Syllabus

Course Description

Course Title	Econometrics for Economics
Course Code	27347
Course Title Additional	
Scientific-Disciplinary Sector	SECS-P/05
Language	English
Degree Course	Bachelor in Economics and Management
Other Degree Courses (Loaned)	
Lecturers	Prof. Francesco Ravazzolo, Francesco.Ravazzolo@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/36066 Dr. Gery Andres Diaz Rubio, GeryAndres.DiazRubio@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/51046
Teaching Assistant	
Semester	First semester
Course Year/s	3
CP	6
Teaching Hours	36
Lab Hours	20
Individual Study Hours	-
Planned Office Hours	
Contents Summary	- Matrix Algebra, Stochastic Issues and Distribution Theory - Linear Regression with a Single Regressor and with¿ Multiple Regressors - Hypothesis Tests and Confidence Intervals in Linear¿Regression Models

	- Special topics in linear regressions, such as¿ heteroscedasticity and autocorrelation
	- Regression with Panel Data (Advantages and limitations of¿ fixed and random effects regression)
	- Regression with a Binary Dependent Variable, Categorical¿ data analysis
Course Topics	This introductory econometrics course provides a comprehensive overview of statistical methods for analyzing economic data. It starts with the foundational concepts of Matrix Algebra, Stochastic Issues, and Distribution Theory, which are essential for understanding the underlying principles. The core of the course focuses on Linear Regression, beginning with a single regressor and expanding to models with multiple regressors. The students will learn to perform Hypothesis Tests and construct Confidence Intervals to draw valid conclusions from your data. The curriculum also addresses common real-world challenges in regression, such as heteroscedasticity and autocorrelation. Finally, the course covers advanced topics in data analysis, including a detailed examination of Regression with Panel Data, exploring the differences between fixed and random effects, and methods for analyzing qualitative data through Regression with a Binary Dependent Variable and Categorical Data Analysis.
Keywords	Linear Regression, Hypothesis Testing, Panel and Binary Data, Econometric models
Recommended Prerequisites	Basic knowledge of statistics and mathematics
Propaedeutic Courses	
Teaching Format	Lectures, practical labs, group project, face-to-face coaching and mentoring, guest lectures from external experts.
Mandatory Attendance	Attendance not compulsory but recommended
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding Area: Quantitative methods for decision-making Mastery of basic and intermediate mathematical tools for understanding and analysing economic mechanisms using theoretical models and empirical applications Knowledge of tools for statically, dynamically and comparatively

	analysing data on individuals, companies and the economy
	Knowledge and understanding of descriptive statistics, the basics of probability theory and sampling methods, standard distributions and their application to economic analyses as well as linear and non-linear regression
	Knowledge of parametric estimation and hypothesis testing
	Knowledge of the computer tools required for reading and analysing economic data and models
	Knowledge of the structure of computer networks, their most important applications and security techniques as well as techniques for collecting, visualising and analysing data using suitable software
	Knowledge of international accounting systems and double-entry bookkeeping for recording and evaluating business transactions
	Understanding of annual financial statements
	Thorough knowledge of accounting data collection or management control
	Knowledge of the analysis method for estimating present values and discount factors for estimating the cost of capital and the valuation of bonds and shares
	Knowledge of the methods of medium and long-term financial forecasting and sensitivity analysis with simulation under uncertainty for risk management in the area of corporate and international finance
	Knowledge and understanding of the international financial environment, multinational risk defence techniques and competitive strategies of global banks
	Knowledge of the mechanisms underlying effective communication of quantitative topics in three languages: Italian, German and English
	Ability to apply knowledge and understanding
	Area: Quantitative methods for decision making
	Ability to analyse problems in (unconstrained) optimisation and mathematical interpretation of models of social and economic dynamics
	be able to formalise and solve economic problems using mathematical models and interpret the results conceptually
	be able to analyse economic data using methods of descriptive, parametric and non-parametric statistics as well as linear and non-

	linear regression and interpret the results
	be able to apply international accounting standards to the various contexts of corporate reality
	Know how to derive and interpret economic information from the Internet
	Know how to use computers and computer networks to analyse large amounts of data to solve complex problems and to write dissertations and articles
	Know how to use spreadsheet programmes to value fixed-interest financial instruments and shares in listed companies
	be able to analyse financial statements using financial ratios and communicate the results in accordance with international professional standards
	be able to apply the most important theories about capital, foreign exchange and commodity markets to current observational data, including international data
	Knowledge of how to set up and carry out an empirical project using econometric software and financial or economic databases
	Be able to apply techniques to evaluate the performance of financial assets and understand the pricing mechanisms of high-risk financial assets and of spot and forward interest rates
	Ability to use basic and intermediate mathematical and statistical tools to investigate the behaviour of economic agents from a theoretical and empirical perspective
	Knowledge of analysing economic data using spreadsheets or other suitable software
	knowledge of the use of computerised tools for analysing economies
	be able to communicate the results of quantitative analyses carried out according to international professional standards in three languages: Italian, German and English
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	For attending students doing the mid-term assignment: written exam and a mid-term assignment. The written exam includes an essay and practitcal questions to test knowledge of theory, method and application skills. Oral group assignment carried in groups in the mid-term in a form of a presentation.

	For non-attending students or attending students without mid-term assignment: written exam. The written exam includes two essays and several practical questions to test knowledge of theory,
Evaluation Criteria	Final mark for students doing the mid-term assignment is a sum of marks from the group assignment and a written exam. Student will analyse econometric problems in both academic and practical contexts, displaying effective quantitative problem-solving skills. With a clarity of answers and mastery of research method, ability to collect and process the data, make critical comparisons and judgements, summarize, establish and measure the relationships within the project. An assignment also test student's ability to work in a team, creativity, IT and communication skills, critical thinking, cooperation and demonstrate individual's reflection and judgement. Final written exam. Final mark for students without the mid-term assignment is the result of the written exam.
Required Readings	Slides provided by professor.
Supplementary Readings	Christiaan Heij, Paul de Boer, Philip Hans Franses, Teun Kloek, and Herman K. van Dijk, Econometric Methods with Applications in Business and Economics, Oxford University Press. Marno Verbeek, A Guide to Modern Econometrics, Wiley 4th Edition. Jim H. Stock and Mark W. Watson, Introduction to Econometrics, Pearson International 3d Edition.
Further Information	
Sustainable Development Goals (SDGs)	Quality education, Gender equality, Partnerships fot the goals, Industry, innovation and infrastructure, Climate action, Decent work and economic growth