Financial Market Modelling and Analysis (COMP0075)

Description

Aims:
This module will introduce students to the field of modelling and analysing financial markets with emphasis on (i) the wide variety of deterministic and discrete-time methods that are available; and (ii) numerical simulation of the financial markets, including agent-based modelling. The module will start with a broad introduction to financial markets and terminology used in the financial markets.

Learning outcomes:
On successful completion of the module, a student will be able to:
1. distinguish between different types of modelling and analysis, and explain the advantages and disadvantages of each method;
2. understand discrete-time dynamic optimisation methods;
3. understand numerical simulation methods, including both agent-based techniques and the use of recurrence relations;

Content:
Introduction to the Financial Markets:
- Market Microstructure;
- Order-driven and Quote-driven markets;
- Orders, Quotes and Trades;
- Post-trade processing;
- Regulation;
- Trading Strategies;
- Risk Management;
Markets:
- Auctions;
- Markets;
- Dealer Markets and Order-Book Markets;
- Market Making;

Key information

Year: 2019/20
Credit value: 15 (150 study hours)
Delivery: PGT L7, Campus-based
Reading List: View on UCL website
Tutor: Dr Chris Clack
Term: Term 2
Timetable: View on UCL website

Assessment

- Written examination (main exam period): 100%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Disclaimer: All information correct as of August 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
- Low latency and High Frequency Trading;

Introduction to Techniques:
- Game Theory;
- Minority Games;
- Agent Based Models;
- Dynamic Optimisation;

Specific models:
- Day and Juang;
- Bulls, Bears and Market Sheep;
- Lyons;
- The Foreign Exchange Hot Potato;
- Huang et al;
- Optimal Market Making with Risk Aversion;

**Requisites:**
In order to be eligible to select this module, a student must be registered on a programme for which it is a formally-approved option or elective choice AND must have (i) a UK-equivalent Honours Degree (or higher) in the field of Computer Science, Mathematics, Statistics, Physics, Engineering, or another similar quantitative subject; (ii) a strong background with high performance in mathematics; and (iii) English Language at the UCL Good level.