MSc in Mathematical Finance

Part-time study
Why should I choose the part-time MSc in Mathematical Finance?

The Mathematical and Computational Finance Group at the Mathematical Institute, University of Oxford provides one of the largest and most dynamic research environments in quantitative finance in the world, with internationally recognised experts in core fields. The Group deliver two MSc programmes; the full-time MSc in Mathematical and Computational Finance and the part-time MSc in Mathematical Finance.

The main aim of the part-time MSc in Mathematical Finance is to develop students’ modelling, mathematical and computational skills in applications to finance. The MSc course covers the most important technical and quantitative aspects of finance in regular use in banks and other financial institutions, from basic material to current research. There is also material on related subjects to give students a thorough grounding in the discipline and to enable them to make intellectual links between different topics. There is a substantial interaction with ideas from applied mathematics, pure mathematics, statistics, computing and corporate finance.

“Oxford’s Mathematical Finance course provided an excellent link between my engineering background and the world of finance, and demonstrated in numerous ways how mathematical tools can be used to solve real-life challenges in the financial industry.”

Sergei Perfiliev, class of 2015

Structured for those in full-time employment in the UK or overseas, the course will help students to develop skills to enhance and progress their career without the necessity of taking a career break.

- The course is delivered in a series of intensive week-long modules based in Oxford, so that time away from work is kept to a minimum;
- The course allows students to choose advanced modules based on, and write an academic dissertation in, an area of relevance to their career;
- The course content is regularly updated to reflect the ever-changing industry and keep the material relevant;
- The course is taught by a panel of world-leading academics and industrial practitioners;
- It is possible to exit early with the Postgraduate Diploma, should work pressures be such to prevent the dissertation being written.

“My main motivation to complete this MSc is to improve my mathematical argumentation, to develop excellence in financial instruments valuation and to build proper pre-requisites for further academic/research career (PhD in Mathematics).”

Marcin Dec, class of 2016

Whilst the MSc in Mathematical Finance does primarily appeal to those already working in the industry, it can be used to further an academic career.
What can I expect from the course?

The MSc in Mathematical Finance builds on a strong quantitative background to educate students in state-of-the-art mathematical and quantitative finance. In order to complete the MSc each student must attend and be assessed on four core modules, three advanced modules and to submit a dissertation. Students are expected to take seven terms (28 months) to complete the Mathematical Finance course.

Please note: the diagram is indicative only. Please see the Course Handbook for the Examination Regulations and Examination Conventions.

Modules are taught through a series of lectures, practical sessions, guided reading, guest lectures and course assignments. Core modules establish the foundations of asset and derivative pricing, and are summatively assessed as part of the formal examination for the MSc through two written examinations in the first year.

The advanced modules cover practical and cutting edge topics including: energy and credit, financial risk management, robust methods and market microstructure. Students should choose three advanced modules, from the four offered every year. Each is assessed by a written assignment.

The dissertation is a piece of academic research that is started after completing the advanced modules. It is submitted in the middle of April, just under two and a half years after starting the MSc. The dissertation is summatively assessed.
Who will I be taught by?

The programme is delivered in a series of intensive week-long ‘modules’ taught by a panel of world-leading academics and industrial practitioners.

The current list of contributors for the course are given below. The lecturers are supported by Teaching Assistants, consisting of a group of DPhil students from the Mathematical and Computational Finance Group at the Mathematical Institute.

Lecturers from the Mathematical Institute:

- **Dr Siddharth Arora** - Time Series Forecasting
- **Dr Alvaro Cartea** - High Frequency and Algorithmic Trading, Asset Pricing, Energy Markets
- **Professor Sam Cohen** - Stochastic analysis and Financial Statistics
- **Professor Jeff Dewynne** - Variety of Core Topics, including Financial Modelling and Numerical Analysis
- **Professor Mike Giles** - Advanced Numerical Analysis
- **Professor Ben Hambly** - Stochastic Approaches to Finance
- **Professor Sam Howison** - Variety of topics, including Stochastic Volatility and Energy Derivatives
- **Professor Michael Monoyios** - Core Finance Topics, Incomplete Markets and Utility Methods
- **Professor Christoph Reisinger** - Core Finance Topics, including Numerical Methods and Calibration

Industry practitioners and guest lecturers:

- **Dr Jamil Baz** - Managing Director, PIMCO
- **Dr John Crosby** - Managing Director, Grizzly Bear Capital and Professor of Finance at Glasgow University, Adam Smith Business School
- **Dr Alexander Denev** - Head of Quantitative Research, Markit
- **Dr Martin Gould** - Postdoctoral Research Fellow, Imperial College London
- **Dr Jon Gregory** – Solum Financial Ltd
- **Dr Chris Hunter** – Quantitative Analyst, Fixed Income Research and Strategies Team, BNP Paribas Bank
- **Dr Daniel Jones** - Partner, Quadrature Capital LLP
- **Dr Mads Nielsen** - Quantitative Strategist, Schroder Investment Management
- **Dr Johannes Ruf** - Senior Lecturer, Department of Mathematics, UCL
- **Dr Lukasz Szpruch** – Lecturer, School of Mathematics, University of Edinburgh
- **Jochen Theis** - Head, Market Risk Models, Standard Chartered Bank
- **Dr Antony Ware** - Director of Mathematical and Computational Finance Laboratory, University of Calgary

“This course has vastly exceeded my expectations, with its perfect mixture of building a strong theoretical foundation by renowned academics and sharing real-world insight by leading practitioners.”

Pascal Vaudrevange, class of 2015
What is a Short Course?

The advanced modules may also be taken individually, as stand-alone courses (or Short Courses), by students on the programme and members of the public.

No proof of qualification is required to attend a module as a short course but, to benefit fully, short course students should have background knowledge in mathematical finance, such as that covered in the core modules of the MSc.

Short course students are not assessed. At the end of the module they are issued with a certificate of attendance.

Each of the advanced modules explores a key area in contemporary Mathematical Finance. The programme of advanced modules is published during the summer each year.

We charge a fee to all who attend a Short Course, which covers course materials, refreshments and lunches. Accommodation is not provided.

For information on the fees for the short courses, the list of the courses currently offered, and to register, please visit our website.
What else can Oxford offer me?

The University has an international reputation for world-leading research, teaching and resources, and combine that with a beautiful and historic city it continues to attract the very best students from all over the world. The MSc in Mathematical Finance has admitted students from Austria, Canada, Chile, Cuba, Germany, Greece, Hong Kong, India, Italy, Luxemburg, Poland, Portugal, Russia, Singapore, South Africa, Switzerland, The Netherlands, UK, USA, Vietnam and Zimbabwe. This gives our students a great opportunity to network and make contacts with others from different backgrounds and cultures; both professionally and socially.

The University is a collegiate system, meaning that all students are associated with a college when they are admitted. The colleges currently offering places to MSc in Mathematical Finance students are Christ Church, Exeter, Hertford, Kellogg, Lincoln, St Anne’s and St Catherine’s. Being joined to a college gives students the opportunity to be part of the wider Oxford graduate student body, with benefits including graduate events and dinners, access to college facilities and libraries, and (depending on the college) funding and accommodation.

The Mathematical Institute is housed in the Andrew Wiles Building, in central Oxford. As well as providing lecturing space for the modules, students are also able to take advantage of the Pi Café, Common Room, Mathematical and Computational MSc Study Room and the Whitehead Library.

While in Oxford for the modules, a number of social events are organised by the Mathematical Institute for the students. These include dinners at Jesus College and Exeter College, and the traditional Oxford experience of punting down the river. In addition, the External Relations team organise a number of events for alumni to attend, so we encourage an active interest even after completing the degree.

Our students have come from: Bank of America Merrill Lynch, Barclays Capital, CitiGroup, Credit Suisse, Deutsche Bank, Deloitte, d-fine, Ernst and Young, Goldman Sachs, JP Morgan, Lloyds, Morgan Stanley, PwC, RBS, Societe Generale and UBS
How do I apply for the course?

If you wish to apply for the course you must do so online, following the detailed guidance provided on the Graduate Admissions website.

There are two application deadlines in the year preceding entry, which are normally mid-May and the end of August. (Please note that these deadlines are unique to this MSc, and different from the 'standard' deadlines for other courses advertised on the University's main graduate admissions website).

When applying for the course, you must include the following supporting materials:

- Admissions exercise, including the declaration form;
- Three references (one from your current/most recent employer);
- A supporting statement;
- Copies of original transcripts from your previous degree(s);
- CV.

There is a fee for applying.

Applicants need to demonstrate their aptitude for, and knowledge of, mathematics, through their performances in the admissions test and/or at interview. Successful applicants have a variety of quantitative undergraduate degrees. Applicants with undergraduate degrees that are not purely mathematical will still be expected to demonstrate they have sufficient knowledge to perform well on the programme.

Fees
Students will be liable to pay for university and college fees. The fee for the current year can be found on our website, but is subject to an inflation increase for subsequent years. VAT is not applicable. Course fees include supervision and module teaching costs. Accommodation is not included.

Please note: Discounted rates are available for companies sponsoring several students in any one year.

For further information about the admissions process please contact:
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Phone: +44 1865 280102
For further information please contact:

Email: mathfin@maths.ox.ac.uk

Phone: +44 1865 615210

Website: www.maths.ox.ac.uk/mscmf

Facebook/LinkedIn: Please find us by searching for ‘MSc in Mathematical Finance’