Programme Information

Programme Title		Programme Code	HECoS Code
Mathematics and Finance		G1U4 G1U424	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MSc – G1U4	1 calendar year (12 months)	Full-time	Annually in October	90	180
MSc – G1U424	2 Calendar Years (24 months)	Part-time	Annually in October	90	180
Postgraduate Diploma – G1U4D	N/A	N/A	N/A	60	120

The Postgraduate Diploma is an exit award that may be offered at the discretion of the Board of Examiners and is not available for entry. You must apply to and join the MSc.

Ownership

Awarding Institution	Imperial College London	Faculty	Faculty of Natural Sciences
Teaching Institution	Imperial College London	Department	Mathematics
Associateship	Diploma of Imperial College (DIC)	Main Location(s) of Study	South Kensington Campus

External Reference

Relevant QAA Benchmark Statement(s) and/or other external reference points	Master's Awards in Mathematics and Finance
FHEQ Level	Level 7 – Master's
EHEA Level	2nd Cycle

External Accreditor(s) (if applicable)

External Accreditor 1:	N/A		
Accreditation received:	N/A	Accreditation renewal:	N/A

Collaborative Provision

Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A

Specification Details

Programme Lead	Dr Eyal Neumann Dr Yufei Zhang
Student cohorts covered by specification	2025-26 entry
Date of introduction of programme	September 00
Date of programme specification/revision	August 23

Programme Overview

The MSc in Mathematics and Finance is a one-year programme focused on a rigorous treatment and understanding of the mechanics of financial markets as well as of the mathematical, statistical and programming tools required to pursue a career in this field. More specifically, the goals of the MSc in Mathematics and Finance are:

- To provide high-quality education in Mathematics with application in Finance.
- To expose students, parallel to their assessed modules, to an active research environment, both within Imperial and through regular meetings with the industry.
- To teach students the fundamental tools to pursue a successful career in Quantitative Finance, through a wide range of Compulsory and Elective modules reflecting the diversity of the financial industry.
- To equip students with a range of mathematical skills and data-related tools in problem-solving, project work and presentation.
- To enable students to take prominent roles in many sides of research and employment in the Finance industry at large.

The programme is continuously evaluated and modified to respond to the need of the constantly changing financial industry and to expose students to new technologies and applications in the current quantitative finance advances and give them skills and knowledge that employers expect in their future recruits. The changes are always discussed with staff, Alumni, current students and the MSc Advisory Board.

Learning Outcomes

On successful completion of the MSc programme you will be able:

- To demonstrate greater understanding and application of a wide array of topics, from basic tools to cutting-edge developments at the frontiers of quantitative finance.
- To use mathematics to describe and model financial contracts, including appropriate solution methods, and interpretation of the results.
- To use a structured mathematical approach in problem solving, appreciating the importance of assumptions made and consequences of their violation.
- To be proficient in fundamental programming languages for Finance, such as C++ and Python.
- To investigate, analyse and be critical about data to argue and present in a project.
- To solve open-ended problems and problems with well-defined solutions by formulating them in precise terms, identifying key issues and trying different approaches to make progress.
- To carry out an independent critical investigation of practical problems using textbooks, research literature, and online information and databases.
- To communicate effectively by listening carefully and presenting complex information in a clear and concise manner orally, in writing and using new technologies.
- To work independently, use their initiative, organise themselves to meet deadlines, plan and execute an extended project.
- To develop, apply, and critically evaluate numerical techniques used in the financial industry.
- To conduct research on a topic agreed with a supervisor, carry out extended investigative mathematical work as an individual project and write an original account thereof.

To summarise, upon successful completion of the MSc, you will be fluent in state-of-the-art theory and practice of Mathematics for Finance. You will be skilled postgraduate Mathematicians able to solve both open-ended problems and problems with well-defined solutions by formulating them in precise terms, identifying their keys issues. Each

stream of Electives will allow you to develop specific Learning Outcomes and clear skillsets of great importance to employers and corresponding to different identities, skills, and career aspirations.

On successful completion of the PG Diploma you will be able:

- To display mastery of complex and specialised areas of knowledge and skills in quantitative finance.
- To employ advanced skills to conduct a professional activity in quantitative finance.
- To demonstrate greater understanding and application of a wide array of topics, from basic tools to cutting-edge developments at the frontiers of quantitative finance.
- To use mathematics to describe and model financial contracts, including appropriate solution methods, and interpretation of the results.
- To use a structured mathematical approach in problem solving, appreciating the importance of assumptions made and consequences of their violation.
- To be able to code in fundamental programming languages for Finance, such as C++ and Python.
- To investigate, analyse and be critical about data to argue and present in a project.
- To communicate effectively by listening carefully and presenting complex information in a clear and concise manner orally, in writing and using new technologies.
- To develop, apply, and critically evaluate numerical techniques used in the financial industry.

Entry Requirements

Academic Requirement	The minimum requirement is normally a 2:1 Bachelor's degree with Honours in Mathematics or a First-Class Honours degree in Physical Sciences with strong mathematical content, i.e. with a majority of Mathematics modules and an emphasis on Analysis, Probability, Statistics and Differential Equations. Degrees in Accounting, Economics, Finance, Business or Management with very little Mathematics content will not meet our entry requirements. For further information on entry requirements, please go to PG: www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/accepted-qualifications/
Non-academic Requirements	None
English Language Requirement	IELTS score of 7.0 overall (minimum 6.5 in all elements). Higher requirement (PG) Please check for other Accepted English Qualifications
Admissions Test/Interview	N/A

The programme's competency standards documents are available from the department.

Learning & Teaching Approach

Learning and Teaching Delivery Methods

The MSc programme delivers a high-level mathematical degree in Quantitative Finance. It consists of core techniques (stochastic analysis, statistics, probability, computing) combined with cutting-edge applications in algorithmic trading, derivatives pricing, machine learning, quantum computing among others.

Teaching will be delivered by members of the Mathematical Finance Section and by leading experts from the financial industry, through a range of methods including in-class lectures (in large groups of students, typically 50-55), tutorial sessions (that include problem classes, Q&A sessions and group tutorials), and practical computational sessions. In addition, all the modules' material is posted on Blackboard and new technologies such as MS Teams (Channels, forums, discussions, breakrooms) are integrated into the teaching delivery to encourage communication and interaction. Office hours with lecturers for addressing additional individual questions will support each module.

You will also meet with other students in groups of 3-5, to work on projects which are given in the modules, and in personal tutor meetings.

In addition to the modules, every week you will have presentations by practitioners from the financial industry who will present their research and practice at the company and discuss internship openings. These features allow you to participate in a seamless, flexible, and engaging learning experience and ensure the highest quality learning environment and close connections with the industry.

Between May and September, you will write your MSc Research Project in general throughout an external placement with a Finance-related company. This will be an opportunity to apply learnings taught throughout the year. In specific cases the MSc Research Project can be done as an internal project, given by one of the program's lecturers. It is possible for projects to be carried out partly or wholly at an external organisation.

Overall Workload

Each ECTS credit corresponds to an expected total study time of 25 hours. Each one of the seven compulsory modules of the MSc is worth 7.5 ECTS and each of the Elective modules is worth 5 ECTS. Your final project is worth 15 ECTS. You will be taking all 7 compulsory modules and choose 5 Elective modules. Therefore, the expected total study time of 2312.5 hours per year, this being composed of roughly 1937.5 hours associated with modules that you will take in the Autumn and Spring terms, and of 375 hours dedicated to your research project, which takes place in the Summer term.

Your overall workload consists of face-to-face sessions and independent learning. You will spend around 300 hours in lectures, problem classes and tutorials over the entire MSc programme. The remaining time is for self-study (including project work) and meetings with your project supervisor.

Assessment Strategy

Assessment Methods

The mean of assessments will change according to the goals, content and learning outcomes of each module. The assessment methods of the modules will include:

- Written examinations with duration of 3 hours for compulsory modules and 1.5 hours for Electives.
- Group projects assessments
- Enhanced coursework assessments
- Tests, including online quizzes and in-class tests
- Oral examinations
- Research project

Written exams take place early January for Term 1 modules and early May for Term 2 modules. All Resits are taken in September. Courseworks run continuously throughout Term 1 and Term 2. The research project will be handed in by early-September and the grade will be given based on the written report.

All the assessments are designed to support the students' learning outcomes in each module, in the overall degree and in their future professional practice. In addition, formative assessments including courseworks, online quizzes and in-class electronic surveys will be used by the lecturers for supporting students' learning.

Academic Feedback Policy

Module Feedback:

Assessed courseworks done as part of a module are marked within two weeks and returned to you with constructive comments. You will have the opportunity to discuss directly with the module lecturer in the office hours on any difficulties that may come along in the course. Students' mid-term feedback is provided for every module so that any issue can be sorted out before the end of the module. Lecturers will also use online quizzes and survey questions on Blackboard to allow prompt feedback and to provide opportunity for both lecturers and students to identify areas that need more attention.

Research project Feedback:

During the Summer term while working on your research projects (typically within a company), you meet regularly with your industrial and academic supervisors. These meetings allow for feedback on the progress made in project and discussions of future directions. The project's academic supervisor also provides feedback to drafts of the written parts before submission. Shortly after the project submission in September, you will receive detailed feedback on your work from your academic advisor in the Mathematical Finance Section. This note is also sent to the industrial advisor at the company to add further feedback.

Degree Feedback:

You will meet regularly with your internal mentor, at least twice in each term. These meetings allow for feedback on individual progress toward the degree, for advice on the choice of modules and on potential internship placements.

Meetings with MSc representatives are organised in November and February, and feedback is always taken into account seriously. Provisional marks in letter form for the Term 1 modules are released in February and for the Term 2 modules are released in July. We further have an end-of-year survey asking for feedback regarding both the course contents and the Research project and placement.

Imperial's Policy on Academic Feedback and guidance on issuing provisional marks to students is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Exam Feedback
Written exam feedback will be provided by the instructor upon your request.

Re-sit Policy
Imperial's Policy on Re-sits is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/
Mitigating Circumstances Policy
Imperial's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/

Additional Programme Costs
There are no additional costs relevant to this programme which are not included in students' tuition fees.

Important notice: The Programme Specifications are the result of a large curriculum and pedagogy reform implemented by the Department and supported by the Learning and Teaching Strategy of Imperial College London. The modules, structure and assessments presented in this Programme Specification are correct at time of publication but might change as a result of student and staff feedback and the introduction of new or innovative approaches to teaching and learning. You will be consulted and notified in a timely manner of any changes to this document.

Programme Structure[1]				
FHEQ Level 7 **You will study all compulsory and core modules.** **You must pick five elective modules.**				
Code	Module Title	Core/ Compulsory	Term	Credits
MATH70107	Fundamentals of Option Pricing	Compulsory	Autumn	7.5
MATH70108	Statistical Methods for Finance	Compulsory	Autumn	7.5
MATH70109	Stochastic Processes	Compulsory	Autumn	7.5
MATH70110	Quantitative Risk Management	Compulsory	Autumn	7.5
MATH70111	Interest Rate Models	Compulsory	Spring	7.5
MATH70112	Computing in Finance	Compulsory	Autumn-Spring	5
MATH70113	Simulation Methods for Finance	Compulsory	Spring	7.5
MATH70114	MSc Mathematics and Finance Research Project	Core	Summer	15
			Total Credits	65
Code	Module Title	Elective	Term	Credits
MATH70115	Algorithmic Trading in Machine Learning (not running in 2025-26)	Elective	Autumn	5
MATH70116	Deep Learning	Elective	Autumn	5
MATH70117	Data Science for Fintech Regtech and Suptech: Methodological Foundations and Key Applications (not running in 2025-26)	Elective	Autumn	5
MATH70118	Quantum Machine Learning in Finance	Elective	Autumn	5
MATH70119	Numerical Methods in Finance	Elective	Spring	5
MATH70120	Reinforcement Learning	Elective	Spring	5
MATH70121	Topics in Derivative Pricing	Elective	Spring	5
MATH70122	Optimisation in Machine Learning	Elective	Autumn	5
MATH70123	Stochastic Calculus for Finance (not running in 2025-26)	Elective	Spring	5
MATH70124	Rough Paths and Signatures in Machine Learning (not running in 2025-26)	Elective	Spring	5

[1] **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

MATH70125	Market Microstructure	Elective	Spring	5
MATH70126	Stochastic Control in Finance	Elective	Spring	5
MATH70127	Quantitative Trading and Price Impact	Elective	Spring	5
MATH70128	Selected Topics in Quantitative Finance	Elective	Spring	5
MATH70129	Portfolio Management	Elective	Autumn	5
MATH70065	Generative Modelling in Finance	Elective	Spring	5
			Total Credits	25

For the Part-time option, a recommended course schedule is as follows:

	YEAR 1	YEAR 2
Compulsory modules	**Term 1:** Fundamentals of Option Pricing Stochastic Processes Computing in Finance **Term 2:** Simulation Methods for Finance Computing in Finance	**Term 1:** Statistical Methods for Finance Quantitative Risk Management **Term 2:** Interest Rates Models **Summer Term:** Research Project
Elective modules	2 Electives	3 Electives

Progression and Classification

Award of a Masters Degree (including MRes)

To qualify for the award of a postgraduate degree you must have:
1. accumulated credit to the value of no fewer than 90 credits at level 7;
2. and no more than 15 credits as a Compensated Pass;
3. met any specific requirements for an award as outlined in the approved programme specification for that award.

Award of a Postgraduate Diploma (PG Dip)

To qualify for the award of a Postgraduate Diploma you must have a minimum of 60 credits at Level 7
1. and no more than 10 credits as a Compensated Pass.

Classification of Postgraduate Taught Awards

The university sets the class of Degree that may be awarded as follows:
1. Distinction: 70.00% or above.
2. Merit: 60.00% or above but less than 70.00%.
3. Pass: 50.00% or above but less than 60.00%.

For a Masters, your classification will be determined through the Programme Overall Weighted Average and the designated dissertation or final major project module meeting the threshold for the relevant classification band.

Your degree algorithm provides an appropriate and reliable summary of your performance against the programme learning outcomes. It reflects the design, delivery, and structure of your programme without unduly over-emphasising particular aspects.

Programme Specific Regulations

N/A

Supporting Information
The Programme Handbook is available from the department.
The Module Handbook is available at: https://www.imperial.ac.uk/media/imperial-college/faculty-of-natural-sciences/department-of-mathematics/math-finance/2025-26-MSc-Maths-Finance-Handbook.pdf
Imperial's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/requirements
Imperial's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
Imperial's Academic and Examination Regulations can be found at: www.imperial.ac.uk/about/governance/academic-governance/regulations
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Imperial College London is regulated by the Office for Students (OfS) www.officeforstudents.org.uk/advice-and-guidance/the-register/
This document provides a definitive record of the main features of the programme and the learning outcomes that you may reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.