



## Course information 2011–12

### FN3142 Quantitative finance

This course is aimed at students interested in obtaining a thorough grounding in market finance and related empirical methods.

#### Prerequisite

If taken as part of a BSc degree, courses which must be passed before this course may be attempted:

EC2020 Elements of econometrics *and* EC2066 Microeconomics.

#### Other rules

This course must be taken at the same time as or after FN3092 Corporate finance.

#### Aims and objectives

This course provides the econometric techniques, such as time-series analysis, required to analyse theoretical and empirical issues in finance. It provides applications in asset pricing, investments, risk analysis and management, market microstructure, and return forecasting.

#### Essential reading

For full details, please refer to the reading list

Christoffersen, P.F. *Elements of Financial Risk Management*. (Academic Press, London)

Diebold, F.X. *Elements of Forecasting*. (Thomson South-Western, Canada)

#### Learning outcomes

At the end of this course and having completed the essential reading and activities students should:

- ✓ have mastered the econometric techniques required in order to analyse issues in asset pricing and market finance
- ✓ be familiar with recent empirical findings based on financial econometric models
- ✓ have gained valuable insights into the functioning of financial markets
- ✓ understand some of the practical issues in the forecasting of key financial market variables, such as asset prices, risk and dependence.

#### Assessment

This course is assessed by a three hour unseen written examination.

Students should consult the *Programme Regulations for degrees and diplomas in Economics, Management, Finance and the Social Sciences* that are reviewed annually. The Prerequisites, Exclusions, and Syllabus are subject to confirmation in the *Regulations*. Notice is also given in the *Regulations* of any courses which are being phased out and students are advised to check course availability.

## Syllabus

This is a description of the material to be examined, as published in the *Regulations*. On registration, students will receive a detailed subject guide which provides a framework for covering the topics in the syllabus and directions to the essential reading.

Building on concepts introduced in course 92 Corporate finance and course 20 Elements of econometrics, this course introduces econometric tools related to time-series analysis and applies them to study issues in asset pricing, investment theory, risk analysis and management, market microstructure, and return forecasting.

Topics addressed by this course are:

- Concepts and measures of risk
- Time-series analysis
- Empirical tests of the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT)

- Market risk models
- Models of financial market correlations and dependence
- Data mining and technical trading
- Risk management
- Asset allocation decisions
- Market microstructure.

This course is quantitative by nature. It aims however to investigate practical issues in the forecasting of key financial market variables and makes use of a number of real-world data sets and examples.