Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus

Descrizione corso

Titolo insegnamento	Advanced Econometrics
Codice insegnamento	29122
Titolo aggiuntivo	
Settore Scientifico-Disciplinare	NN
Lingua	Inglese
Corso di Studio	Corso di Dottorato di ricerca in Economics and Finance
Altri Corsi di Studio (mutuati)	
Docenti	prof. Steven Eric Stillman, Steven.Stillman@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/36390 prof. Francesco Ravazzolo, Francesco.Ravazzolo@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/36066
Assistente	
Semestre	Primo semestre
Anno/i di corso	2026/27
CFU	5
Ore didattica frontale	30
Ore di laboratorio	0
Ore di studio individuale	0
Ore di ricevimento previste	
Sintesi contenuti	The objective of the course is to develop specific skills primarily in the application of econometric analysis tools. The course is based on a combination of lectures and tutorials in which each topic is discussed from both a methodological and an applied perspective. The aim is to provide an overview of several quantitative research methods and examples of how they can be applied to economic

	and financial research problems involving data collection and analysis.
Argomenti dell'insegnamento	Part 1: Introduction to Applied Research: Data collection, data processing, descriptive analysis, survey design Part 2: Casual Analysis Experimental methods, difference-in-differences, regression discontinuity, instrumental variables, fixed effects models, recent advanced in causal analysis Part 3: Likelihood Methods Likelihood function for i.i.d. data. Estimation by max Likelihood (MLE).Numerical methods for maximizing the likelihood. The EM algorithm.The Cramér Rao lower bound and the Fisher information matrix. Properties of the MLEs. Likelihood ratio tests Part 4: Time Series Analysis Review of different estimation methods (OLS, NLS, ML, GMM, Bayesian). Time-Series Analysis models and methods for predicting future variables: specification, inference and forecasting. (Monte Carlo) Simulation Methods.
Parole chiave	Causal analysis, likelihood methods, Time Series Analysis
Prerequisiti	
Insegnamenti propedeutici	
Modalità di insegnamento	The course will combine in-class explanation of the background material, problem-solving and case discussions. Students will be expected to participate actively in class work, which will give them the opportunity to apply theoretical concepts to realistic situations. In order to benefit from this approach, it is important that all students come to class fully prepared.
Obbligo di frequenza	Required
Obiettivi formativi specifici e risultati di apprendimento attesi	PhD programme: The courses aim to train researchers with strong quantitative and theoretical skills, capable of analyzing economic and financial phenomena. Candidates' dissertations are expected to adhere to the highest standards of scientific rigor and to demonstrate innovative features

	that make them suitable for publication in leading international peer-reviewed journals. The programme therefore seeks to contribute to the international scientific debate in economics and finance. To this end, candidates will be encouraged to employ state-of-the-art methodologies and to adopt a multidisciplinary approach. The advanced training provided by the programme, together with the research methods required to complete the dissertation, prepares candidates both for an academic career and for high-level professional positions involving policy analysis and policymaking.
Obiettivi formativi specifici e risultati di apprendimento attesi (ulteriori info.)	The ability to apply theoretical and empirical models. The ability to interpret the results of econometric and statistical analyses and draw appropriate conclusions. The ability to plan and manage academic research efficiently and independently.
Modalità di esame	Short written assignments and Solution of case studies: Written assignments and case studies will be assigned during the course to be completed and sometimes presented in class.
Criteri di valutazione	Standard criteria for evaluating assignments, completeness, correctness.
Bibliografia obbligatoria	References will be provided by the professors during the course
Bibliografia facoltativa	
Altre informazioni	10 hours Prof. Francesco Ravazzolo, 12 hours Prof. Steven Stillman, 8 hours Prof. Emanuele Taufer
Obiettivi di Sviluppo Sostenibile (SDGs)	Sconfiggere la povertà, Sconfiggere la fame, Buona salute, Ridurre le disuguaglianze, Parità di genere, Buona occupazione e crescita economica, Istruzione di qualità