



## Course information 2024-25

# FN3142 Quantitative Finance

### General information

**MODULE LEVEL:** 6

**CREDIT:** 30

**NOTIONAL STUDY TIME:** 300 hours

**MODE:** Locally Taught and Independent Learner Route (not available for Online Taught students).

### Summary

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

### Conditions

Please refer to the relevant programme structure in the EMFSS Programme Regulations to check:

- where this course can be placed on your degree structure; and
- details of prerequisites and corequisites for this course.

You should also refer to the Exclusions list in the EMFSS Programme Regulations to check if any exclusions apply for this course.

### 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.

## **Learning outcomes**

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

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

## **Employability skills**

Below are the three most relevant employability skills that students acquire by undertaking this course which can be conveyed to future prospective employers:

1. Decision making
2. Complex problem solving
3. Adaptability and resilience

## Essential reading

For full details, please refer to the reading list

Christoffersen, P.F., Elements of Financial Risk Management (Academic Press, London, 2016) second edition [ISBN 978-0128102350]

Diebold, F.X., Elements of Forecasting, (Thomson South-Western, 1980) fourth edition [ISBN 978-0324323597]

## Assessment

This course is assessed by a three-hour and fifteen-minute closed-book written examination.

## Syllabus

Building on concepts introduced in course FN3092 Corporate finance and course EC2020 Elements of econometrics, this course will introduce students to some widely-used models used to study and forecast financial markets and familiarise them with the properties of financial data. Such data often comes in the form of time series, and thus much of the course will use methods from time series analysis. The models to be covered include autoregressive and ARMA models, GARCH models for volatility forecasting, and models using high frequency (intra-daily) asset prices. Students completing this course will have seen and applied many of the latest models used in financial econometrics and will understand some of the key features (both positive and negative) of these models.

Topics addressed by this course are:

- Concepts and measures of risk.
- Time-series analysis.
- Empirical features of financial asset returns.
- Market risk models.
- Models of financial market correlations.
- Forecast evaluation methods.
- Risk management.
- Asset allocation decisions.
- Market microstructure and high frequency data.

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.