**Econometrics for banking and finance**

Professor Laura Barbieri

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

This module will provide an in-depth introduction to Econometrics with an emphasis on econometric methods commonly used in business modelling and empirical financial economics. The aim is to equip students with conceptual tools, abilities and competences needed in the understanding of modern quantitative financial modelling and empirical research in banking and finance. The module will focus on econometric models and methods selected in accordance with this aim and will include empirical sessions to help students implement in practice the relevant econometric techniques.

Upon successful completion of the module, the student will be able to:

* Estimate the relations between economic and financial variables, based on cross-sectional and time-series data, and use the estimates and the estimator’s distribution to test economic and financial models of interest.
* Read the results and evaluate the conclusions of econometric studies.
* Forecast financial and economic variables and evaluate the accuracy and reliability of the forecast, taking into account the requirements of the forecasting problem at hand.
* Communicate assessments clearly and unambiguously.

***COURSE CONTENT***

* A brief overview of the classical linear regression model and of the limited dependent variable models
* Univariate time-series models (ARMA models, also with GARCH errors and applications in financial risk modelling thereof, Granger-causality and the forecasting problem);
* Multivariate time-series models (VAR);
* Modelling long-run relations in economics and finance (ergodicity, stationarity vs. unit roots; co-integration and error correction);
* Modelling volatility and correlation: ARCH and GARCH models

***READING LIST***

J.H. Stock-M.W. Watson, *Introduzione all’econometria,* 3a ed., Addison Wesley, 2012.

***TEACHING METHOD***

Class lectures alternate the discussion of methodological issues, supported by practical work on econometric models.

***ASSESSMENT METHOD AND CRITERIA***

During the course, optional homeworks are assigned, which can award a maximum of 3 additional points on the final grade. Final exam consists of a test administered via Blackboard consisting of multiple-choice questions and short open questions. Questions will be aimed at verifying the students’ understanding of the topics discussed during the lectures and their ability to apply them in the interpretation of statistical outputs produced by the R software. In the short open questions, the ability to focus the answer and use the appropriate technical language will be evaluated.

***NOTES AND PREREQUISITES***

Course attendance, although not mandatory, is strongly recommended. Prerequisite of the course is the knowledge of the main techniques of inferential statistics (random variables, estimation theory, hypothesis testing, multiple regression analysis). A basic knowledge of the R software is also recommended.

***NOTES***

Information on office hours available on the teacher's personal page at <http://docenti.unicatt.it/>.