MSC (FINANCIAL AND COMPUTATIONAL MATHEMATICS)

Overview

NFQ Level 9, Major Award

The MSc (Financial and Computational Mathematics) is a taught programme that may be taken full-time over 12 months from the date of first registration for the programme.

The Master's Degree consists of 90 credits consisting of taught modules for a total of 60 credits and a dissertation for a total of 30 credits.

Postgraduate Diploma in Financial and Computational Mathematics

Regulations regarding progression from Part I to Part II can be found in Marks and Standards (https://ucc-ie-public.courseleaf.com/general/marksandstandards/). Students who pass Part I but do not meet this requirement, or who choose not to progress to Part II, will exit the programme with the Postgraduate Diploma in Financial and Computational Mathematics (https://ucc-ie-public.courseleaf.com/programmes/pdfcm/).

Programme Requirements

For information about modules, module choice, options and credit weightings, please go to Programme Requirements (p. 1).

Programme Requirements

Students take **90** credits as follows:

Code	Title	Credits
Part I		
Students take **60** credits as follows – all listed core modules (**45** credits) and **15** credits of elective modules:		
Core Modules		
MF6010	Probability Theory in Finance	10
MF6011	Derivatives, Securities, and Option Pricing	5
MF6012	Computational Finance I	5
MF6013	Computational Finance II	5
MF6014	Topics in Financial Mathematics	5
MF6015	Continuous Time Financial Models	5
AM6004	Numerical Methods and Applications	5
CS6322	Optimisation	5
Elective Modules [1]		
Students take modules to the value of **15** credits from the following:		15
AM6007	Scientific Computing with Numerical Examples (10)	
AM6019	Partial Differential Equations (5)	
ST4400	Data Analysis II (5)	
ST6040	Machine Learning and Statistical Analytics I (5)	
ST6041	Machine Learning and Statistical Analytics II (5)	
CS6503	Introduction to Relational Databases (5)	
Part II		
Students take **30** credits as follows:		
Core Modules		
MF6016	Dissertation in Financial and Computational Mathematics	30
Total Credits		**90**

[1] Module selection must be approved by the module co-ordinator.

Programme Learning Outcomes

Programme Learning Outcomes for MSc (Financial and Computational Mathematics) (NFQ Level 9, Major Award)

On successful completion of this programme, students should be able to:

- Demonstrate technical competence in the computational aspects of financial mathematics;
- Explain the theoretical basis of mathematical models and techniques used in financial applications;
- Outline how this mathematical framework is influenced by the structure of financial markets
- Identify the limitations of mathematical and statistical models applied to real-world scenariosa;
- Apply appropriate programming languages and software packages to the analysis of problems and mathematical models arising in financial applications;
- Conduct and complete a substantial mathematical research project, and defend their findings in front of one or more domain experts.