

# Course Outline

## Financial Econometrics - EC5333

Course Leader: Alessio Sancetta

Spring Term – 20 credits

Version 1.0

### AIMS

This is an introductory course in time series and financial econometrics. The emphasis is on time series econometrics methods and the underlying theory with discussion on their applicability.

### LEARNING OUTCOMES

By the end of this course, students should:

- have an understanding of current econometrics method used in the analysis of macro and financial time series;
- be able to analyze and critically evaluate empirical research in finance and macroeconomics;
- be able to undertake quantitative research projects using time series data.

### COURSE DELIVERY

This course will be delivered by one 2-hour lecture and one 1-hour seminar over a 10 week period.

### ASSESSMENT

Formative assessment:

- Problem sets and classes provide feedback.

Summative assessment:

- One 2-hour unseen written exam, to be taken in the summer term, contributing 75% of the final mark.
- Coursework (25%), details of coursework to be confirmed by the course leader.

Dates of tests and coursework hand-in deadlines can be found in the Departmental Student Handbook and on the Economics Department website.

### READING

There is no single textbook that covers all the material and lecture notes will be used. Some of the textbooks the course may refer to are

Greene – Econometric Analysis

Harvey – Time Series Models

**COURSE TOPICS**

The course will cover topics from the following list:

1. Review of the linear model, OLS, GLS, GMM, Log-Likelihood and testing;
2. Univariate linear time series. In particular, stationarity, autoregressive processes, moving average processes, ARMA processes and estimation via Yule Walker equations and ML.
3. Non-stationarity, unit roots, random walks and testing.
4. Non-linear time series. Models for volatility clustering, such as ARCH, GARCH and stochastic volatility.
5. Multivariate time series, vector autoregression, cointegration.