Economics

**ECON 5321** Microeconomic Theory for Applications (3 semester hours) For Master of Science students only. Modern approaches to the theory of the firm, the theory of the consumer, and formal relationships among the various economic functions developed using dual approaches to the optimization of objectives such as profit maximization, utility maximization, and cost minimization. Introduction to game theory; and market analysis through classical/neoclassical and game theoretic approaches. MSAE students who intend to enter the PhD program in ECON should take ECON 6301. (3-0) Y

**ECON 5322** Macroeconomic Theory for Applications (3 semester hours) For Master of Science students only. Development of modern macroeconomic theory, including national income accounts and their relation to input-output tables; classical, Keynesian, and monetarist aggregate models; behavior hypotheses of consumption, investment, and government; properties and the role of money and interest; foreign trade and investment; price rigidity, price flexibility, and employment; wage-price interaction and inflation; unemployment; and ad hoc stabilization models. MSAE students who intend to enter the PhD program in ECON should take ECON 6302. (3-0) Y

**ECON 6109** Econometrics I Lab (1 semester hour) This course uses STATA both as a data analysis tool and a programming language in econometric analysis. The course parallels ECON 6309, Econometrics I, in the topics covered in econometric data analysis. May be repeated for credit. Corequisite or prerequisite: ECON 6309. (0-1) R

**ECON 6301** Microeconomics Theory I (3 semester hours) Modern approaches to the theory of the firm, the theory of the consumer, and formal relationships among the various economic functions developed using dual approaches to the optimization of objectives such as profit maximization, utility maximization, and cost minimization. Introduction to game theory; and market analysis through classical/neoclassical and game theoretic approaches. (3-0) Y

**ECON 6302** Macroeconomics Theory I (3 semester hours) This course is the first in a sequence of core graduate macroeconomic theory courses. The main aim is to introduce students to the methods of deterministic dynamic analyses in economics. The second aim is to employ those methods in understanding aggregate empirical regularities as they pertain to economic growth with standard modern macroeconomic theory. Therefore, primary course aims include a thorough discussion of non-stochastic dynamics and optimization. Next, using these methods, exogenous and endogenous growth applications that illustrate the applied general equilibrium analyses that comprise modern macroeconomic growth theory are discussed. The course concludes with an introduction to non-stochastic overlapping generations models and discusses the role of dynamic efficiency in macroeconomic theory. (3-0) Y

**ECON 6305** Mathematical Economics (3 semester hours) Mathematical tools used in advanced topics model building and in the social and economic analysis of public policy. (3-0) Y

**ECON 6306** Applied Econometrics (3 semester hours) This course investigates the consequences of relaxing the classical linear regression model assumptions and explores solutions when the assumptions do not hold. Topics include a review of the Ordinary Least Squares (OLS) basics (including the assumptions, hypothesis testing, multicolinearity, dummy variables and heteroskedasticity), model specification and
selection, Generalized Least Squares (GLS), maximum likelihood estimation, binary choice models, simultaneous equation models, instrumental variables, time series and fixed and random effects models.

(3-0) Y

**ECON 6309** Econometrics I (3 semester hours) An introduction to econometrics, with a development of background concepts in linear algebra and statistics. The course focuses on estimation, hypothesis testing, and prediction in the classical linear regression model. Corresponding large sample issues are considered. General testing principles, such as likelihood ratio, Wald, Lagrange multiplier, and Hausman-type tests are also discussed. Other topics include model specification and nonlinear estimation issues. Recommended: ECON/GISC 6311. (3-0) Y

**ECON 6311 (GISC 6311)** Statistics for Economists (3 semester hours) The course introduces calculus-based statistical analysis and probability theory, providing background for econometrics and economic modeling of simple stochastic processes. Standard probability distributions are covered, including Bernoulli, binomial, negative binomial, hypergeometric, Poisson, normal, gamma, beta, t and F distributions. Estimation and hypothesis testing are discussed. Introductory asymptomatic theory, including the Law(s) of Large Numbers and the Central Limit Theorem, will be covered as well as real-world applications of probability theory as time permits. (2-3) Y

**ECON 6316** Spatial Econometrics (3 semester hours) The application of econometric techniques to the explicit treatment of space (geography) in social science models. Covers the specification of spatial regression models, estimation and specification testing. The emphasis is on the application of spatial econometric methods to an empirical data analysis project. Prerequisite: ECON 6306 or ECON 6309. (3-0) R

**ECON 6320** Game Theory for the Social Sciences (3 semester hours) Non-technical survey of game theory and its applications in the social sciences. Introduction to concepts such as dominant strategies, Nash equilibrium, evolutionary stability, repeated games, and games with incomplete information. Applications include collective action, conflict, bargaining, the evolution of altruism and cooperation, and signaling. (3-0) R

**ECON 6321** Financial Economics I (3 semester hours) A course in quantitative methods for investment analysis, supplemented with detailed descriptions of the prominent players and the rules of the game which prevail in major U.S. financial markets. Security valuation, fixed income pricing formulas, and basic portfolio management are covered. The key concepts and outstanding debates surrounding the efficient market hypothesis are introduced. (3-0) R

**ECON 6322** Financial Economics II (3 semester hours) Continuation of Financial Economics I. It covers core concepts in portfolio theory within the mean-variance framework, focusing on the problem of choosing a point on the efficient set. Additional topics to be covered include the CAPM model, arbitrage pricing theory, bond analysis, and the basics of the term structure. (3-0) R

**ECON 6331** Labor Economics I (3 semester hours) Labor economics is the branch of economics that deals with how labor markets function. Topics covered will include labor supply, retirement, wage structure, inequality in earnings, discrimination, and labor market frictions. This course is one of two courses in nonsequential course offerings in graduate labor economics. (3-0) R

**ECON 6332** Labor Economics II (3 semester hours) This course continues the study of theoretical and applied research of labor markets from Labor Economics I. Topics studied include demand for labor, wage
setting institutions, wage structure, investment in human capital, and labor mobility. Labor Economics I is not a prerequisite for Labor Economics II. (3-0) R

**ECON 6335** Health Economics (3 semester hours) Economic analysis of the health care industry to explain the demand for and supply of medical care. Includes analysis of behavior of consumers, producers, and insurers; and public policies to regulate the industry and to provide services for the various segments of the population. (3-0) R

**ECON 6336** Economics of Education (3 semester hours) This seminar examines theoretical and empirical writings relating to educational policy. The issues considered will include the link between educational achievement and earnings, the role of early childhood, assessments of head start and pre-school programs, the effectiveness of compensatory education and tutoring programs, the large and persistent achievement gap between children from minority and low-income families and those from middle-income Asian and white families, a critical examination of educational production functions, the extent and consequences of school segregation, bilingual education programs, special education programs, international comparisons of student achievement and schools, school finance and an examination of various school reform proposals. (3-0) R

**ECON 6340** Industrial Organization (3 semester hours) Market structure, firm conduct, and economic performance of business with emphasis on firms' strategic behavior in price and nonprice competition. Topics include oligopoly pricing and production decisions, strategic entry deterrence, location strategies, product differentiation, advertising, research and development, and the effects of firms' conduct on economic welfare and market structure. (3-0) T

**ECON 6343** Economic Regulation of Business (3 semester hours) Studies the rationale for, and the history and political-economic results of, government intervention in markets in the form of (1) direct regulation of prices, quantity, entry and exit, and product quality in industries (utility, communication, and transportation), and (2) indirect intervention through antitrust laws and the regulation of advertising. Government deregulation and changes in antitrust institutions also are explored. Prerequisite: **ECON 5321** or **ECON 6301** or **PA 7317**. (3-0) T

**ECON 6344** Transfer Pricing (3 semester hours) The economics of transfer pricing of goods, services, and intellectual property traded among units (divisions or affiliated firms) of a common parent company. Multidivisional firms and multinational enterprises use transfer pricing for coordination of divisional objectives, allocating internal resources, and maximizing after-tax profits, among other goals. Governments base firms' tax liability on transfer prices; so their taxing authorities operate to ensure transfer prices adequately reflect the value of goods and services, challenging firms' established transfer pricing if it is deemed necessary. Legal issues and methods used by private firms and government agencies for establishing transfer prices are explored. (3-0) T

**ECON 6351** Development Economics (3 semester hours) An overview of theories of national economic growth and development in the context of developing countries. This includes macroeconomic models; the role of financial development, trade, and agriculture; domestic sectoral policy; human resource development; the environment; and poverty. (3-0) R

**ECON 6352 (POEC 6360)** World Political Economy (3 semester hours) An overview of the major economic, social, political and cultural forces that influence the nature of the international economic and political
environment, as well as global economic and political relations. Topics include: theories of global political economy; economic and political transformation in Eastern Europe, China and the former Soviet Union; democratization and development in the less developed countries; military and non-military approaches to national and international security; environmentally sustainable economic development; and the international implications of technological failure. (3-0) T

ECON 6355 International Trade (3 semester hours) Provides a broad overview of theory and evidence concerning international trade, direct foreign investment and trade policy. Topics include scale economies, imperfect competition, and product differentiation, trade dynamics, economic growth, trade policies, and the political process. (3-0) R

ECON 6356 International Finance (3 semester hours) Financial aspects of growth and income determination in open economies. Specific topics include financial risk in the international setting; money and exchange rate regimes; income determination and macroeconomic policy; history of international monetary arrangements, and current issues in international monetary reform. (3-0) R

ECON 6362 (POEC 6353) Industry, Technology, and Science Policy (3 semester hours) Focuses on the impact of social, economic, and political factors on industry as critical units of production, and how these interact with technology and science. Topics include availability of skilled labor, research and development in industry, business-university relationships, innovation, and international competitiveness of the U.S. economy. (3-0) Y

ECON 6363 Public Economics I (3 semester hours) Examines the economic role of government in a mixed economy. Surveys where markets fail. In particular, it studies externalities, public goods, club goods and related topics. Prerequisite: ECON 5321 or ECON 6301. (3-0) R

ECON 6371 (SOC 6341) Urban Economics (3 semester hours) Presents methods and models for understanding urban growth and development processes. Topics include analysis of urban growth, land use patterns, transportation and local public good delivery systems. Welfare consequences of various urban policy options are explored. (3-0) R

ECON 6372 (PA 6342) Local Economic Development (3 semester hours) This class will examine the role of local governments in promoting economic development in the United States, and will analyze the economic development process. Attention will be given to economic theories of local development and practical implications of those theories. Topics include local economic development and poverty, tax incentives, infrastructure credits, firm location decisions and effects of government competition for economic activity. (3-0) S

ECON 6380 Experimental Economics I (3 semester hours) Introduction to the methodology of laboratory experimental economics, including principles of experimental design, development of effective protocols, research with human subjects, and statistical analysis of experimental data, designing experiments to test theory, experimental measurement of preferences and attitudes, and market and institutional "wind-tunnel" design. Prerequisites: ECON 6301 and ECON 6309, or instructor's permission. (3-0) T

ECON 6v00 Tools for Economic Research (2-3 semester hours) First two credit hours examines single and multivariate calculus at a level appropriate for entering PhD and MS students in economics, functional areas of business, and social sciences. Includes optimization theory and matrix algebra. Those enrolled in the optional 3rd credit hour will receive basic instruction in a statistical package (e.g., STATA). Pass/fail only.
**ECON 6v01** Independent Study (1-9 semester hours) Provides faculty supervision for student's individual study of a topic agreed upon by the student and the faculty supervisor. Prerequisite: Consent of instructor. May be repeated for credit (9 hours maximum). ([1-9]-0) R

**ECON 7301** Microeconomics Theory II (3 semester hours) General equilibrium theory of markets and welfare economics; discusses the problems of existence, stability, efficiency, and equity of economic equilibrium; and introduces social choice and the special problems created by public goods, externalities, and uncertainty. Recommended: **ECON 6301**. (3-0) Y

**ECON 7302** Macroeconomics Theory II (3 semester hours) This course is the second in a sequence of core graduate (doctoral level) macroeconomic theory courses. The main aim is to introduce students to the methods of stochastic dynamic analyses in economics. The second aim is to employ those methods in understanding aggregate empirical regularities, for instance as they pertain to business cycles, with standard modern macroeconomic theory. Therefore, primary course aims include a thorough discussion of stochastic dynamics and optimization. Next, using these methods, applications that illustrate the applied general equilibrium analyses that comprise: modern macroeconomic business cycle theory, consumption, asset pricing and topics in 'behavioral' macroeconomics are discussed. Recommended: **ECON 6302**. (3-0) Y

**ECON 7303** Microeconomics Theory III (3 semester hours) Primarily a course on the role of strategic interdependence in economics using game theory. Topics include noncooperative games, simultaneous-move games and dynamic games with applications from a wide variety of fields in economics. (3-0) T

**ECON 7309** Econometrics II (3 semester hours) This is the second core course in the econometrics sequence of the economics Ph.D. program. The course extends the topics covered in the first course and covers topics such as serial correlation, unit roots, cointegration, and dynamic models; panel data; simultaneous equation models, maximum likelihood and GMM estimations methods. (3-0) Y

**ECON 7311** Special Topics in Econometric and Spatial Analysis (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). However, students may not take more than 3 hours of the field requirement from **ECON 7311**. (3-0) R

**ECON 7315** Econometrics III (3 semester hours) This is the third core course in the econometrics sequence of the economics Ph.D. program. The course extends the topics covered in the first two courses and covers topics such as Bayesian, semiparametric and nonparametric estimation approaches; discrete choice models, limited dependent variable models and duration models; and bootstrap and jackknife methods. Prerequisite: **ECON 6310**. (3-0) Y

**ECON 7316** Game Theory (3 semester hours) Advanced treatment of topics in noncooperative game theory. May also include a brief survey of cooperative game theory. Major topics covered include correlated equilibrium, equilibrium refinements, evolutionary stability and dynamics, multi-level selection, revelation principle, strategic substitutes and complements, uniqueness and comparative statics. Prerequisites: **GISC 7310** or **EPPS 7316** or **ECON 6306** or permission of instructor. (3-0) R

**ECON 7321** Special Topics in Labor Economics (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). However, students may not take more than 3 hours of the field requirement from **ECON 7321**. (3-0) R
**ECON 7331** Special Topics in Industrial Organization (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). However, students may not take more than 3 hours of the field requirement from **ECON 7331**. (3-0) R

**ECON 7341** Special Topics in International Development (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). However, students may not take more than 3 hours of the field requirement from **ECON 7341**. (3-0) R

**ECON 7351** Special Topics in Public Economics (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). However, students may not take more than 3 hours of the field requirement from **ECON 7351**. (3-0) R

**ECON 7363** Public Economics II (3 semester hours) A study of positive and normative theories of taxation, the effect of taxation on behavior, behavioral public finance and related topics. Prerequisite: **ECON 6363**. (3-0) R

**ECON 7381** Special Topics in Experimental and Behavioral Economics (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). However, students may not take more than 3 hours of the field requirement from **ECON 7381**. (3-0) R

**ECON 7391** Special Topics in Economics (3 semester hours) Topics vary from semester to semester. May be repeated for credit (9 hours maximum). (3-0) R

**ECON 7v01** Literature Survey/Paper Seminar (3 or 6 semester hours) Students registering for this seminar work towards the completion of their literature survey requirement. Course includes oral presentations and progress reports. ([3 or 6]-0) R

**ECON 7v02** Research in Economics (3-6 semester hours) Topics vary from semester to semester. May be repeated for credit. Prerequisite: Consent of instructor. ([3-6]-0) R

**ECON 7v03** Research Paper Seminar (3-6 semester hours) Students registering for this seminar work towards the completion of their research paper requirement. Oral presentations and progress reports. ([3-6]-0) T

**ECON 8v01** Dissertation Seminar (3-9 semester hours) A seminar for students preparing proposals or writing dissertations. Prerequisite: Successful completion of qualifying examination or consent of instructor. May be repeated for credit. ([3-9]-0) R

**ECON 8v02** Dissertation (1-9 semester hours) Provides faculty supervision of a student's dissertation research. May be repeated for credit. Prerequisite: Consent of instructor. ([1-9]-0) Y

**ECON 8v97** Internship (1-9 semester hours) Provides faculty supervision for a student's internship. Internships must be related to the student's course work. Internships are mainly intended for terminal MSAE students. Prerequisite: Consent of instructor. ([1-9]-0) R