

# Course Descriptions

## Graduate Courses in Economics

**ECO 5301 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

**ECO 5302 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

**ECO 5309 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

**ECO 5311 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 OLS basics (including the assumptions, hypothesis testing, multicollinearity, dummy variables and heteroskedasticity), model specification and selection, GLS, maximum likelihood estimation, binary choice models, simultaneous equation models, instrumental variables, and fixed and random effects models. (3-0) Y

**ECO 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 PhD program in ECO should take ECO 5301. (3-0) Y

**ECO 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 PhD program in ECO should take ECO 5302. (3-0) Y

**ECO 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 ECO 6309, Econometrics I, in the topics covered in econometric data analysis. Corequisite or prerequisite: ECO 6309. (1-0) Y

**ECO 6307 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. ECO 5301 recommended. (3-0) Y

**ECO 6308 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.

ECO 5302 recommended (3-0) Y

**ECO 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, and Hausman-type test are also discussed. Other topics include various specification issues and qualitative dependent variable models. ECO 5311 recommended. (3-0) Y

**ECO 6310 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 panel data, simultaneous equations, maximum likelihood and GMM estimations. Discrete choice models, limited dependent variable models and duration models are also studied. (3-0) Y

**ECO 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 asymptotic 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. (3-0) Y

**ECO 6314 (POEC 6318) Structural Equation and Multilevel (Hierarchical)**

**Modeling** (3 semester hours) An introduction to structural equation modeling (SEM) and multilevel modeling (MLM), sometimes called hierarchical linear or mixed modeling. SEM represents a general approach to the statistical examination of the fit of a theoretical model to empirical data. Topics include observed variable (path) analysis, latent variable

models (e.g., confirmatory factor analysis), and latent variable SEM analyses. MLM represents a general approach to handling data that are nested within each other or have random components. Topics include dealing with two-level data that may be cross-sectional, such as students within classes, or longitudinal, such as repeated observations on individuals, firms, or countries. Prerequisite: ECO 5311 or ECO 6309 or POEC 5316 or consent of instructor. (3-0) R

**ECO 6315 (POEC 7370) Time Series Econometrics** (3 semester hours) This course examines econometric issues encountered in the analysis of time series data from a perspective of both estimation and forecasting: various forms of serial correlation within classical regression models, ARCH and GARCH models, Box-Jenkins ARIMA models, unit root models and cointegration, and modeling economic dynamics with VAR and other techniques. Prerequisite: ECO 5311 or ECO 6309 (3-0) R

**ECO 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: POEC 5311 or equivalent. (3-0) R

**ECO 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) T

**ECO 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) T

**ECO 6325 (POEC 7304) Cost Benefit Analysis** (3 semester hours) Examines methods for measuring costs and benefits of public projects and policies, and the application of cost benefit analysis to areas such as economic development, water resources, recreation, transportation, regulation, and the environment. (3-0) R

**ECO 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 the nonsequential course offerings in graduate labor economics. (3-0) T

**ECO 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) T

**ECO 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

**ECO 6336 (POEC 7319) 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

**ECO 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

**ECO 6343 (POEC 7323) 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: ECO 5321 or ECO 5301 or POEC 5307 (3-0) T

**ECO 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

**ECO 6345 (POEC 7327) Innovation Dynamics and Economic Change** (3 semester hours) Examines patterns and processes of technological and organizational innovation in technology-intensive industries. Special attention given to industries in the broad IT-Telecom sector heavily represented in the Dallas regional economy. Focuses on the institutional, economic, political, and sectoral contexts in which the continued development must be interpreted, with a focus on how rapid technical advance has emerged as a key criterion for competitiveness. (3-0) T

**ECO 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; poverty. (3-0) R

**ECO 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)

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**ECO 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

**ECO 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

**ECO 6358 (POEC 6368) Population and Development** (3 semester hours) Examines the relations between population, resources, economic development, and the environment in light of conflicting Malthusian and anti-Malthusian paradigms. Topics include fertility, mortality, public health, human capital, use of resources, and environmental impacts at local, regional, and global scales. (3-0) R

**ECO 6361 Public Sector Economics** (3 semester hours) Examines the economic role of government in a mixed economy. Surveys why markets may fail and explores governmental strategies of intervention in light of these failures. Expenditure and tax policies are studied with attention to effects on both efficiency and distribution. (3-0) T

**ECO 6362 (POEC 6368) Industry, Technology, and Science Policy** (3 semester hours) An examination of the bi-directional relationship of science and technology to the economy and society. Topics include: the nature of technology; technology as magic – the technological fix; technological progress, productivity and global industrial competitiveness; the economic and social shaping of science and technology; the role of government policy; human fallibility and dangerous technology; appropriate technology and economic development; and science, technology and the environment. (3-0) T

**ECO 6363 Public Economics I** (3 semester hours) A study of externalities, public goods, club goods and related topics. Prerequisite: ECO 5301 or ECO 5321 (3-0) R

**ECO 6365 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: ECO 6361 or ECO 6363 (3-0) R

**ECO 6371 (PA 6341, POEC 6341 and 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

**ECO 6372 (POEC 6342) Local Economic Development** (3 semester hours) Examines the role of local governments in promoting economic development in the United States. This course analyzes the economic development process through economic theories of

local development and examines 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) R

**ECO 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: ECO 5301 and ECO 6309, or instructor’s permission. (3-0) T

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

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

**ECO 7331 (POEC 7329) Special Topics in Industrial Organization** (3 semester hours) Topics vary from semester to semester. May be repeated for credit to a maximum of 9 hours. However, students may not take more than 3 hours of the field requirement from ECO 7331. (3-0) R

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

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

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

**ECO 7391 Special Topics in Economics** (3 semester hours) Topics vary from semester to semester. (May be repeated for credit to a maximum of 9 hours.) R

**ECO 7V01 Survey/Research Seminar** (3 or 6 semester hours) Students registering for this seminar work towards the completion of their literature survey or their research project. Oral presentations and progress reports, as well as a presentation of the final product. [3-6]-0 R

**ECO 7V02 Research in Economics** (Variable number of semester hours) Topics vary from semester to semester. May be repeated for credit. Prerequisite: Consent- of Instructor. [1-9]-0 R

**ECO 8V01 (POEC 8398) Dissertation Seminar** (Variable number of 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)

**ECO 8V02 Dissertation** (Variable number of semester hours) Provides faculty supervision of a student's dissertation research. May be repeated for credit. Prerequisite: Consent of instructor. ([1-9]-0) Y

**ECO 8V97 Internship** (3-6 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