Fakultät für Wirtschaftswissenschaften
Facoltà di Economia
Faculty of Economics and Management

Syllabus
Course description

Course title	**Financial Econometrics**
Course code	**25423_27505**
Scientific sector	ECON-05/A (Former SECS-P/05)
Degree	Master in Accounting and Finance - Master in Data Analytics for Economics and Management
Semester	1st semester
Year	2025/2026
Credits	6
Modular	No

Total lecturing hours	36
Total lab hours	-
Total exercise hours	-
Attendance	Strongly suggested, but not required
Prerequisites	
Course page	https://www.unibz.it/en/faculties/economics-management/master-accounting-finance/course-offering/

Specific educational objectives	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.

Lecturer	Francesco Ravazzolo Office E 2.07 francesco.ravazzolo@unibz.it Tel. 0471 013133
Scientific sector of the lecturer	ECON-05/A (Former SECS-P/05)
Teaching language	English

Office hours	please refer to the lecturer's timetable
Lecturing assistant	None
Teaching assistant	None
List of topics covered	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.
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.

Learning outcomes	**Knowledge and understanding** The aim of the course is to equip students with a working knowledge of important econometric techniques used in international finance and financial economics. Students correctly specify, estimate and test the econometric models discussed during the lectures and possess the ability to properly interpret the results provided by these procedures. Students know how to use essential tools for working with financial data. Ability to perform all the mentioned econometric techniques by using appropriate software (MATLAB, PYTHON, R). **Making judgments** Ability to formulate models and to implement appropriate econometric tools for the analysis and forecasting of financial data. **Communication skills** Ability to present in a consistent and precise manner the results obtained from the econometric analysis. **Learning skills** Ability to understand and analyse financial data from a quantitative perspective. The learning outcomes include: • Knowledge and understanding quantitative methodologies used by students in economics, business, and management field, including data collection, data processing and analysis, model design and analytics. • Applying knowledge and understanding to techniques for analyzing quantitative data in economics, business, and management. • Making judgments regarding the suitability of methods to research in economics and business. • Making informed choices regarding quantitative methods for decision-making, selection and application of research methods using statistical software, IT and communication skills, available statistical information and data.

	• Can communicate with their peers, research community, public and policymakers on making necessary judgement and corrections to policy and research. • Can be expected to be able to promote, within academic and professional contexts, technological and socio-economic advanced knowledge.

Assessment	Final Exam (50%): The final exam is a combination of problems, cases, and essay questions. 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.
Assessment language	English
Evaluation criteria and criteria for awarding marks	Final exam: 50% Assignment: 50% **The student must pass the exam to have a passing grade in the course**.

Required readings	**Main textbooks**: Selection of papers provided by the teacher.
Supplementary material	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.