Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

Syllabus

Course Description

Course Title	Econometrics for Finance
Course Code	27348
Course Title Additional	
Scientific-Disciplinary Sector	SECS-P/05
Language	Italian
Degree Course	Bachelor in Economics and Management
Other Degree Courses (Loaned)	
Lecturers	dr. Greta Goracci, Greta.Goracci@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/46136
Teaching Assistant	
Semester	Second semester
Course Year/s	3
CP	6
Teaching Hours	36
Lab Hours	18
Individual Study Hours	-
Planned Office Hours	18
Contents Summary	The course covers various topics related to modelling and time series analysis, with the aim of studying and interpreting economic and financial phenomena. It is structured around three main areas: (1) the linear regression model (2) the ARIMA models; and (3) models for volatility analysis. Each topic is presented in depth from a theoretical point of view theoretical perspective and the main practical applications are discussed. The course includes guided exercises to support

	understanding of key concepts as well as practical analysis of real data sets using R software.
Course Topics	1. The linear regression model - Simple/multiple linear regression - Estimation and inference on regression parameters - Goodness of fit and multicollinearity - Residue analysis and diagnostics 2. ARIMA models - AR model - MA model - ARMA model - Forecast 3. GARCH models - volatility analysis - Tests for ARCH effects - ARCH/GARCH models
Keywords	Linear regression; time series analysis; volatility
Recommended Prerequisites	Probability and statistics
Propaedeutic Courses	
Teaching Format	Lectures and exercises
Mandatory Attendance	No obligation to attend, however attendance 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 through theoretical models and empirical applications. Knowledge of the tools for static, dynamic and comparative analysis of data on individuals, businesses and the economy Knowledge and understanding of descriptive statistics, the basics of probability theory and sampling methods, standard distributions and their application to economic analysis, as well as linear and non-linear regression. Knowledge of parametric estimation and hypothesis testing Knowledge of computer tools necessary 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 data collection, visualisation and analysis using

	appropriate 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 cost of capital and valuation of bonds and shares. Knowledge of medium and long-term financial forecasting methods 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 (unconstrained) optimisation problems and mathematically interpret 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 descriptive, parametric and non-parametric statistical methods as well as linear and non-linear regression and interpret the results be able to apply international accounting standards to the various contexts of business reality be able to derive and interpret economic information from the Internet be able to use computers and computer networks to analyse large quantities of data to solve complex problems and to write dissertations and articles be able to use spreadsheet programmes to evaluate fixed-rate financial instruments and shares of listed companies be able to analyse financial statements using financial ratios and communicate the results according to international professional standards

	be able to apply the most important theories of capital, foreign exchange and commodity markets to current observational data, including international data know how to set up and implement an empirical project using econometric software and financial or economic databases Be able to apply techniques to assess the performance of financial assets and understand the pricing mechanisms of risky financial assets and spot and forward interest rates Ability to use basic and intermediate mathematical and statistical tools to study the behaviour of economic agents from a theoretical and empirical perspective. Knowledge of economic data analysis using spreadsheets or other appropriate software. Knowledge of the use of computer 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 Autonomy of judgement choose the most appropriate quantitative and qualitative methods of analysis find the necessary information in databases, legal sources and scientific literature use logical reasoning to combine information and analytical methods, also using modern software packages, to arrive at a solution. Learning skills retrieve information from databases, scientific literature, laws and regulations as required in professional life analysing, critically processing and integrating data, information and future experience, also using advanced software
Specific Educational Objectives and Learning Outcomes (additional info.)	Knowledge and understanding: - Advanced knowledge and understanding of methods econometric methods related to common types of data financial and corporate data. Application of knowledge and understanding: - Ability to apply econometric methods to real types of financial data using specific software. - Ability to interpret analysis results in the

	context of common financial and business problems. Formulation of judgements: - Ability to think critically and make effective decisions based on appropriate econometric analysis appropriate. Communication skills: - Ability to effectively communicate the results of econometric analyses, even to a non-specialist audience. non-specialists.
Assessment	(60% of the final subject grade): Final written examination (40% of the final subject grade): Group project Analysis of a real data set using the R
Evaluation Criteria	Final written examination: 60% Project: 40% Students must pass the final examination (i.e. correctly answer at least 60% of the questions in the questions in the exam) to obtain a passing grade in the course. course.
Required Readings	Jim H. Stock and Mark W. Watson, Introduction to Econometrics, Pearson International 4th Edition.
Supplementary Readings	--
Further Information	--
Sustainable Development Goals (SDGs)	Gender equality, Quality education