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;
- Low latency and High Frequency Trading; Introduction to Techniques:
- Game Theory;
- Minority Games;
- Agent Based Models;
- Dynamic Optimisation; Specific models:

**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 June 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
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.