

# Syllabus

## *Course Description*

<b>Course Title</b>	Econometrics for Finance
<b>Course Code</b>	27348
<b>Course Title Additional</b>	
<b>Scientific-Disciplinary Sector</b>	ECON-05/A
<b>Language</b>	Italian
<b>Degree Course</b>	Bachelor in Economics and Management
<b>Other Degree Courses (Loaned)</b>	
<b>Lecturers</b>	dr. Greta Goracci, Greta.Goracci@unibz.it <a href="https://www.unibz.it/en/faculties/economics-management/academic-staff/person/46136">https://www.unibz.it/en/faculties/economics-management/academic-staff/person/46136</a>
<b>Teaching Assistant</b>	
<b>Semester</b>	Second semester
<b>Course Year/s</b>	3
<b>CP</b>	6
<b>Teaching Hours</b>	36
<b>Lab Hours</b>	18
<b>Individual Study Hours</b>	-
<b>Planned Office Hours</b>	18
<b>Contents Summary</b>	<p>The course covers various topics related to modelling and time series analysis, with the aim of studying and interpreting economic and financial phenomena.</p> <p>It is structured around three main areas:</p> <ul style="list-style-type: none"><li>(1) the linear regression model</li><li>(2) the ARIMA models; and</li><li>(3) models for volatility analysis.</li></ul> <p>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</p>

	understanding of key concepts as well as practical analysis of real data sets using R software.
<b>Course Topics</b>	<ol style="list-style-type: none"> <li>1. The linear regression model <ul style="list-style-type: none"> <li>- Simple/multiple linear regression</li> <li>- Estimation and inference on regression parameters</li> <li>- Goodness of fit and multicollinearity</li> <li>- Residue analysis and diagnostics</li> </ul> </li> <li>2. ARIMA models <ul style="list-style-type: none"> <li>- AR model</li> <li>- MA model</li> <li>- ARMA model</li> <li>- Forecast</li> </ul> </li> <li>3. GARCH models <ul style="list-style-type: none"> <li>- volatility analysis</li> <li>- Tests for ARCH effects</li> <li>- ARCH/GARCH models</li> </ul> </li> </ol>
<b>Keywords</b>	Linear regression; time series analysis; volatility
<b>Recommended Prerequisites</b>	Probability and statistics
<b>Propaedeutic Courses</b>	
<b>Teaching Format</b>	Lectures and exercises
<b>Mandatory Attendance</b>	No obligation to attend, however attendance recommended
<b>Specific Educational Objectives and Learning Outcomes</b>	<p>ILO (Intended Learning Outcomes)</p> <p>ILO 1 Knowledge and understanding</p> <p>ILO 1.1 knowledge of basic and intermediate level mathematical tools for understanding and analysing economic mechanisms through theoretical models and empirical applications</p> <p>ILO 1.2 knowledge of tools for static, dynamic, and comparative analysis of data on individuals, firms and economies</p> <p>ILO 1.3 knowledge and understanding of descriptive statistics, the fundamentals of probability theory and sample methods, standard distributions and their application to economic analysis as well as linear and non-linear regression</p> <p>ILO 2 Ability to apply knowledge and understanding</p> <p>ILO 2.1 know how to analyse economic data using descriptive</p>

	<p>statics, parametric and non-parametric methods as well as linear and non-linear regression and interpret the results</p> <p>ILO 2.2 know how to set up and carry out an empirical project using econometric software and financial or economic databases</p> <p>ILO 2.3 knowing how to use IT tools for the analysis of economies</p> <p>ILO 3 Autonomy of judgement</p> <p>ILO 3.1 choose the most appropriate quantitative and qualitative methods of analysis</p> <p>ILO 3.2 find the necessary information in databases, legal sources and scientific literature</p> <p>ILO 3.3 using logical reasoning to combine information and analytical methods, also using modern software packages, to arrive at a solution</p> <p>ILO 4 Learning ability</p> <p>ILO 4.1 retrieve information from databases, scientific literature, laws and regulations as required in professional life</p> <p>ILO 4.2 to analyse, critically process and integrate data, information and future experience, also using advanced software</p>
<b>Specific Educational Objectives and Learning Outcomes (additional info.)</b>	<p>Knowledge and understanding:</p> <ul style="list-style-type: none"> <li>- Advanced knowledge and understanding of methods econometric methods related to common types of data financial and corporate data.</li> </ul> <p>Application of knowledge and understanding:</p> <ul style="list-style-type: none"> <li>- Ability to apply econometric methods to real types of financial data using specific software.</li> <li>- Ability to interpret analysis results in the context of common financial and business problems.</li> </ul> <p>Formulation of judgements:</p> <ul style="list-style-type: none"> <li>- Ability to think critically and make effective decisions based on appropriate econometric analysis appropriate.</li> </ul> <p>Communication skills:</p> <ul style="list-style-type: none"> <li>- Ability to effectively communicate the results of econometric analyses, even to a non-specialist audience. non-specialists.</li> </ul>

<b>Assessment</b>	(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 software  ILO assessed 1 -- 4
<b>Evaluation Criteria</b>	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.
<b>Required Readings</b>	Jim H. Stock and Mark W. Watson, Introduction to Econometrics, Pearson International 4th Edition.
<b>Supplementary Readings</b>	--
<b>Further Information</b>	--
<b>Sustainable Development Goals (SDGs)</b>	Gender equality, Quality education