Syllabus

Course Description

Course Title	Financial Econometrics
Course Code	25423
Course Title Additional	
Scientific-Disciplinary Sector	SECS-P/05
Language	English
Degree Course	Master in Accounting and Finance
Other Degree Courses (Loaned)	
Lecturers	Prof. Francesco Ravazzolo, Francesco.Ravazzolo@unibz.it https://www.unibz.it/en/faculties/economics-management/academic-staff/person/36066
Teaching Assistant	
Semester	First semester
Course Year/s	2
CP	6
Teaching Hours	36
Lab Hours	-
Individual Study Hours	-
Planned Office Hours	18
Contents Summary	Basics of stochastic processes theory, financial assets and returns. Analysis of empirical "stylized" facts. - Models and methods for predicting the level of future returns (Classical Linear Regression) and Time-Series Analysis (ARMA models): specification, inference, and forecasting. - Models for volatility analysis and prediction (EWMA, ARCH and GARCH models): specification, inference, and forecasting. - Models for macro-finance analysis: (volatility) term structure models. - Introduction to Bayesian Analysis and review of Monte Carlo Simulation Methods.

	- Special topics: cryptocurrency, energy markets, bond markets.
Course Topics	The course covers the tools of financial econometrics and empirical finance, with the focus on correlation analysis, classical linear regression and advanced time-series analysis. It introduces econometric modelling of financial prices and volatility, and estimation of some risk measures. Then, it extends to macro-finance problems. Strong emphasis is placed on the application of the models to real financial data.
Keywords	Stochastic Processes, Financial Time-Series Analysis, Volatility Modeling (ARCH/GARCH), Forecasting, Bayesian Analysis
Recommended Prerequisites	Basic knowledge of statistics
Propaedeutic Courses	
Teaching Format	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.
Mandatory Attendance	Strongly suggested, but not required
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding: Master's degree graduates should be able to acquire an advanced level of preparation that allows for an articulate and integrated view of the finance issues of companies, financial intermediaries, financial institutions and markets. These learning outcomes are achieved through an advanced knowledge and understanding - of the economic-financial planning and evaluation of new investments; - of the characteristics associated with extraordinary moments in corporate management, such as capital transactions, recourse to financial markets, mergers and acquisitions, corporate crisis and reorganisation; - the problems and techniques of the organisation and financial management of companies and financial intermediaries; - the fundamentals of corporate finance for the correct application of, for example, decision-making models and financial data and risk management to treasury management; - the management and economic models of the different types of intermediaries, market microstructure, the operational efficiency of financial markets and the impact of financial markets on the economic conditions of intermediaries;

	- a wide range of investment, financing and risk management instruments, starting with the fundamentals of portfolio diversification and classical asset pricing and risk measurement models; - the specific finance-related topics that characterise the profession of financial analyst, portfolio manager, chief financial officer (CFO), chief administrative officer, controller, internal auditor and business consultant." Master's graduates should be able to acquire knowledge of economic-quantitative models that enable them to address management issues of companies, financial intermediaries, financial institutions and markets. These learning outcomes are achieved through an advanced knowledge and understanding - of the theories and tools for the economic analysis of the company and the market; - of the basic forecasting models for carrying out integrated economic and financial analyses, also making use of econometric time series and multivariate analysis methodologies - of Big Data analysis techniques in order to support and integrate business decision-making processes." Applying knowledge and understanding: Ability to apply knowledge in the area of Finance to be able to carry out an analysis of complex problems in a national and international interdisciplinary context Ability to apply knowledge in the area of Finance for the design and implementation of corporate restructuring and other extraordinary operations Ability to apply knowledge in the area of Finance for the identification, evaluation and management of investments in financial markets Ability to apply knowledge in the area of Finance for the design of coherent financial management strategies in companies or financial intermediaries, competently applying acquired knowledge in risk management techniques, asset valuation, handling of derivatives Ability to apply knowledge in the area of Economic Analysis for understanding the evolution of financial markets and changes in the international macroeconomic environment Ability to apply knowledge in the area of Economic Analysis for the analysis of economic, managerial and financial variables to support

	the decisions of companies and financial intermediaries Ability to apply knowledge in the area of Economic Analysis to be able to frame and evaluate situations and problems in a critical manner and based on scientific methods in a multidisciplinary perspective, thanks to a training that integrates business, economic, legal, financial and statistical-mathematical disciplines Making judgements: Ability to apply the knowledge acquired to make managerial and operational decisions and to solve problems in the administration and finance of companies, intermediaries and financial markets, jointly taking into account multiple perspectives of analysis, from the economic to the legal, financial, strategic, managerial. Ability to select data and use appropriate information to describe a problem concerning the management of companies, intermediaries and financial markets. Ability to relate models and empirical evidence in the study of companies, intermediaries and financial markets. Communication skills: Ability to communicate effectively in oral and written form the specialised contents of the individual disciplines, using different registers according to the recipients and the communicative and didactic purposes, and to evaluate the formative effects of its communication Learning skills: a) ability to use information technology autonomously to carry out bibliographical research and investigations and for one's own training and updating b) ability to identify thematic links and establish relationships between different cases and contexts of analysis c) ability to frame a new problem systematically and to generate appropriate taxonomies d) ability to develop general models from the phenomena studied.
Specific Educational Objectives and Learning Outcomes (additional info.)	
Assessment	Final Exam (50%):

	The final exam is a combination of problems, cases, and essay questions. Optional assignment (50%): Case studies will be assigned during the semester to be completed in writing and presented in class by groups of students. The questions included in the final exam are aimed at assessing the acquisition of knowledge and understanding the ability to apply them to new situations as well as to evaluate the skill of the student to analyse and report on complex business transactions. The case studies also measure the student's capability to search for the relevant regulatory and economic information that apply to a specific situation. If a student does not complete the assignment, the exam will weight 100%.
Evaluation Criteria	Final exam: 50% Assignment: 50% The student must pass the exam to have a passing grade in the course.
Required Readings	Selection of papers provided by the teacher
Supplementary Readings	CFA Institute Curriculum 2018 edition, Level II, Readings 9-11. Koop G. (2003). Bayesian Econometrics. Wiley. Stock J.M. and Mark W. Watson, *Introduction to Econometrics*. Pearson International 3rd Edition. Diebold F. X. (2006). Elements of Forecasting. Mason 4th Edition.
Further Information	
Sustainable Development Goals (SDGs)	Quality education, Gender equality, Affordable and clean energy, Climate action, Reduced inequalities, Responsible consumption and production, Decent work and economic growth