequisite: Econ 1011 & 1021.  
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S
L11 Econ 348 Economic Realities of the American Dream
Exploration of the realities of economic life in the U.S. and how they correspond to the American Dream. Interdisciplinary perspectives from economics, sociology, and other areas of social inquiry. Emphasis on the consistency between empirical data and different concepts of the American Dream. Specific topics to include sources of economic growth and changing living standards, unemployment, impact of globalization on U.S. citizens, economic mobility, poverty and inequality, and social justice. Prerequisites: An introductory course in economics or sociology, or consent of the instructors. All students who pre-register will be put on the wait list. Students will receive an email immediately after pre-registration requesting more information.
Credit 3 units. A&S IQ: SSC, WI Arch: SSC Art: SSC BU: BA EN: S

L11 Econ 352 Health Economics
Analysis of consumer demand for health care, medical technology, and the role of health insurance. Emphasis placed on behavior of the physician (whether he acts as an agent for the consumer or on his own behalf); on the use of paramedics, preventive care, outpatient care, and the general market organization of the health industry. The major concern will be the rising cost of health care and appropriate public policy responses. Prerequisite: Econ 1011.
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC BU: BA EN: S

L11 Econ 354 The Economics of Criminal Justice
In this course, we will use the theoretical and empirical tools of economics to study the criminal justice system. By constructing models of how arrest/prosecution/conviction/sentencing/etc. decisions are made, we will evaluate these decisions for errors and especially for bias. We will also see how economists test hypotheses about the criminal justice system using the same types of "natural experiments" they use to study markets. Prerequisites: Econ 1011 and SDS 2200.
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC BU: BA EN: S

L11 Econ 376 International Economics
Explores consequences of economic integration from various perspectives in international trade: Ricardian, Heckscher-Ohlin, and the New International Trade Theories. Topics include patterns of trade, protectionism, international factor movements, balance of payments, exchange-rate determination, international policy coordination, the international capital market, multinational and international investments, and patterns of international business. Prerequisites: Econ 1011 and Econ 1021, or permission of instructor.
Credit 3 units. A&S IQ: SSC BU: IS

L11 Econ 380 Labor and the Economy
Economic analysis of labor markets. Theory and policy applications of labor supply and labor demand; explanations of wage and income differentials; migration and immigration; discrimination; labor unions; unemployment. Prerequisite: Econ 1011.
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 382 Socio-Economic Perspectives on Inequality
This course examines the definition and impact of social and economic inequality. Beginning with a review social, economic, and philosophical perspectives of inequality, the course considers the measurement of inequality, international comparisons of inequality, and policies designed to eliminate inequality. Students should be comfortable with methods of quantitative social science. Prerequisite: Econ 1011 is recommended.
Credit 3 units. A&S IQ: SSC

L11 Econ 4011 Intermediate Microeconomic Theory
Analytic theory of consumer and producer behavior under perfect and imperfect competition. Coverage of demand theory (indifference curves and utility functions) and preferences under uncertainty, including expected utility and risk aversion. Development of general equilibrium under pure exchange, including the concepts of competitive equilibrium and Pareto efficiency. Discussion of the role of time as it pertains to interest rates, discounting and net present value. Analysis of standard monopoly and simple oligopoly problems. Development of non-cooperative game theory, including strategic and extensive-form equilibria and Nash and sub-game perfect equilibria. Thorough training in intermediate theory would require both Econ 4011 and Econ 4021. Prerequisites: Econ 1011, Math 132, and concurrent enrollment in, or prior completion of, either Math 233 or Econ 493 ("Mathematical Economics").
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 4021 Intermediate Macroeconomic Theory
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 404 Behavioral Economics and Experimental Economics
Behavioral economics is an effort to incorporate ideas from psychology into economic models of behavior. We will focus on popular experimental anomalies, including the Allais and Rabin paradoxes, ultimatum bargaining, the centipede and public goods contribution games. We will examine the extent to which these are consistent with standard economic theory and how they may contradict it. The primary focus will be a critical examination of psychological theories of non-standard preferences including loss aversion, probability weighting, reciprocity, fairness and present bias. Theories of incorrect beliefs and systematic biases such as money illusion and procrastination will be covered. The class will include an introduction to experimental methods in economics, including hands-on experience in the MISSEL laboratory. A sound grounding in economic theory is essential to the course. You must have successfully completed Economics 4011, and should be acquainted with basic optimization theory, expected utility theory, risk aversion, discounting and basic game theory including dominance, Nash equilibrium and subgame perfection.
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 407 Market Design
The objective of this course is to study how to design mechanisms to allocate scarce resources and how to create successful marketplaces. We will primarily consider two topics: (1) two-sided matching markets, such as the National Resident Matching Program and the Kidney Exchange for transplants, and (2) auctions used by Google, Facebook, etc. Time permitting, a third topic will be the problem of designing and regulating market “platforms,” such as the e-commerce markets run by eBay, Amazon, and Craigslist, and applications marketplaces run by Apple, Google, etc., as well as the electronic financial trading platforms run by the NYSE. Prerequisite: Econ 4011. 3 units.
Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S
L11 Econ 410 Macroeconomics of Inequality
In this course, we study the driving forces of inequality across countries, across time, and across individuals within a country. We will define and measure inequality using standard measures of economic well-being, such as income, wealth, and consumption of market goods, and we will also consider broader measures such as health outcomes. Historical cross-country data, microdata, and specific case studies will be used to evaluate theories of the sources of inequality. Key variables to be evaluated include physical capital investment, education and human capital investment, technological progress, robotization, international trade, and financial markets, among others. Prerequisites: Econ 4011 and Econ 4021. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 4111 Optimization and Economic Theory
An introduction to mathematical optimization and its applications within economics. The course is designed for, and should be taken by, all undergraduates considering graduate study in economics, but all interested students are welcome. Prerequisites: Econ 4011 and Math 309 or permission of the instructor. Credit 3 units. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 413 Introduction to Econometrics
Econometrics is the development and application of statistical techniques for the measurement of economic phenomena. This course is your initial study of econometric theory and practice. Topics include: translation of economic theory into statistical models, statistical foundations of econometrics, preregression analysis bivariate and multiple regression techniques, hypothesis testing, multicollinearity, specification error, autocorrelation, errors in variables, identification, and simultaneous estimation. Prerequisites: Econ 1011, Econ 1021, and SDS 2200 (or equivalent). Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 413W Introduction to Econometrics with Writing
Econometrics is the development and application of statistical techniques for the measurement of economic phenomena. This course is your initial study of econometric theory and practice. Topics include: translation of economic theory into statistical models, statistical foundations of econometrics, preregression analysis bivariate and multiple regression techniques, hypothesis testing, multicollinearity, specification error, autocorrelation, errors in variables, identification, and simultaneous estimation. The 3 writing assignments and the final paper will provide you an opportunity to formulate an economic model, estimate the model with appropriate data, and interpret the results. Prerequisites: Econ 4011 and Math 2200 or equivalent. PLEASE NOTE: Requests for on-line registration will be wait listed, and students will be enrolled according to Economics major/minor status and student level (e.g., priority to Level 8 Econ majors). Students should also select the "A" subsection. Credit 3 units. A&S IQ: SSC, WI Arch: SSC Art: SSC EN: S

L11 Econ 4151 Applied Econometrics
Introduction to econometrics as it is applied in microeconomics. Emphasis is on hands-on implementation of the models covered in the course. Topics related to the analysis of microeconomic data include cross-section and panel data linear models and robust inference; instrumental variables estimation; simultaneous equation models; models for discrete choice; and truncation, censoring and sample selection models. Prerequisite: Econ 4011 and Econ 413 (Math 309 is recommended). Students should co-enroll in the "A" subsection. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 4160 Topics in Econometrics: Microeconometrics
This is a topics class in econometrics but with a strong focus on microeconometrics. This course has two main objectives: (i) Teach students various advanced theoretical econometric tools to the students and (ii) guide them through the process of writing a research paper that explores an empirical research question in economics using adequate econometrics tools. We will study theory and application of methods of data analysis developed for microdata pertaining to individuals, households and firms. More, precisely, We will study recent development of theory and methods for analyzing selective samples and analyzing discrete choice models. Prerequisites: Econ 4011 and (Econ 413, Econ 413W, or Econ 536). Math 309 recommended. Students should co-enroll in the "A" subsection. 3 units. Credit 3 units. A&S IQ: SSC

L11 Econ 4210 Topics in Financial Economics: Asset Pricing
The objective of the course is to develop the basic economic models that can be used to study the valuation of different financial assets and to discuss how to confront the theory with the evidence from financial markets. The course will develop the basic model of investment under uncertainty and discuss portfolio choices in static and dynamic settings as well as market equilibria and the impact of news on the forecast-ability of excess returns. The course will describe valuation in incomplete asset markets (e.g. arbitrage pricing theory) and the extension to the valuation of firms and real estate assets. Prerequisites: Econ 4011, Econ 4021 and Econ 413. 3 units. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 4211 Topics in Financial Economics: Investments
This course surveys recent developments in investments and portfolio management. The course will provide students with a structure for thinking about investment decisions from the perspective of a portfolio manager. We start by understanding fundamental concepts for investment theory: modern asset valuation and portfolio selection under uncertainty. We will proceed to investigate various sources of risk which financial institutions are exposed to, such as interest rate risk, credit risk and liquidity risk, and study how financial institutions manage these risks. The course will also introduce student to investment evaluation techniques. We will explore recent innovations in financial markets, as well as various frictions that arise in markets. Students will have the opportunity to apply concepts learned in class on a virtual investment and trading platform, StockTrak. Prerequisites: Econ 4011, Math/SDS 2200 (or Math/SDS 3200, Math/SDS 3211, QBA 120 and QBA 121, ESE 326.) or PolSci 363 with permission from instructor. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 432 Economics of Public Policy
This course will cover the logic underlying the economics and politics of public policies concerning issues such as international trade, monetary policy, fiscal policy, market reforms, pollution control, economic inequality and the welfare state more generally. The general question we will address, using specific cases, is that of the role of markets and government in an economy. The course relies heavily on the concepts and methods of microeconomics and macroeconomics. There are many theories of how economic policies work and considerable debate as to what can be done and what should be done. We will examine the facts (past and present) and then examine the theories and their explanatory power. We will also organize the class into research groups that will address specific economic policies issues. Prerequisite: Econ 4011. Credit 3 units. A&S IQ: SSC EN: S
L11 Econ 435 Open Economy Macroeconomics
This course will begin with a review of international trade theory, of the balance of payments accounts and their relationship to international borrowing and lending. We will then study the asset approach to exchange rates determination, exchange rate behavior in the short and in the long run, and the relationship of exchange rates with prices and output. The course will also explore monetary and fiscal policy under both fixed and floating exchange rates, macroeconomic policy coordination and optimum currency areas, international debt problems of developing countries and their relation to stabilization program. Prerequisite: Econ 4021. Credit 3 units. A&S IQ: SSC Art: SSC BUS: IS EN: S

L11 Econ 437 The Economics of Financial Intermediation
The structure and the role of banks have changed tremendously. The historically-traditional activity of granting loans and collecting deposits has evolved into a much richer and more complex set of financial contracts. The separation between financial asset trading activity and traditional commercial bank activity that was typical of the financial system in the period after the World War II also disappeared. Coincident with the evolution of financial institutions was the development of the symmetric information model. The role of banks in the economy can be explained with the tools developed in these models of the economics of information, as a microeconomic theory of banking does not exist when information is symmetric and markets are complete. The economics of information literature is also used to explain the evolution of financial institutions and markets, and to understand the consequences of that evolution for economic outcomes (such as economic development and financial crises) and for monetary policy choices (such as central bank interventions, regulations and changes in the payments system). Prerequisite: Econ 4011; Econ 4021 recommended, but not required. Credit 3 units. A&S IQ: SSC EN: S

L11 Econ 444 Innovation and Intellectual Property: Theory and Practice
Innovation - that is: figuring out better and cheaper ways of satisfying human desires - is the key to improving our well being. It is not patient saving and accumulation that makes us so much better off than we used to be: capital accumulation is only the conduit through which the innovation juices flow. The question is what drives it? How come some societies are apparently much more innovative than others? How come we have the impression that most useful inventions took place in the last three centuries? Are there policies that help fostering innovation and others that hurt? The course tries to address these questions. Economists have many theories of innovation, and some better than others. We will look at the theories, we will examine the facts (past and present), then we will go back to the theories and reconsider their explanatory power. With this background we approach the debate about Intellectual Property, what it is and what it is not good for, whose interests it serves and whose well being it thwarts. Prerequisite: Econ 4011. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 445 Public Finance
The study of fundamental forms of market failure that provide the economic rationale for government action. The first third of the class examines market failure when an economy contains externalities and public goods and the general nature of public policies that address these issues. The second third addresses particular public policies, with a focus on their intended and unintended consequences and their costs. The final third addresses taxation. Topics include the measurement and evaluation of tax burdens, the federal personal income tax, tax evasion, and proposals for fundamental tax reform. Prerequisite: Econ 4011. Credit 3 units. A&S IQ: SSC Art: SSC EN: S

L11 Econ 448 Money & Monetary Policy
We will explore several classic questions in the theory of money. What is money? What forms does money take? Why is money necessary? why is there a demand for money? What determines the supply of money? What is the debate on central versus free banking? Should banking be regulated, and, if so, why and how? What determines inflation? Should nations enter into fixed exchange rate regimes, or should they let the value of their monies be market-determined? What are the tensions that arise in fixed exchange rate regimes and common currency areas? How should policymakers view cryptocurrencies? Is a central bank digital currency desirable? These, and other questions, are explored within the context of theories that model the microfoundations of monetary exchange explicitly. PREREQUISITES: Econ 4011 and Econ 4021. 3 units. Credit 3 units. A&S IQ: SSC EN: S

L11 Econ 448W Current Macroeconomic Issues
Review and extension of macroeconomic models from Econ 4021 from a comparative perspective and use of these models to analyze current macroeconomic and policy issues. Topics include recession and recovery, long-term growth, saving and social security, investment, and monetary policy. Multiple writing assignments that emphasize critical analysis of theoretical perspectives and readings applied to current macroeconomic topics. Writing will be revised to improve logical structure, clarity, and style. Enrollment limited to 15 students with priority given to senior economics majors. Prerequisite: Econ 4021. All students who pre-register will be put on the wait list. Students will receive an email immediately after pre-registration requesting more information. Credit 3 units. A&S IQ: SSC, WI Arch: SSC Art: SSC EN: S

L11 Econ 451 Environmental Policy
Course will examine the relationship between environmental economics and environmental policy. The course will focus on air pollution, water pollution, and hazardous wastes, with some attention given to biodiversity and global climate change. The course will examine critically two prescriptions that economics usually endorses: (1) “balancing” of benefits against costs (e.g., benefit-cost analysis) and the use of risk analysis in evaluating policy alternatives; (2) use of market incentives (e.g., prices, taxes, or charges) or “property rights” instead of traditional command-and-control regulations to implement environmental policy. Prerequisite: Econ 1011. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 452 Industrial Organization
Theoretical and empirical analysis of the presence and value of competitive forces in the United States economy. Theories of industrial organization and development of criteria for performance of noncompetitive industries. Prerequisite: Econ 4011. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 4567 Auction Theory and Practice
This course will use the theoretical and empirical tools of economics to study auctions, which are one way of buying and selling goods (or services). The course begins with a consideration of optimal bidding in different types of auctions. We will explore how to design auction rules that maximize the seller’s revenue, or minimize the buyer’s cost (such as in the case of government procurement). We will also study how to design auction rules that improve efficiency by reducing collusion by bidders. The course will conclude by using econometrics to analyze “real-world” auction data to estimate preferences and cost
distributions; to determine optimal reserve prices; and to answer some questions related to auction design. Familiarity with computer programming/estimation, such as with MATLAB, R, or Julia, will be helpful. Prerequisites: Econ 4011 and Econ 413 or Econ 413W. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC

L11 Econ 460 Urban Economics
Economic function of the city and the role of the city in a national economy. Local decision making; financing of local government expenditures. An analysis of selected urban problems, such as causes and effects of housing market segregation; decay and abandonment, landlord-tenant relations, crime, and urban transport systems. Prerequisite: Econ 4011. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 467 Game Theory
This course covers advanced applications of Game Theory in economics. Topics include expected utility, strategic-form and extensive-form games with perfect information, Bayesian games, infinitely repeated games, dominance, Nash equilibrium and its refinements. We apply these tools to study strategic situations in industrial organization, auctions, bargaining, voting, and signaling games. Prerequisites: Econ 4011 and SDS 2200. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 471 Development Economics
This course investigates issues related to the development of the economics of third-world countries. Topics include economic growth, poverty, corruption, and human capital accumulation, with an emphasis on education and health-related policies. The course provides an in-depth understanding of the role of the state and the impact of specific public policies designed to encourage development. Empirical examples are drawn from Asia, Latin America, and the African subcontinent. Prerequisites: Econ 4011 and Econ 413 or Econ 413W. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 472 Topics in Growth and Development
This course highlights important empirical facts concerning growth and development in various countries at different development stages. Fundamental growth theory is then provided for explaining these facts systematically and for evaluating the consequences of commonly adopted development policies. Topics vary, but may include population, human capital and labor market development, R&D and innovation, finance and growth, modernization and industrial transformation, world income disparities and poverty problems, institutions and political economy issues, environmental and social factors, and international trade and economic integration. Prerequisites: Econ 4011 and Econ 4021. Credit: 3 units. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 4721 Advanced Topics in Modern Economic Growth
This course studies economic theories that explain the observed patterns of economic development across time and space. What explains the growth of the worldwide economy since the Industrial Revolution? Why are the level and the growth rate of per-capita income so different across countries? What explains the decline of manufacturing, and its growth in the early stages of development? What are the determinants of inequality and risk faced by individuals in different countries? Theories featuring the role of investment in physical and human capital, technology, coordination, financial markets, and environmental variables will be presented. Theories will be evaluated using historical data and detailed case studies. This course is designed to complement Econ 472. Prerequisites: Econ 4011. Credit 3 units. A&S IQ: SSC Art: SSC EN: S

L11 Econ 480 Labor Economics
Economic analysis of labor markets. Theory and evidence on supply of and demand for labor, explanation of wage and income differentials; impact of education on human skills and productivity. Prerequisite: Econ 4011 and Econ 413. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 483 Economics of Education
The "economics of education" involves analysis of the economic and social determinants and consequences of education. Because each person’s education is an investment in human capital which allows the individual to contribute to society in a productive way, education becomes a crucial determinant of an economy’s ability to achieve high growth with high wages, low unemployment and strong social cohesion. This course will address three essential topics from the wide-ranging field of the economics of education. The first is demand-side oriented and includes: (i) the measurement of the returns to education in the labor market (human capital theory; the central idea of education as human capital investment); and (ii) a characterization of the education production function, which relates the various inputs affecting a student’s learning (schools, families, peers, neighborhoods, etc.) to measure outputs including labor market success, graduation rates and standardized test scores. The second important topic involves political economy and the supply side: the financing and provision of education. The third part of the course is devoted to the links between education and economic development, including cross-country differences in schooling, returns to schooling and per-capita income. Prerequisites: Econ 4011, Econ 4021, and Econ 413. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 484 Computational Macroeconomics
This course provides a more in depth look into quantitative methods used in contemporary macroeconomic analysis. We will cover numerical methods used in dynamic optimization. In practice, we will apply these methods to solve two major models used in macroeconomic analysis, using both Excel and Matlab. The Neo-classical Growth Model and its variants are used to study aggregate trends and aggregate effects of government policy. The lifecycle model is used to examine questions involving decision-making over the lifecycle. We will learn how to use empirical observations for the purpose of calibrating model parameters and how to conduct policy evaluation in the context of calibrated models. Our policy evaluation will focus on fiscal policy (taxes) and social security issues. Prerequisites: Econ 4011 and Econ 4021. Credit 3 units. A&S IQ: SSC Arch: SSC Art: SSC EN: S

L11 Econ 490 Independent Work
Prerequisites: senior standing and permission of the supervising faculty member. See Academic Coordinator for further details. Note: This course does not count toward the major or minor in Economics. Credit to be determined; maximum 6 units. Credit, variable, maximum 6 units.

L11 Econ 493 Mathematical Economics
The objective of this course is to develop the mathematical tools necessary for the study of intermediate micro- and macro-economic theory and the advanced electives in economics. The principal focus will be the calculus of multivariate functions (including total and partial differentiation), unconstrained and constrained optimization of multivariate functions, and implicit and inverse function rules. Time permitting, additional topics will be introduced. Economics majors and minors must take this course (or Math 233) prior to, or concurrently with, Econ 4011. Students who have taken, or are taking, Math 233 are encouraged to take this course as well. Prerequisites: Econ 1011 and Econ 1021, and Math 132. Credit 1 unit. A&S IQ: SSC Arch: SSC Art: SSC EN: S
L11 Econ 494 Introduction to Stata
This short course introduces students to the data analysis and statistical software tools used in upper-level econometrics and applied economics courses. The course is designed to serve as a bridge between introductory econometrics and practical work with real-world databases. The course will be held in the computer classroom so that students can obtain hands-on experience with data preparation, workflow, and modeling using the Stata statistical software package. Emphasis throughout the course is placed on examples of applications in economics. PLEASE NOTE: 1. This course must be taken for a letter grade; the P/F and audit grade options are not available. 2. Students cannot use WebStac to add or drop this course after the first session -- contact dottie@wustl.edu for scheduling issues. 3. The final exam will occur on the last day of class, per the course syllabus. Prerequisites: prior completion of, or concurrent enrollment in, Econ 413. Credit 1.5 units.

L11 Econ 4941 Economic Analysis with Excel
This mini course offers students the opportunity to master the advanced functionality of Microsoft Excel, and to apply those skills to common economic, statistical, and financial problems. Even those familiar with the basic functioning of Excel may be surprised to learn how little of its full capability most users access. Though basic functions will be covered, our focus will be on leveraging Excel’s more advanced functions, analytical tools, reporting templates, and linking features to manage multiple workbooks, manipulate data across files, automate tasks, and produce publication quality charts, tables, and graphs. In addition to providing hands-on experience using Excel’s advanced capabilities, the course is designed to serve as a bridge between introductory econometrics and practical work with real-world datasets. The course will be held in the computer classroom so that students can obtain practical experience preparing data, managing workflow, and presenting results. Added emphasis throughout the course will be placed on examples with applications in economics. Prerequisites: prior completion of, or concurrent enrollment in, Econ 413 (or equivalent). Credit 1.5 units.

L11 Econ 497 Research in Economics
Opportunity to work as part of a research project under faculty supervision. Note: this course does not count toward the major or minor in Economics. May be repeated for credit. Credit variable, maximum 3 units. A&S IQ: SSC Art: SSC EN: S

L11 Econ 498 Honors Seminar
Advanced application of economic theory to policy problems. This is the first part of the two-course sequence for seniors writing an honors thesis, and it is taken in the fall semester of the senior year. This course may not be used to satisfy major requirements. Prerequisite: invitation into the “Honors in Economics with Thesis” track of the department’s Honors Program. Credit 3 units. A&S IQ: SSC EN: S

L11 Econ 499 Study for Honors
Independent reading and research under faculty direction leading to a Senior Honors Thesis. This is the second part of the two-course sequence for seniors writing an honors thesis, and it is taken in the spring semester of the senior year. This course may not be used to satisfy major requirements. Prerequisite: invitation into the “Honors in Economics with Thesis” track of the department’s Honors Program. Credit 3 units.