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)	Loaned to LM-DATA Data Analytics for Economics and Management
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	ILO (Intended Learning Outcomes) ILO 1 – Knowledge and Understanding: ILO 1.1 Knowledge of a wide range of investment, financing, and risk management tools, starting from the fundamentals of portfolio diversification and the classical models for asset pricing and risk measurement ILO 1.2 Understanding of specific Finance topics that characterise the roles of Financial Analyst, Portfolio Manager, Chief Financial Officer (CFO), Administrative Manager, Controller, Internal Auditor, and Business Consultant ILO 1.3 Knowledge of theories and tools for the economic analysis of firms and markets. ILO 1.4 Understanding of basic forecasting models for conducting integrated economic and financial analyses, also using econometric methods for time series and multivariate analysis ILO 1.5 Knowledge of Big Data analysis techniques to support and integrate corporate decision-making processes ILO 2 – Applying Knowledge and Understanding:

	ILO 2.1 Ability to analyse complex problems in a national and international interdisciplinary context ILO 2.2 Ability to design coherent financial management strategies in companies or financial intermediaries, applying acquired knowledge in risk management techniques, asset valuation, and derivative handling ILO 2.3 Ability to understand the evolution of financial markets and changes in the international macroeconomic context ILO 2.4 Ability to analyse economic, managerial, and financial variables to support decision-making in companies and financial intermediaries ILO 3 – Making Judgements: ILO 3.1 Ability to relate models and empirical evidence in the study of companies, intermediaries, and financial markets. ILO 4 – Communication Skills: ILO 4 Ability to communicate effectively, both orally and in writing, the specialised content of individual disciplines, using different registers depending on the audience and the communicative and educational purposes, and to assess the educational impact of such communication ILO 5 – Learning Skills: ILO 5.1 Ability to develop general models based on 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%. (ILOs assessed 1-5)
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