Master's in Economic Analysis: Program of Study

Content of the courses

Microeconomics I: Choice and Decision Theory -- 3 credits

Microeconomic theory of individual decision making in the settings of consumption and production decisions. General Equilibrium, introductory examples.

Econometrics I: Fundamentals of Econometric Theory – 3 credits

Finite Sample Properties of Ordinary Least Squares. Large Sample Properties with Random Sampling. Instrumental Variable Methods. Maximum Likelihood Methods. Topics in Time Series.

Mathematics for Economics – 3 credits

A brief review of the essential mathematical concepts and notation most likely to be encountered in economic theory. Topics include: Single-variable and multivariate calculus. The algebra of vectors and matrices. Unconstrained and constrained optimization (Lagrange and Kuhn-Tucker). Difference equations. Dynamic optimization. Topology of Euclidean space (convergence, continuity, compactness). Convex sets. Correspondences. Fixed point theorems and applications to the existence of Nash or Walrasian equilibria. Differential equations (time permitting).

Macroeconomics I: Growth and overlapping generation model (starts in October) – 3 credits

The Solow growth model. Empirical investigations on economic growth/growth and human capital. Optimal growth: the Ramsey growth model. The OLG model. Endogenous growth, AK model. Endogenous technical change.

Applications of Econometrics I (10 hours) – 3 credits

Applications of Econometrics I to real data using Python, Stata and R: simple linear regression, ordinary linear regression, randomized controlled trial, multiple linear regression on cross-sectional data, multiple linear regression on panel data.

2nd term, January to March

Macroeconomics II: Fluctuations – 3 credits

Overview of current economic fluctuations theories, with a special focus on the inflation-unemployment tradeoff from Dynamic Stochastic General Equilibrium (DSGE) models. Resolution and simulation, qualitative and quantitative evaluations of such models under rational expectations hypothesis. Analysis of optimal stabilization policies.

Microeconomics II: Game Theory and Choice under Uncertainty – 3 credits

Risk and Uncertainty. Decision under uncertainty. General Equilibrium under uncertainty. Main concepts and tools of game theory.

Applications of Econometrics II – 3 credits

An applied course that relies on statistical softwares. Specific identification techniques used in the empirical literature (e.g., Propensity Score Matching, Differences in Differences, Regression Discontinuity Design and Natural Experiments). Nonlinear regression (using binary Probit/Logit/Poisson models and machine learning algorithms), Autoregressive models. Simple linear regression on time series (CAPM model with heteroskedasticity tests and tests for the autocorrelation of the error term). Examples using datasets, notably those from articles published in the best scientific journals.

2 elective courses among any of the three specializations below

Public Policy

Public Economics – 3 credits

Provision of public goods. Taxation and its impact on economic behavior (e.g., labor supply, savings decisions), economic equilibrium (tax incidence), under informational imperfections and other distortions. Analysis of indirect taxation, taxation of capital, nonlinear taxation of income. This course combines theoretical models with empirical evidence.

Labor Economics – 3 credits

Themes in modern labor economics, focus on microeconomic models and empirical research with relevant policy implications. The role of human capital accumulation, wage determinants, education economics and labor supply. Discussion of some macroeconomic issues about employment and unemployment.

Industrial Organization

Industrial Organization – 3 credits

Main techniques and themes of Industrial Organization: strategic behavior of firms, market competition, competition and antitrust policy.

Empirical Industrial Organization – 3 credits

Structural empirical models in Industrial Organization. Demand modeling in IO and their applications, analysis of structural estimation of auction models, regulation, asymmetric information models and entry models.

Environmental Economics

Environmental Economics – 3 credits

This course introduces students to how economic analysis can be used to understand current environmental issues. Lectures include applications (applied theory and empirics) to economic development and environmental degradation, the economics of biodiversity, and energy.

Public Economics – 3 credits

Provision of public goods. Taxation and its impact on economic behavior (e.g., labor supply, savings decisions), economic equilibrium (tax incidence), under informational imperfections and other distortions. Analysis of indirect taxation, taxation of capital, nonlinear taxation of income. This course combines theoretical models with empirical evidence.

International Economics

International Trade – 3 credits

Traditional and more recent theories of international trade. Ricardian and Hecksher-Ohlin models, extension to many goods and factors. Models of trade with imperfect competition. Gravity equations. Trade from the point of view of individual firms.

Research Topics in International Trade – 3 credits

The purpose is to provide an understanding of cutting-edge research topics in the field of International Trade with a specific focus on heterogeneous firms and micro data analyses.

3nd term, April to June

Master's Thesis -- 26 credits

The master's thesis is a piece of original scholarship, written under the direction of a faculty advisor, on a relevant topic in economics the student is interested in. Students are strongly advised to find a supervisor by the beginning of the academic year. Meetings with professors to discuss possible topics will be organized.

Research seminar I: Professors seminar -- 1 credit

The role of this seminar is to develop critical thinking skills through active participation and writing of referee reports by students. Students will have to write a referee report on (at least) one of the papers presented at seminars. By the end of the term, students must be able to read a research paper, to know how to replace it in the literature, how to identify its strengths and weaknesses and to write an effective referee report.

Research seminar II: Students seminar -- 3 credits
The objective of this seminar is to develop students' oral skills and ability to present research papers, as well as to develop critical thinking through the discussion of other students' presentations. Each student makes several presentations to other students and professors. He/she presents some research papers related to the topic of his/her master thesis and focuses on his/her own research subject and methodology.