

## Syllabus

### Course description

<b>Course title</b>	<b>Financial Econometrics</b>
<b>Course code</b>	<b>25423</b>
<b>Scientific sector</b>	SECS-P/05
<b>Degree</b>	Master in Accounting and Finance
<b>Semester</b>	1 <sup>st</sup> semester
<b>Year</b>	2020/2021
<b>Credits</b>	6
<b>Modular</b>	No

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

<b>Specific educational objectives</b>	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.
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<b>Lecturer</b>	Francesco Ravazzolo Office E 2.07 <a href="mailto:francesco.ravazzolo@unibz.it">francesco.ravazzolo@unibz.it</a> Tel. 0471 013133
<b>Scientific sector of the lecturer</b>	SECS-P/05
<b>Teaching language</b>	English

<b>Office hours</b>	please refer to the lecturer's timetable
<b>Lecturing assistant</b>	None
<b>Teaching assistant</b>	None
<b>List of topics covered</b>	<p>Basics of stochastic processes theory, financial assets and returns. Analysis of empirical "stylized" facts. Correlation analysis of the financial series.</p> <p>Models and methods for predicting the level of future returns (Classical Linear Regression) and Time-Series Analysis (ARMA models): specification, inference and forecasting.</p> <p>Models for volatility analysis and prediction (EWMA, ARCH and GARCH models): specification, inference and forecasting.</p> <p>ARMA-GARCH models for Risk Management: predictions of Value at Risk and Expected Shortfall.</p> <p>Models for macro-finance analysis: (volatility) term structure models and Bayesian Structural Vector Autoregressive models for the role of financial shocks. Introduction to Bayesian Analysis and review of Monte Carlo Simulation Methods.</p>
<b>Teaching format</b>	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.

<b>Learning outcomes</b>	<p><b>Knowledge and understanding</b> 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 softwares (MATLAB, R).</p> <p><b>Making judgments</b> Ability to formulate models and to implement appropriate econometric tools for the analysis and forecasting of financial data.</p> <p><b>Communication skills</b> Ability to present in a consistent and precise manner the results obtained from the econometric analysis.</p> <p><b>Learning skills</b> Ability to understand and analyze financial data from a quantitative perspective.</p> <p>The learning outcomes include:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Applying knowledge and understanding to techniques for analyzing quantitative data in economics, business and management</li> <li>• Making judgments regarding the suitability of particular methods to research in economics and business.</li> <li>• Making informed choices in regard to quantitative methods for decision-making, selection and application of research methods using statistical</li> </ul>
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	<p>software, IT and communication skills, available statistical information and data.</p> <ul style="list-style-type: none"> <li>• Can communicate with their peers, research community, public and policy-makers on making necessary judgement and corrections to policy and research.</li> <li>• Can be expected to be able to promote, within academic and professional contexts, technological and socio-economic advanced knowledge</li> </ul>
<b>Assessment</b>	<p>Final Exam (60%): The final exam is a combination of problems, cases and essay questions.</p> <p>Assignment (40%): Case studies will be assigned during the semester to be completed in writing and presented in class by groups of students.</p> <p>The questions included in the final exam are aimed at assessing the acquisition of knowledge and understanding and the ability to apply them to new situations as well as to evaluate the ability of the student to analyse and report on complex business transactions. The case studies also measure the student's ability to search for the relevant regulatory and economic information that apply to a specific situation.</p>
<b>Assessment language</b>	English
<b>Evaluation criteria and criteria for awarding marks</b>	<p>Final exam: 60% Assignment: 40%</p> <p><b>The student must pass the exam to have a passing grade in the course.</b></p> <p>The <b>assignments are compulsory</b> and must be handed in (also electronically) <b>even by non-attending students</b> who can find all the necessary information, including due dates, in the Reserve Collections.</p> <p>The exam will be offered in February, June and September 2021.</p>
<b>Required readings</b>	<p><b>Main textbooks:</b> Selection of papers provided by the teacher</p>
<b>Supplementary material</b>	<p>CFA Institute Curriculum 2018 edition, Level II, Readings 9-11. Koop G. (2003). Bayesian Econometrics. Wiley. Stock J.M. and Mark W. Watson, <i>Introduction to Econometrics</i>. Pearson International 3<sup>rd</sup> Edition. Diebold F. X. (2006). Elements of Forecasting. Mason 4<sup>th</sup> Edition.</p>