Syllabus

Course Description

Course Title	Applied Econometrics
Course Code	27277
Course Title Additional	
Scientific-Disciplinary Sector	SECS-P/05
Language	German
Degree Course	Bachelor in Economics, Politics and Ethics
Other Degree Courses (Loaned)	
Lecturers	dr. Jan Ditzen, Jan.Ditzen@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/44644
Teaching Assistant	
Semester	Second semester
Course Year/s	2
CP	7
Teaching Hours	42
Lab Hours	21
Individual Study Hours	-
Planned Office Hours	21
Contents Summary	The course introduces students to modern applied econometric methods by a mix of lecture, computer classes and tutorials. Each topic is discussed from a methodological and applied perspective. At the end of the course, students will be able to successfully work on quantitative problems and questions which are apparent in management and social science research.
Course Topics	- Linear Regression with a Single Regressor: estimation, hypothesis testing and confidence interval - Linear Regression and with Multiple Regressors - Hypothesis Tests and Confidence Intervals in Multiple Regression

	- Further Topics: quadratic terms, dummy variables and predictions - Special Topics: Endogeneity and Heteroskedasticity - Introduction into Time Series and Panel Data Econometrics - Brief Introduction into difference in difference estimations and their importance for policy evaluation - Brief introduction into machine learning and spatial models
Keywords	Linear Regression model; hypothesis testing; cross-sectional data; time series data; panel data
Recommended Prerequisites	
Propaedeutic Courses	Probability and Statistics course strongly suggested
Teaching Format	Lectures and exercises will be in person, recordings will be available via Teams.
Mandatory Attendance	Suggested, but not mandatory
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding By the end of the programme, students will have acquired the following knowledge and skills: 1. analyse the demand and supply of goods and services; 2. the ability to understand the price mechanism in market economies; 3. the ability to apply the concepts of game theory to the economic behaviour of public and private actors; 4. the ability to understand the role of governments in market economies; 5. the ability to analyse the behaviour of economic variables in the short, medium and long run; 6. the ability to place economic thinking in a historical context and to assess the role of technology and social change in the development of economic thinking; 7. the ability to understand complex texts in the field of economics in the three languages of instruction; 8. the ability to analyse human behaviour in organisations; 9. the ability to understand theories of organisational decision-making; 10. the ability to understand how political decisions are made and how these decisions affect the economy; 11. recognising and understanding the conditions necessary for sustainable economic development, taking into account the environment and natural resources;

	12. understand the reasons for economic growth and development of countries; 13. understand the basic principles of the functioning of labour markets; 14. estimation and interpretation of econometric models for the empirical analysis of the above problems. At the end of the programme, students will have acquired the following knowledge and skills: 1. knowledge of mathematical techniques for solving optimisation problems; 2. knowledge of the elements of probability and inference required to use statistical models 3. the ability to model social and economic phenomena; 4. the ability to economically interpret the results of the various mathematical-statistical models used in economics; 5. basic knowledge of data management and computer programming for the statistical and econometric analysis of socio-economic data; 6. knowledge of the specialised vocabulary of the topics in this field of study. Ability to apply knowledge and understanding - the ability to communicate fluently and spontaneously with native speakers on economic topics; - the ability to independently analyse data and explain empirical relationships between real phenomena - the ability to create and test simple statistical and econometric models; - the ability to apply quantitative methods to solve economic problems; - reading, writing and communication skills in relation to the technical language of quantitative methods in the three official languages of instruction Making judgements Acquire the necessary judgement and methodological tools to critically analyse data, sources, assumptions and implications of scientific practice and the political, ethical and legal contexts in which economic phenomena are situated and with which they

	interact. Communication skills Proficiency in written and spoken Italian, German and English, including the translation of these languages. Intercultural competence. Conceptual conciseness, ability to capture facts in writing, especially for scientific and science-based texts Learning skills Promotion of critical thinking and analytical skills to recognise complex problems in their long-term dynamics and in the diversity of their - also ethical - implications
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Group Work (voluntary; 20%) : Attending and non attending students can participate in a data research project which counts for 20% of the final grade. Students will work on a practical empirical project using real data and the statistical software R. The task will involve data management, writing R script files and the interpretation of results. Project works are valid for 1 academic year and cannot be carried over beyond that time-frame. Final written exam (80% if students participated in group work, 100% otherwise): students will have to solve theoretical, practical, and computational issues concerning a given concrete problem showing knowledge and understanding of the covered theories and methods. The assessment mode is the same for attending and non-attending students.
Evaluation Criteria	All students must reach a passing grade on the combined grade of the written exam and the take home research project. The following aspects are relevant for the exam: correctness of answers, ability to interpret R outputs and a critical assessment of regression results considering econometric and economic theory. The following aspects are relevant for the take home research project: correctness of answers, ability to run successfully an

	econometric project in R, interpretation of R outputs and critical assessment of results.
Required Readings	J. M. Wooldridge, Introductory Econometrics: A Modern Approach, Cengage, 6th Ed. ISBN 9781305270107
Supplementary Readings	
Further Information	
Sustainable Development Goals (SDGs)	Quality education, No poverty