

Course Descriptions

Business Economics Courses

MEC 625 Industrial Organization I

Starting from the 1970s, an increasing number of economic theorists have become interested in Industrial Organization. Non-cooperative game theory became the standard tool to analyze strategic conflicts and it lent itself naturally to the analysis of industrial organization topics (until then, the tools of general equilibrium analysis were not ideal to tackle the same issues). The course aims to give you a concise but solid background of the classical results in IO theory, and then to highlight some very recent contributions to the same literature. We will give particular attention to the topics that are complementary to empirical analysis.

Since IO theory has become increasingly formal in the last years, familiarity with the theoretical game tools covered in the first year Micro sequence is essential. The best reference for theoretical game tools is the book *A Course in Game Theory* by M.Osborne and A.Rubinstein (1994) (*Game Theory* by D.Fudenberg and J.Tirole is also good). To avoid wasting time going over the most basic materials, you should at least have read the relevant parts of the Tirole book before class.

MEC 626 Industrial Organization II

The course focuses on research methods in empirical industrial organization. Every week, we will cover 1-2 recent empirical papers centered on a particular area of Industrial Organization. We will discuss in detail the research question, relevant theories, sources of identification, data, estimation techniques, and economic significance. There is no textbook.

B54 MEC 661 Analysis of Time Series Data

B54 MEC 670 Seminar in Econometrics I

The purpose of this course is to provide a comprehensive, wide-ranging exposure to Bayesian inferential methods. Assuming little to no prior knowledge of Bayesian statistics, the course develops the Bayesian way of thinking about model development (with emphasis on hierarchical model formulations), estimation, model comparison and prediction. The needed expertise in Markov chain Monte Carlo (MCMC) methods is also developed. All the computations are illustrated in R which is also taught in the course. The ideas are illustrated with models that arise in many different fields, for example, models dealing with binary and ordinal outcomes, panel data, change-points, and data from randomized experiments with imperfect compliance. Both parametric and non-parametric models are discussed. Students are expected to complete an individual (non-group) project in which the techniques developed in the course are applied to a problem of research importance. The course should be valuable for a variety of graduate students including those with primary interest in economics, statistics, econometrics, finance, marketing, operations, accounting, political science, and biostatistics.

B54 MEC 648 Independent Study in Economics

Internship must be arranged by the student and approved by the advising faculty member. An outline of objectives must be submitted to the PhD Office prior to enrollment. May be taken a maximum of five (5) times for credit. Credit, variable; fifteen (15) credits combined total.

B54 MEC 699 Directed Readings in Managerial Economics

A program of readings developed by and with the approval of one or more members of the Economics faculty. Prerequisite, approval of the Director of the PhD program. Credit, variable. May be taken up to two (2) times for credit; six (6) credits combined total.

Other Courses

B53 MGT 605 Research Internship

Three (3) credits are required for the PhD. Under the direction of a faculty member, students will work (and be graded) on their own research project. This requirement will be completed when students are at candidacy and preparing a dissertation proposal. Internship must be arranged by the student and approved by the advising faculty member. An outline of objectives must be submitted to the PhD Office prior to enrollment. An additional nine (9) credits may be taken; maximum of twelve (12) credits allowed.

B53 MGT 610 Dissertation

Maximum of twelve (12) credits allowed, six (6) per semester. Prerequisite: submission of Title, Scope, and Procedure Form and successful Proposal of dissertation.

B53 MGT 620 Empirical Methods in Business

The objectives of this course are to train PhD students in different business disciplines to understand how to use data to address research questions, how to build econometric models that can be applied to data, and how to estimate the econometric models using some statistical packages. This course emphasizes on empirical data handling and estimation issues. Prerequisites: students are expected to have basic statistical knowledge such as random variables and distributions, tests of statistical hypothesis, basic linear regression and maximum likelihood estimation.

B53 660 Seminar on Presentation Skills

The goal of this course is to teach students the basic principles of effective research communication sufficiently early in the program, so that they have multiple opportunities to practice and hone their skills. The learning objectives are as follows: 1) demonstrate knowledge of how to organize thoughts and write research papers effectively. 2) demonstrate ability of how to design effective presentation decks for seminars and conference presentations and 3) Improve the critical thinking that underlies research before, during, and after its completion.

Core Foundation Courses

L11 Econ 501 Macroeconomics I

The first of a two semester sequence on graduate macro theory. The focus is on determination of aggregate income, employment, and prices with emphasis on static theory and the microfoundations of macroeconomics, including consumption and investment behavior, static models of income and price determination, problems of unemployment and inflation, and alternative theories of the roles of fiscal and monetary policy.

L11 Econ 502 Macroeconomics II

The second in a two-semester sequence on graduate macro theory. Dynamic problems are emphasized, particularly stability analysis, formal models of the business cycle, the role of macroeconomic policy in dynamic and stochastic models, and models of economic growth.

L11 Econ 503 Microeconomics I

The first of a two-semester graduate sequence in microeconomic theory. The courses cover the determination of relative prices and quantities exchanged of final products and factors of production. The first semester considers production and costs, supply of output and demand for inputs, demands for final products, market organization, time and capital. Fall.

L11 Econ 504 Microeconomics II

The second of a two-semester graduate sequence in microeconomic theory. The second semester considers the further development of individual consumer behavior, aggregated demand, general equilibrium analysis, Leontief models, consumer's surplus analysis, social choice, and expected utility analysis. Spring.

L11 Econ 511 Quantitative Methods in Economics I

Study of those topics of mathematics of special usefulness in economic research. Selection and ordering of topics will vary with level of student preparation but will usually include the following: vectors, matrices, lines mappings; their manipulation and elementary properties; elementary topology, and elements of multidimensional calculus. Fall.

L11 Econ 512 Quantitative Methods in Economics II

Introduction to mathematical statistics designed to provide a background for the study of econometrics. Selection of topics will usually include: probability, introduction to distribution theory, including limiting distributions and distributions of quadratic terms, Bayes Theorem, and hypothesis testing. 3 class hours a week. Fall.

L11 Econ 513 Introduction to Econometrics

Classical multiple regression analysis and an introduction to generalizations useful in empirical research in economics, including a framework for dealing with problems of multicollinearity, specification error, heteroskedasticity, serial and contemporaneous correlation, identification and consistent estimation in simultaneous equation models. Spring, odd years.

L11 Econ 516 Applied Econometrics

Introduction to econometrics as it is applied in microeconomics and macroeconomics (modular). Topics related to the analysis of microeconomic data include maximum likelihood estimation and hypothesis testing; cross-section and panel data linear models and robust inference; models for discrete choice; truncation, censoring and sample selection models; and models for event counts and duration data. Topics related to the analysis of macroeconomic data include basic linear and nonlinear time series models; practical issues with likelihood-based inference; forecasting; structural identification based on timing restrictions and heteroskedasticity; and computational methods for hypothesis testing and model comparison. Prerequisite: Econ 512. Spring, even years.

Course descriptions represent courses offered recently. Not all courses are offered every semester, and it is important to check with Olin Business School prior to scheduling classes to determine course availability for any given semester. Olin Business School reserves the right to make changes in the course offerings and descriptions.