This handbook applies to students starting the MSc in Mathematics and Computational Finance in Michaelmas term 2020. The information in this handbook may be different for students starting in other years.

The Examination Regulations relating to this course are available at http://www.admin.ox.ac.uk/examregs/2020-21/mosbcimandcompfina/studentview/

If there is a conflict between the information in this handbook and the Examination Regulations then you should follow the Examinations Regulations. If you have any concerns please contact mathcompfin@maths.ox.ac.uk

The information in this handbook is accurate as at 31 August 2020, however it may be necessary for changes to be made in certain circumstances, as explained at www.ox.ac.uk/coursechanges. If such changes are made the department will publish a new version of this handbook together with a list of the changes and students will be informed.

This Handbook, along with much other information about the MSc, can be found on the Course Website at: http://www.maths.ox.ac.uk/mscmcf

Welcome message from the Course Director

I would like to welcome you to the Mathematical Institute as a student in the M.Sc. in Mathematical & Computational Finance (MCF). Congratulations on securing a place in this highly-selective program which prepares students for careers in quantitative finance.

The M.Sc. program provides the foundations in applied mathematics, computational methods, and machine learning necessary for a successful career in modern finance. There will be written examinations as well as a dissertation. The program also includes a seminar series where financial firms will discuss career paths and opportunities in quantitative finance.

The M.Sc. is taught by faculty from the Mathematical & Computational Finance Group (MCFG), which is the largest faculty group on mathematical finance in the world. You will be part of a cohort of highly motivated and enthusiastic students, and I hope that you will enjoy the course and make the most of the opportunities it offers. Good luck!

Prof. Justin Sirignano
Course Director
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1 Introduction

This handbook contains important information about the MSc in Mathematics and Computational Finance. It is intended as a guide and reference for you throughout the course. There are a number of other sources of information that you will need to refer to during your course and links to these are given below, together with a list of key contact.

1.1 Key Sources of Information

Course website: Mathematical Institute website: \[http://www.maths.ox.ac.uk/mscmcf\]
This handbook can be found on the course website along with other useful information such as, course timetables and the annual course calendar.

Examination Regulations: \[http://www.admin.ox.ac.uk/examregs/\] The University’s examination regulations govern all academic matters within the University and contain the general regulations for the conduct of University examinations, as well as specific regulations for each degree programme offered by the University.

Examination Conventions: The examination conventions for the course set out how each unit will be assessed and how the final degree classification will be derived from the marks obtained for the individual units. The examination conventions can be found in Section 5.3 of this handbook.

Oxford Student website: \[http://www.ox.ac.uk/students\] This website provides access to information, services and resources.

Oxford Student Handbook: \[http://www.admin.ox.ac.uk/proctors/info/pam/\] This contains general information and guidance about studying at the University of Oxford, and gives you formal notification and explanation of the University’s codes, regulations, policies and procedures.

College Handbook: The handbook for your college will be available on the college website.

1.2 Key Contacts

Communication during the COVID19 pandemic: As a graduate student you will have access to an MS Teams account. During the pandemic MS Teams and emails are the most common means of communication between students and staff.

Course Director: Prof. Justin Sirignano Email: \[justin.sirignano@maths.ox.ac.uk\]

Chair of the Supervisory Committee: Prof. Mike Monoyios (tel:(2)80617) Email: \[mike.monoyios@maths.ox.ac.uk\]

Head of Academic Administration: Charlotte Turner-Smith: (tel: (6)15203) Email: \[rigdon@maths.ox.ac.uk\]

Course Administrator Mrs Laura Auger: (tel: (2)80612) Email: \[mathcompfin@maths.ox.ac.uk\]

Student Representative tba: Email: \[tba\] You will be informed of the student represen-
tative during induction week.

**Mathematical Institute Reception:** (tel: (2)73525)

### 1.3 The Academic Year

The course lasts almost 10 months, from the beginning of October to the middle of the following July. Some work is carried out in the vacations.

For the academic year 2020-2021, the course begins with an induction week starting on Monday 28 September 2020. The dates of the University Full Terms for the Academic Year 2020/2021 are:
- MT = Michaelmas Term 2020: 11 October - 7 December
- HT = Hilary Term 2021: 17 January - 13 March
- TT = Trinity Term 2021: 25 April - 19 June

A calendar of important dates can be found at [https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/course-calendar](https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/course-calendar)

### 1.4 Finding Your Way Round

Teaching for the course will take place in the Mathematical Institute ([http://www.maths.ox.ac.uk/about-us/travel-maps](http://www.maths.ox.ac.uk/about-us/travel-maps))

A searchable, interactive map of all college, department and libraries can be found at [http://www.ox.ac.uk/visitors/maps-and-directions/searchable-map-large](http://www.ox.ac.uk/visitors/maps-and-directions/searchable-map-large)

### 2 The MSc Course

#### 2.1 Aims of the Programme

The programme aims:

1. to provide you with a strong mathematical background with the necessary to apply your expertise to the solution of real finance problems.

2. to provide you with a systematic understanding of core areas in mathematical models, techniques, numerical methods and data analysis in finance as well as source advanced topics in one or more of these areas.

3. to develop your skills so that you are able to
   
   (i) formulate a well posed problem from a description in financial language,
   
   (ii) carry out relevant mathematical and/or statistical analysis,

   (iii) develop an appropriate numerical scheme and/or statistical algorithm,

   (iv) present and interpret these results.
4. to lay the foundation for further research or for a career as a quantitative analyst into a financial or other institution.

More information about the programme, its outcomes, governance and regulation, is detailed in the Programme Specification, which can be found on the Course Website.

### 2.2 Programme Outcomes

#### A.

<table>
<thead>
<tr>
<th>Students will gain a knowledge of:</th>
<th>Related teaching/learning methods and assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Core Courses.</td>
<td>Lectures and classes in terms 1 &amp; 2, written examinations in January and April. Two take home projects</td>
</tr>
<tr>
<td>2. Courses.</td>
<td>Lectures and Classes in term 2. Students to choose 4 elective courses out of 7. Assessed by written examination in April.</td>
</tr>
<tr>
<td>4. Practical Computational Finance</td>
<td>An intensive 8 hour non-examinable lecture course on Python will also be run in Introductory week. Two C++ lecture courses are supported by practicals which are built around computational finance, and these courses are assessed by practical examinations taking place in January and March.</td>
</tr>
<tr>
<td>5. Dissertation on a specific problem</td>
<td>Students write a report of between 25 and 40 pages in some depth on a specific problem.</td>
</tr>
</tbody>
</table>
B. Students have the opportunity to develop the following skills during the course

<table>
<thead>
<tr>
<th>I. Intellectual skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The ability to demonstrate knowledge of key mathematical and financial concepts and topics, both explicitly and by applying them to the solution of problems.</td>
</tr>
<tr>
<td>2. The ability to comprehend problems, abstract the essentials of problems and formulate them mathematically and in symbolic form so as to facilitate their analysis and solution.</td>
</tr>
<tr>
<td>3. The ability to grasp how mathematical processes may be applied to problems, including where appropriate, an understanding that this might give only a partial solution.</td>
</tr>
<tr>
<td>4. The ability to select and apply appropriate mathematical processes.</td>
</tr>
<tr>
<td>5. The ability to construct and develop logical mathematical arguments with clear identification of assumptions and conclusions.</td>
</tr>
<tr>
<td>6. The ability to use computational and more general IT facilities as an aid to mathematical processes and for acquiring any further information that is needed and available.</td>
</tr>
<tr>
<td>7. The ability to present mathematical arguments and conclusions from them with clarity and accuracy, in forms suitable for the audiences being addressed</td>
</tr>
<tr>
<td>8. The ability to formulate a financial problem in mathematical terms, solve the resulting equations analytically or numerically, and give interpretations of the solutions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching/learning methods and strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>These are acquired through lectures, classes, practical classes, studying recommended textbooks and through work done for mini-projects and dissertations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>II. Mathematical related practical skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Calculating fluently and accurately in abstract notation.</td>
</tr>
<tr>
<td>2. Use of mathematics computer packages especially C++ and Python.</td>
</tr>
<tr>
<td>1. Practised throughout the course in problem work for classes.</td>
</tr>
<tr>
<td>2. Practised throughout course especially in practical numerical analysis classes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>III. General skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To analyse and solve problems, and to reason logically and creatively.</td>
</tr>
<tr>
<td>2. Effective communication and presentation orally.</td>
</tr>
<tr>
<td>1. Mathematical problem sheets with class support often requiring significant development of ideas beyond material found in lectures and books.</td>
</tr>
<tr>
<td>2. Presentation of solutions in classes.</td>
</tr>
<tr>
<td>3. The ability to learn independently.</td>
</tr>
<tr>
<td>---------------------------------------</td>
</tr>
<tr>
<td>4. Independent time management.</td>
</tr>
<tr>
<td>5. To think critically about solutions and to defend an intellectual position.</td>
</tr>
<tr>
<td>6. Collaboration.</td>
</tr>
<tr>
<td>7. Use of information and technology.</td>
</tr>
</tbody>
</table>

### 2.3 Course Structure

Below is a short outline of the course structure. For the list of courses go to Section 3.

#### 2.3.1 Introductory Courses

You take four introductory courses in the induction (introductory) week (Week -1 of Michaelmas Term). These are the foundation courses necessary for the rest of the course.

#### 2.3.2 Core Courses Michaelmas Term

The first term focuses on core material that is compulsory for all students; the term offers 64 hours or lectures and 24 hours of classes/practicals.

#### 2.3.3 Core and Elective Courses Hilary Term

The second term focuses on core material that is compulsory for all students as well as elective courses. The term offers 40 hours of lectures and 32 hours of classes/practicals for the core courses. Students are to choose 4 out of 6 elective courses. Each elective course comprises 8 hours of lectures and 2 classes.
2.3.4 Financial Computing Courses

The first component of the Financial Computing course, Financial Computing with C++ 1 (16 lectures and 8 two-hour classes) is held in Michaelmas Term.

The second component of the Financial Computing course, Financial Computing with C++ 2 (24 hours of lectures and practicals in total) is held in Hilary Term.

2.3.5 Dissertation

The third term is dedicated to a dissertation project which is to be written on a topic chosen in consultation with a supervisor. There will be the option of an internship alongside your dissertation. We will circulate further information in due course.
3 Courses offered in 2020/2021

Detailed synopses for the courses can be found on the course web pages.

3.1 Introductory Courses

- Partial Differential Equations: Intro week 5 hrs lectures, 1 hr classes
- Probability: Intro week 5 hrs lectures, 1 hr classes
- Statistics: Intro week 6 hrs lectures, 1 hr classes
- Python: Intro week 8 hrs lectures
- Financial Markets and Instruments: Intro week 7 hr lectures
- Markdown reports: Intro week 2 hrs lectures

These courses are all held in the Introductory week and are not assessed. The classes take place in Week 1 of Michaelmas Term.

3.2 Core Lecture Courses

- Stochastic Calculus: MT 16 hrs lectures + 4 classes, 1.5 hrs each
- Statistics and Financial Data Analysis: MT 16 hrs lectures + 4 classes, 1.5 hrs each
- Financial Derivatives: MT 16 hrs lectures + 4 classes, 1.5 hrs each
- Numerical Methods: MT 16 hrs lectures + 4 classes, 1.5 hrs each
- Fixed Income and Credit: MT 16 hrs lectures + 4 classes, 1.5 hrs each
- Stochastic Control: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Quantitative Risk Management: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Deep Learning: HT 16 hrs lectures + 2 classes, 1.5 hrs each

These lecture courses are all supported by classes. The core courses are compulsory. For further information, see Section 5.3.

3.3 Elective Courses

Students are to register for 4 elective courses, out of 6.

- Advanced Monte Carlo Methods: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Advanced Numerical Methods: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Stochastic Volatility: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Asset Pricing: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Market Microstructure & Algorithmic Trading: HT 8 hrs lectures + 2 classes, 1.5 hrs each
- Optimisation: HT 8 hrs lectures + 2 classes, 1.5 hrs each

3.4 Programming Courses

- Financial computing with C++ Part I: MT 16 hrs lectures + 4 classes, 2 hrs each
- Financial computing with C++ Part II: HT 24 hrs lectures and classes
The two Financial Computing with C++ courses are compulsory and each assessed by a three-hour practical examination. For further information see Section 5.3.

Examination and assessment dates can be found on the course calendar at

https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/course-calendar

### 3.5 Practitioner Lectures and Career events

In addition, practitioner lectures and careers events may be arranged during the first term. Typically, lecturers are senior practitioners in investment banks or hedge funds, and their presentations cover current market trends or ‘live’ quantitative modelling challenges. These lectures and events are not assessed, but enable you to gain insight into the industrial applications of the course material.
4 Teaching and Learning

4.1 Organisation of Teaching

Teaching for the course will be provided by the Mathematical Institute through lectures and classes. In addition, you will have regular supervision meetings with your supervisor.

4.2 Supervisors

General Supervisors are appointed at the start of the MSc and will be available for consultation for the first two terms of the MSc. Your supervisor can act as a point of contact for advice on any academic matter and can also provide feedback on an initial draft of your first project (provided that you submit it to them in good time - at least a week before the deadline). On a day-to-day basis you will receive academic guidance from Class Tutors and the Course Director.

During Hilary Term you will be sent a list of possible Dissertation projects suggested by potential Supervisors. This list may include a few ‘external’ projects - which will be based in external financial institutions. You are also encouraged to suggest your own ideas for a project, and are encouraged to discuss this with your General Supervisor or the Course Director. For any project you suggest, it will be necessary to find a faculty member able to supervise it. Please be aware that individual supervisors have limited capacity, so you may have to be flexible. You will indicate your preference for dissertation projects and the Course Director will assign students to project supervisors. Project and supervisor allocation will be finalised by the end of Hilary Term.

Once projects and supervisors are determined it is important that you work to make good progress on your Dissertation in order to submit it by the deadline at the end of Trinity Term. You can expect to have up to 1 hour contact time per week with your supervisor to discuss your Dissertation. We strongly recommend discussing the draft of your dissertation with your supervisor, a reasonable time in advance of submission.

Students doing their dissertations as part of an industrial internship will have a dissertation supervisor in the internship company. An internal supervisor will oversee progress, receiving any progress reports from the dissertation supervisor.

4.3 Lectures

The lecture timetable will be available on the course website

https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/information-current-students

Due to the pandemic, all lectures will be recorded and made available to those who are unable to attend in person.
4.4 Course Materials

Course material, such as lecture notes and problem sheets, will be published on the Mathematical Institutes website. You should follow the links to the appropriate pages from the lecture schedule on the course website.

4.5 Classes

Lecture courses will normally be accompanied by problem sets and fortnightly problem classes. For core courses, 2 sets of classes are run, so the cohort is split into 2 smaller groups. For elective courses, 1 set of classes is run.

Before each class you will need to submit your problem sheet to the class teaching assistant for marking. A subset of key questions (approximately two) on each sheet will be marked. The class will cover all questions.

You should always submit your problem sheet before the stated deadline.

4.6 Advice on Teaching and Learning Matters

There are a number of people you can consult for advice on teaching and learning matters. Supervisors will be appointed for MSc students at the start of the course and will be available for consultation on any academic matter. All students will receive academic guidance from the Course Director.

If you have any issues with teaching or supervision please raise these as soon as possible so that they can be addressed promptly. Details of who to contact are provided in Section 1.2.

4.7 Skills and Learning Development

Expectations of Study

You are responsible for your own academic progress. Therefore, in addition to the formal teaching you receive through lectures, classes and dissertation tutorials, you will be expected to undertake a significant amount of self-directed, independent study both during term time and in the vacations. You are advised to read the University’s guidance on undertaking paid work at [http://www.ox.ac.uk/students/life/experience](http://www.ox.ac.uk/students/life/experience).

Termly Reporting

Students are required to submit a reflective report on their progress each term. This should follow on from a supervision meeting where you have discussed your progress and next steps with your supervisor. Your supervisor is also expected to submit a termly report on your academic progress. Your reflective report should be submitted through the online Graduate Supervision Reporting (GSR) ([http://www.admin.ox.ac.uk/studentsystems/GSR](http://www.admin.ox.ac.uk/studentsystems/GSR)). This captures information reported by both student and supervisor(s), with details relevant to each student being available to his or her supervisory team and the Director Of Graduate Studies. Your college advisor and University and college
graduate studies administrators with designated access will also be able to view the report. It is recognised that students in different situations will have differing needs and concerns. If you are concerned about your academic progress please contact your college tutor, supervisor or the Director of Studies. For MSc students, it is also mandatory to complete a self-assessment report via GSR for every reporting period. You can access GSR via the following link: https://www.ox.ac.uk/students/selfservice. Students will be sent a GSR automated email notification with details of how to log in at the start of each reporting window, and who to contact with queries. Completing the self assessment will provide the opportunity to:

- Review and comment on your academic progress during the current reporting period
- Measure your progress against the timetable and requirements of your programme of study
- Identify skills developed and training undertaken or required
- List your engagement with the academic community
- Raise concerns or issues regarding your academic progress to your Academic Advisor
- Outline your plans for the next term (where applicable).

If you have any difficulty completing this you must speak to your supervisor or Director of Studies. Your self-assessment report will be used by your supervisor as a basis to complete a report on your performance this reporting period, for identifying areas where further work may be required, and for reviewing your progress against agreed timetables and plans for the term ahead. GSR will alert you by email when your supervisor has completed your report and it is available for you to view.

### 4.8 University Lectures and Departmental Seminars

University lectures in all subjects are open to all students. A consolidated lecture list is available on the University website at: [http://www.ox.ac.uk/students/academic/lectures/](http://www.ox.ac.uk/students/academic/lectures/)

Seminars and colloquia given in the Mathematical Institute, often by mathematicians of international repute, are announced on the departmental notice boards you are encouraged to attend any which interest you. [https://www.maths.ox.ac.uk/events/list](https://www.maths.ox.ac.uk/events/list)

### 4.9 Study Skills

Much of the advice and training in study skills will come in the regular class teaching you receive. A wide range of information and training materials are available to help you develop your academic skills – including time management, research and library skills, referencing, revision skill and academic writing - through the Oxford Student website: [http://www.ox.ac.uk/students/academic/guidance/skills](http://www.ox.ac.uk/students/academic/guidance/skills)
4.10 Key Teaching Links

Lecture and Class Timetable:

https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/information-current-students

Course materials: https://courses.maths.ox.ac.uk/overview/postgraduate#12141

5 Examinations and Assessments

5.1 Guidance on Examination Regulations

The course is overseen by a Supervisory Committee, which consists of Prof Marc Lackenby (Director of Graduate Studies), Prof Mike Monoyios (Chair), Prof Justin Sirignano (MCF Course Director), Prof Christoph Reisinger (MF Course Director), Prof Ben Hambly, Prof Hanqing Jin (Faculty members), Dr Dan Jones (External member of industry) and a student representative (assigned at the beginning of the academic year).

5.2 Extract from University Examination Regulations

The Examination Regulations govern the course and are taken from the overall University Examination Regulations, sometimes referred to as the ‘Grey Book’ which govern all academic matters within the University.

Information on University regulations can be found

http://www.admin.ox.ac.uk/examregs/

5.3 Examination Conventions

This section outlines the examination conventions for the 2020-2021 MSc in Mathematical and Computational Finance course. These examination conventions have been approved by the 2020-2021 MCF Supervisory Committee. Full details of all board members can be found on

https://www.maths.ox.ac.uk/members/governance/committees/standing-orders-and-memberships/msc-supervisory-committees

Examination conventions are the formal record of the specific assessment standards for the course or courses to which they apply. They set out how examined work will be marked and how the resulting marks will be used to arrive at a final result and classification of an award.
5.3.1 Assessment Criteria

The assessment of coursework and examinations in the programme, using the mark scheme indicated below, is based upon recognition of the following qualities:

Knowledge and Understanding

- Range and depth in knowledge of mathematical techniques of analysis of use in finance covered in the course
- Appropriate selection of techniques for the analysis of finance problems and a knowledge of the limitations and strengths of models and techniques deployed

Argument and Reasoning

- Command of analytical skills appropriate for the study of finance
- Logical exposition and reasoning
- Clarity, completeness and concise expression in mathematical analysis

Presentation and Deployment

- Clear demonstration of the benefit of mathematical analysis of finance in argument
- Clarity in written (non-mathematical) exposition
- Appropriate deployment of literature

5.3.2 Examination Components

The examination for the MSc in Mathematical and Computational Finance is comprised of three main components. The numbers of exam questions set for each course are as follows:

- 16 hour courses: 3 questions set, 2 to be attempted.
- 8 hour core courses: 2 questions set, 1 to be attempted.

Component One comprises of examination Papers A, B, C, and D. Each assessment is made up of either written examinations or practical examinations.

- Paper A (Stochastic Calculus and Financial Derivatives): 3 hour paper-based examination which is sat in Week 0 of Hilary Term.
- Paper B (Numerical Methods): 1 \( \frac{1}{2} \) hour paper-based examination which is sat in Week 0 of Hilary Term
• Paper C (Fixed Income and Credit, Stochastic Control, and Quantitative Risk Management): 3 hour paper-based examination which is sat in Week -1 of Trinity Term.

• Paper D (Elective Papers): 2 hour paper-based examination which is sat in Week -1 of Trinity Term.

**Component Two** comprises of two computing assessments and two take-home projects. Candidates are expected to complete all the following assessments

• Financial Computing with C++ Part I: will be assessed by a 3-hour computer-based practical exam, sat on Friday of Week 0 of Hilary Term.

• Financial Computing with C++ Part II: will be assessed by a 3-hour computer-based practical exam, sat on Friday of Week 8 of Hilary Term.

• Statistics and Financial Data Analysis will be assessed as a take-home project on Week 9 of Michaelmas Term

• Machine Learning will be assessed as a take-home project on Week 8 of Hilary Term

**Component Three** comprises the dissertation.

• Dissertation: The dissertation will be written during Trinity Term on a topic chosen in consultation with a departmental supervisor or an industry partner. It should be no more than 40 pages long and should contain material which, although not necessarily original research, cannot be found elsewhere. Credit will be given for the mathematical and financial content, as well as the clarity of the writing.

5.3.3 **Marking Conventions**

In Oxford, the word ‘examination’ often refers to the ensemble of assessments (written examinations, dissertations etc.) which, taken together, determine the final result in the MSc. The examination for the MSc in Mathematical and Computational Finance comprises:

• written paper-based examinations,

• financial computing practical examinations,

• take-home projects,

• dissertation.

Performance on assessed parts of the course is reported as a University Standardised Mark (USM), a number between 0 and 100. For MSc courses, a USM of less than 50 is a failing mark, while one of 70 or more is a Distinction mark. Raw marks may be turned into USMs by scaling, sometimes necessary to ensure all papers are fairly and equally rewarded. In all
cases, the examiners will use their academic judgement to check that appropriate USMs are awarded.

A Board of Examiners is appointed, consisting of three members of the Mathematics Faculty (one of whom serves as Chair of Examiners), and one External Examiner. For 2020-21 the Board of Examiners is as follows: Prof Ben Hambly (Chairman), Prof Rama Cont, Prof Hanqing Jin, Prof Mike Monoyios, and Prof Vicky Henderson (External Examiner — University of Warwick). Assessors are appointed to assist the Examiners with marking. These Assessors are usually members of the Mathematics Faculty.

Students are strictly prohibited from contacting external examiners directly. If you are unhappy with an aspect of your assessment you may make a complaint or appeal (see section 11).

Students can access Examiners reports (including external examiners reports) on the course website at

https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/examination-and-assessment

5.3.4 Feedback

Assessors who mark the dissertation and projects are encouraged to give comments providing constructive feedback on the work they marked. After being approved by the Chair of Examiners on behalf of the Examination Board, this feedback is passed on to the candidates after the results have been released.

5.3.5 Criteria for USMs: written examinations

The USM for each written examination is determined by a scaling applied to the raw marks.

70-100: Marks in this range indicate excellent skills in reasoning, and problem-solving, together with an excellent knowledge of the material, and the ability to use it in unfamiliar contexts. There will be minor errors and omissions only. USMs at the top end of the range indicate that all answers were essentially perfect.

60-69: Marks in this range indicate good or very good skills in reasoning and problem-solving, with a good or very good knowledge of much of the material. Not all parts of every question will have been answered fully or correctly.

50-59: Marks in this range indicate adequate basic skills in reasoning and problem-solving, with a sound knowledge of a reasonable part of the material. Substantial parts of some questions may have been unanswered or answered incorrectly.

45-49: Marks in this range indicate understanding of only part of the basic material and only restricted problem-solving skills. Although there may be a few good answers, the great majority of answers will contain errors in calculations and/or show incomplete understanding of the topics.
40-44: Marks in this range indicate only very limited grasp of basic material over a very restricted range of topics, but with large gaps in understanding and insufficient coverage of the material as a whole.

0-39: Marks in this range indicate inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations; the answers to most of the questions attempted are likely to be fragmentary only.

5.3.6 Criteria for USMs: dissertations and take-home projects

90-100: Marks in this band indicate remarkable ability and extraordinary insights; the presentation and clarity of exposition of the work are exceptional. Dissertations in this band will be worthy of publication and will contain novel results, the project goes far beyond the material of the lecture course.

80-89: marks in this band are excellent, showing thorough knowledge and understanding of the topic and including the candidate’s own original insights and interpretations. Presentation is very good. The project goes beyond the material of the lecture course.

70-79: Dissertations and projects in this band are very good, well thought-out pieces of work with no major deficiencies, and with no significant deficiencies in presentation or clarity of exposition. They will show a thorough understanding of the topic.

60-69: Dissertations and projects in this band may be good pieces of work with few deficiencies in content or presentation, but not significantly extending the material covered in the course; or they may have novel elements but also suffer from deficiencies in content, understanding, structure or presentation that prevent them from being of distinction level.

50-59: Dissertations and projects in this band are of acceptable quality but have weaknesses in content, understanding, structure or presentation.

40-49: Dissertations and projects in this band are not of acceptable quality and have significant weaknesses in content, understanding, structure or presentation. A major revision might raise the work to above a pass level.

0-39: This band indicates unacceptably poor work, showing extremely limited understanding of the topic covered and/or unacceptably poor presentation.

5.3.7 Overall Assessment

In order to make an overall assessment the individual assessments are grouped into three components (as above). The overall USM is calculated as the weighted average of the three USMs obtained for the three individual components based on the following weights:

- Component one (Examinations): 45%
- Component two (C++ and Take-Homes): 25%
- Component three (Dissertation): 30%
The final result is one of Distinction, Merit, Pass or Fail. The criteria for each result are described below.

In addition to the final result options above, the University has introduced the Declared to have Deserved Masters degree (referred to as DDM) for the 2020-21 academic year. These are unclassified degrees and will be awarded when students are unable to complete their summative assessments.

Candidates who have indicated they wish to be considered for DDM will first be considered for a classified degree, taking into account the safety net policy and any individual MCE. If that is not possible and they meet the DDH/DDM eligibility criteria, they will be awarded DDM.

5.3.8 Criteria for a Distinction

Distinctions are awarded when a candidate shows excellent problem-solving skills and excellent knowledge of the material over a wide range of topics; is able to use that knowledge innovatively and/or in unfamiliar contexts; and is able to produce a substantial piece of work for the dissertation. A candidate will be eligible for a Distinction if they fulfil both of the following criteria:

- an overall USM of 70 or above;
- a USM of at least 68 on component one and three, and USMs no less than 50 on component two.

*Please note* that candidates taking the examinations for a second time may not be considered for a Distinction.

5.3.9 Criteria for a Merit

The Merit is awarded for very good quality work throughout the course. Very good problem solving skills and knowledge over a wide range of topics, or excellent command of some material and good or very good command of the rest.

Candidates will receive a Merit if either of the following conditions are met:

- the overall USM is between 65-69, with USMs no less than 50 on each component;
- the overall USM is 70 or above, but the USM on either components one or three is below 68, with a USM no less than 50 on any component.

5.3.10 Criteria for a Pass

The pass covers a wide range of results from candidates who show adequate knowledge of most of the material, to candidates who show good knowledge of much of the material over a wide range of topics.
Candidates will receive a Pass if they do not meet the criteria for a Distinction, Merit or Fail; that is, if all of the following criteria are met:

- the overall USM is between 50-64 and the second and third criteria below for a fail are not met;
- the overall USM is 65 or above but the USM on one component is less than 50.

5.3.11 Criteria for a Fail

Candidates fail when they show inadequate grasp of the basic material. The work is likely to be inadequate in scope or coverage and/or to show major misunderstanding and confusion, and/or inaccurate calculations. A candidate’s work will be classified as a Fail if it meets one or more of the following criteria:

- the overall USM is less than 50;
- USMs on two or more individual components are less than 50;
- USMs on one or more individual components are less than 45.

Candidates who fail may retake the examinations on one further occasion, normally within one year. In such cases, the examiners specify which parts of the examination need to be retaken. Candidates retaking the examinations may not be considered for a distinction.
5.3.12 Criteria for Classification: Flowchart

Let $U$ be the overall USM, $A$, $B$, $C$ the USMs on components one, two and three respectively. Classification of the overall degree can be determined by following the flow chart below.

**First attempt at examinations**

- **Yes**
  - $U \geq 70$
  - Both of $A, C \geq 68$ and $B \geq 50$
  - All of $A, B, C \geq 50$
  - Distinction

- **No**
  - $U \geq 65$
  - All of $A, B, C \geq 50$
  - Merit

**Subsequent attempt**

- **Yes**
  - $U \geq 50$
  - All of $A, B, C \geq 45$
  - Pass

- **No**
  - $U < 50$
  - At least two of $A, B, C \geq 50$
  - Fail
5.3.13 Verification and Reconciliation of Marks

For papers without a model solution, each script/item of work will be marked independently by two examiners or assessors (sometimes referred to as ‘double-blind marking’). If the two marks differ beyond a range set by each assessor, the mark will be reconciled according to University and divisional guidance. In exceptional cases where the mark is unable to be reconciled, the marks from two examiners will be averaged. Where subjects permit averaging of marks (over a narrow range) in reconciliation between markers, the system used will be clear and justifiable and not operated to the detriment of candidates. If reconciliation is difficult, a third marker will act as an arbiter in agreeing the appropriate mark.

For papers for which there is a model solution and marking scheme approved by the examiners, each script is marked by an examiner or assessor, and then checked independently to ensure that all parts have been marked and the marks and part-marks have been correctly totalled and recorded.

5.3.14 Scaling

If scaling is used, scaling will not be used as a mechanistic process, but as one in which the examiners will use their academic judgement to ensure that appropriate classifications are award.

5.3.15 Penalties for Late or non-Submission

The Examination Regulations stipulate specific dates for submission of dissertations, take-home exams and mini-projects. Rules governing late submission and any consequent penalties are set out in full in the Late submission and non-submission of a thesis or other written exercise subsection of the Regulations for the Conduct of University Examinations section of the Examination Regulations 2020.

If you will be prevented by illness or other urgent clause from submitting your coursework on time you should contact your college office or college tutor as soon as possible. Your college is able to submit an application for an extension of time to the Proctors on your behalf.

The scale of penalties agreed by the board of examiners in relation to late submissions of assessed coursework is set out below.

Note: The penalty will be a percentage reduction of the maximum total mark available for the work. For example, if a 10% penalty is applied to an assessment given a USM out of 100 then 10 marks would be deducted. The final mark awarded after application of the penalty cannot be below 0.

For any open book examinations, Candidates should upload their submission within the time allowed for their open-book examination. Candidates who access the paper later than the published start time (and who do not have an agreed alternative start time) will still need
Table 5: Late Submission Tariff

<table>
<thead>
<tr>
<th>Lateness</th>
<th>Cumulative Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 4 hours, i.e. up to Monday 4pm</td>
<td>1 %</td>
</tr>
<tr>
<td>4–24 hours, i.e. up to Tuesday 12 noon</td>
<td>10%</td>
</tr>
<tr>
<td>24–48 hours, i.e. up to Weds 12 noon</td>
<td>20%</td>
</tr>
<tr>
<td>48–72 hours, i.e. up to Thurs 12 noon</td>
<td>30%</td>
</tr>
<tr>
<td>72–96 hours, i.e. up to Fri 12 noon</td>
<td>35%</td>
</tr>
<tr>
<td>96 hours - 14 days</td>
<td>35%</td>
</tr>
<tr>
<td>More than 14 days late</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Candidates who access the paper on time but who submit their work after the published timeframe will also be considered to have submitted late.

Where candidates submit their examination after the end of the specified timeframe and believe they have a good reason for doing so, they may submit a self-assessment mitigating circumstances form to explain their reasons for the late submission. The Exam Board will consider whether to waive the penalties (outlined below) for late submission.

Table 6: Late Open-Book Submission Tariff

<table>
<thead>
<tr>
<th>Lateness</th>
<th>Cumulative Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 15 minutes</td>
<td>No penalty</td>
</tr>
<tr>
<td>16 minutes- 30 minutes</td>
<td>5%</td>
</tr>
<tr>
<td>31-45 minutes</td>
<td>10%</td>
</tr>
<tr>
<td>Up to an hour</td>
<td>15%</td>
</tr>
<tr>
<td>After one hour</td>
<td>Fail mark (0)%</td>
</tr>
</tbody>
</table>

Penalties will only be applied after the work has been marked and the Exam Board has checked whether there are any valid reasons for late submission.

Failure to submit a required element of assessment will result in the failure of the whole of the assessment. The mark for any resit of the assessment will be capped at a pass.

Failure to attend an examination will result in failure of the assessment with any resit capped at a pass.

Students are advised that, according to the University’s Examination Regulations, the University applies a late fee to any work covered in this section which is handed in late.
5.3.16 Penalties for Poor Academic Practice

The Examination Board shall deal wholly with cases of poor academic practice where the material under review is small and does not exceed 10% of the whole.

Assessors should mark work on its academic merit with the board responsible for deducting marks for derivative or poor referencing.

Determined by the extent of poor academic practice, the board shall deduct between 1% up to 10% of the marks available for cases of poor referencing where material is widely available factual information or a technical description that could not be paraphrased easily; where passage(s) draw on a variety of sources, either verbatim or derivative, in patchwork fashion (and examiners consider that this represents poor academic practice rather than an attempt to deceive); where some attempt has been made to provide references, however incomplete (e.g. footnotes but no quotation marks, Harvard-style references at the end of a paragraph, inclusion in bibliography); or where passage(s) are 'grey literature' i.e. a web source with no clear owner.

If a student has previously had marks deducted for poor academic practice or has been referred to the Proctors for suspected plagiarism the case must always be referred to the Proctors. In addition, any more serious cases of poor academic practice than described above will be referred to the Proctors.

5.3.17 Role of the Proctors

The Proctors are responsible overall for the conduct of examinations within the University. Specifically, they are responsible for:

- Investigating cases of suspected intentional plagiarism
- Making decisions about non-acute and acute illness for MSc students
- Investigating appeals from candidates
- Decisions to deduct marks or disallow work in some cases of plagiarism or in cases of unauthorised late submission
- As far as the remit of Proctors permits, investigating allegations of inadvertent plagiarism and appeals from candidates.

5.3.18 Resits

For post graduate taught courses where an assessment for an examination have been failed at the first attempt, students are entitled to one further attempt unless otherwise specified by the special regulations. Marks for any assessment that have been successfully completed at the first attempt may be carried forward, and therefore it will only be necessary for students to resit a failed assessment. The mark for any resit of an assessment will be capped at a pass.
### 5.3.19 Consideration of mitigating circumstances

A candidate’s final outcome will first be considered using the classification rules/final outcome rules as described in the previous USM Overall Assessment section. The exam board will then consider any further information they have on individual circumstances.

Examiners are able to consider mitigating circumstances, i.e. medical and other circumstances (including disability) that may have affected a candidate’s performance in examinations and assessments. Examiners may adjust a candidate’s result as deemed necessary.

### 5.4 CATS and ECTS Points

The MSc in Mathematical and Computational Finance is worth 180 CATS points (UK credits) according to the Higher Education Credit Framework for England. 180 CATS points equates to 60-90 credits in the European Credit Transfer Scheme (ECTS points).

#### 5.4.1 Student prizes

Each year, at the Final Examination Board meeting, the Examiners will consider all students, who have completed the MSc in that particular year, for the Best Overall Student Prize. The winning student will be awarded 250 GBP.

A central list of all prizes can be found at: [https://www.ox.ac.uk/students/fees-funding/prizes-and-awards?wssl=1](https://www.ox.ac.uk/students/fees-funding/prizes-and-awards?wssl=1)

### 5.5 Graduation Ceremony

Upon successfully completing the MSc you should receive an automated email inviting you to select a date for your graduation ceremony or to opt for graduation in absentia. If you do not receive such an email, please email [degree.ceremonies@admin.ox.ac.uk](mailto:degree.ceremonies@admin.ox.ac.uk) and copy in your college, which is responsible for the arranging of graduation ceremonies. If you elect to attend a graduation ceremony, you will receive your degree certificate at that ceremony. If you decide to graduate in absentia, you will receive your degree certificate via mail. In either case, please ensure, within a month of submitting your dissertation, that you check (via the Student Self Service website) the spelling of your name that the University has on record, as that is what will appear on your degree certificate, and, particularly if you will be graduating in absentia, the address that the university has on record for you, as that is where mailed degree certificate and any other hard copies of correspondence will be sent. It is your responsibility to check these details and if you have not done so, you may be charged for an amended or duplicate degree certificate to be sent.
5.5.1 Plagiarism

Where the Chair finds that the matter can be dealt with by the Board, assessors will mark the work on its academic merits. The Board will then deduct marks for derivative or poorly referenced work according to a pre-determined scale set out in the marking conventions. Boards are free to operate marks deductions of between 1 and 10 marks available for that particular piece of work. In practice, it will often be difficult to operate very fine-grained distinctions and it is acceptable for examination boards to exercise their judgement within a small range of ‘bands’ e.g. on a 100 point scale a Board might judge cases to fall in one of three bands for which 3, 6, or 10 marks are deducted. Where the consequence of the marks deduction would result in failure of the assessment and of the programme (i.e. no resit opportunity) the case must be referred to the Proctors.

See [7] for further details.

5.6 Examination Entries

Students will be entered automatically for all assessments. However, you will be asked which electives you choose to take before the start of Hilary Term, in order to assist the Course Administrator with the class and lecture arrangements.

5.7 Alternative Examination Arrangements and Factors Affecting Performance

A candidate in any University Examination with specific learning difficulties or disability/illness may apply through the Senior Tutor of his or her college for alternative examination arrangements relating to his or her condition. Please see [http://www.ox.ac.uk/students/academic/exams/arrangements](http://www.ox.ac.uk/students/academic/exams/arrangements) for further information on the process.

Candidates who would like the examiners to be aware of any factors that may have affected their performance before or during an examination are advised to discuss their circumstances with their college and consult the Examination Regulations (Part 13). Candidates should complete the form entitled factors affecting performance in examinations and send this to their college with appropriate supporting material. The candidate’s college will submit the application for forwarding to the relevant chair of examiners.

Where a candidate or candidates have made a submission, under Part 13 of the Examination Regulations, that unforeseen factors may have had an impact on their performance in an examination, a subset of the board will meet to discuss the individual applications and band the seriousness of each application on a scale of 1–3 with 1 indicating minor impact, 2 indicating moderate impact, and 3 indicating very serious impact. When reaching this decision, examiners will take into consideration the severity and relevance of the circumstances, and the strength of the evidence. Examiners will also note whether all or a subset of papers were affected, being aware that it is possible for circumstances to have different levels of impact on different papers. The banding information will be used at the final board of examiners to adjudicate on the merits of candidates. Further information on the
procedure is provided in the *Policy and Guidance for examiners, Annexe B* and information for students is provided at [www.ox.ac.uk/students/academic/exams/guidance](http://www.ox.ac.uk/students/academic/exams/guidance).

### 5.8 Preparation and Submission of Coursework

#### 5.8.1 General information for all submissions

For information on deadlines for submitting work, please refer to the Course Calendar.

All projects are to be submitted on-line using the on-line system.

You will need your Mathematical Institute IT account username and password to submit work to this site. If you have any difficulties email [help@maths.ox.ac.uk](mailto:help@maths.ox.ac.uk).

You must submit one electronic file. Any subsidiary programming or other files must be included, as an appendix, within this single file. If you are unsure as to how to do this please contact [mathcompfin@maths.ox.ac.uk](mailto:mathcompfin@maths.ox.ac.uk) for further advice. (Occasionally these instructions may vary. In such cases full details will be given to students at the time.)

Please ensure that you give your candidate number on your assignment and no other identifying information - i.e. do not put your name, college, etc.

Please ensure the document is named as your candidate number (e.g. 245678.pdf)

The website will supply you with a confirmation number and email upon submission of the assignment. If you are supplied with a confirmation number and email you can be sure that the work has been successfully submitted. You should keep this for your own records.

In the extremely unlikely event that there does seem to be some technical problem and you are concerned that your work has not been submitted please email it immediately to email [mathcompfin@maths.ox.ac.uk](mailto:mathcompfin@maths.ox.ac.uk) with a copy of the Declaration of Authorship to attest that it is your own work, except where indicated. The Declaration of Authorship can be found here


NB: You only fill in this form if you are submitting it via email. In exceptional cases where a candidate is unable to submit work electronically, he or she must apply to the Supervisory Committee for permission to submit the work in paper form to the Examiners, c/o the Academic Administrator, Mathematical Institute. Such applications must reach the Mathematical Institute not less than two weeks before the deadline for submitting the work.

It is vital that you submit your work by the deadline, as any late submission, even one minute late, must be reported to the Proctors. If you experience a medical emergency or other catastrophe which threatens to prevent you from submitting on time please contact [mathcompfin@maths.ox.ac.uk](mailto:mathcompfin@maths.ox.ac.uk) and your College Office as soon as circumstances allow to explain the situation.

All submitted projects and dissertations will be screened by Turnitin soft-ware which will
compare them to a wide range of material (both published and unpublished) and to the work of other candidates. The examiners will be notified of the extent of any textual matches discovered by Turnitin, and will consider, for instance, whether any text that a candidate has copied from elsewhere is properly identified and the source duly acknowledged. Any suspected cases of plagiarism will be forwarded to the Proctors and may result in a direct fail.

5.8.2 Dissertation

When preparing the dissertation candidates are strongly advised to use \LaTeX to typeset. Students will not be required to submit hard copies to the Examination Schools. An electronic submission along with a declaration of authorship form must be submitted to the course-management platform by noon on Thursday of Week 9 of Trinity Term.

Submitted electronic dissertations will be screened by Turnitin software which will compare them to a wide range of material (both published and unpublished) and to the work of other candidates. The examiners will be notified of the extent of any textual matches discovered by Turnitin, and will consider, for instance, whether any text that a candidate has copied from elsewhere is properly identified and the source duly acknowledged. Further information on referencing, using \LaTeX, and other practical matters associated with the submission can be found here

http://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/examination-and-assessment

6 Key Assessment Links

Examination Regulations: http://www.admin.ox.ac.uk/examregs/
Examination Timetables: http://www.ox.ac.uk/students/academic/exams/timetables
Past examination papers: https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/examination-and-assessment
Past examiners reports: https://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/examination-and-assessment

7 University’s Policy on Plagiarism

The University and department employ a series of sophisticated software applications to detect plagiarism in submitted examination work, both in terms of copying and collusion. It regularly monitors on-line essay banks, essay-writing services, and other potential sources of material. It reserves the right to check samples of submitted essays for plagiarism. Although the University strongly encourages the use of electronic resources by students in their academic work, any attempt to draw on third-party material without proper attribution may well attract severe disciplinary sanctions. Students should be aware that if examiners
are obliged to report any suspected cases of plagiarism to the Proctors Office. The Proctors Office will investigate the case and advise the examiners on appropriate action.

The University definition of what constitutes Plagiarism can be found at the following link students are expected to familiarise themselves with the policy:

http://www.ox.ac.uk/students/academic/guidance/skills/plagiarism

### 7.1 What is plagiarism?

Plagiarism is the copying or paraphrasing of other people’s work or ideas without full acknowledgement. Intentional plagiarism may incur severe penalties, including failure of your degree.

### 7.2 Why does plagiarism matter?

All published and unpublished material, whether in manuscript, printed or electronic form, is covered under the term plagiarism. Collusion is another form of plagiarism involving the unauthorised collaboration of students (or others) in a piece of work. Plagiarism is a breach of academic integrity. It is a principle of intellectual honesty that all members of the academic community should acknowledge their debt to the originators of the ideas, words, and data which form the basis for their own work. Passing off another’s work as ones own is not only poor scholarship, but also means that a student has failed to complete the learning process. Deliberate plagiarism is unethical and can have serious consequences.

### 7.3 What to avoid?

The necessity to reference applies not only to text, but also to other media, such as computer code, illustrations, graphs etc. It applies equally to published text drawn from books and journals, and to unpublished text, whether from lecture notes, theses or other students’ essays. Students must also attribute text or other resources downloaded from websites. Various forms of plagiarism include:

- Verbatim quotation without clear acknowledgement
- Paraphrasing
- Cutting and pasting from the Internet
- Collusion
- Inaccurate citation
- Failure to acknowledge
- Professional agencies
• Auto-plagiarism

Detailed descriptions for each of the forms of plagiarism can be found in the Universities policy on plagiarism

http://www.ox.ac.uk/students/academic/guidance/skills/plagiarism

7.4 Further Information

Examples of referencing can be found here

http://www.maths.ox.ac.uk/members/students/postgraduate-courses/msc-mcf/examination-and-assessment

If a student is unclear about anything related to the Universities policy on plagiarism they should speak with their supervisor or email mathcompfin@maths.ox.ac.uk

7.5 Turnitin

Submitted take-home projects/assignments and dissertations will be screened by Turnitin software which will compare them to a wide range of material (both published and unpublished) and to the work of other candidates. The Examiners will be notified of the extent of any textual matches discovered by Turnitin, and will consider, for instance, whether any text that a candidate has copied from elsewhere is properly identified and the source duly acknowledged.

8 Resources and Facilities

8.1 Departmental Work and Social Spaces

MCF students will have access to Lecture Theatre 1 where all their classes and lectures will take place. You will have access to your MSc study room in the ground floor of the Mathematical Institute. The study room will be available on a rotational basis with the rotation to be discussed amongst the students. Computers, desks and white boards are available to work on. The study room has power sockets for students wishing to use their own laptops and there is wi-fi throughout the building.

8.2 Libraries

8.2.1 Whitehead Library, Mathematical Institute

Contact: Ms Cathy Hunt (Librarian)
Email: library@maths.ox.ac.uk
Website: https://www.maths.ox.ac.uk/members/library
DUE TO COVID-19 THE LIBRARY ARRANGEMENTS MAY BE SUBJECT TO CHANGE AND THE STUDENTS WILL BE NOTIFIED ACCORDINGLY.

The Whitehead Library holds material covering mathematical topics at postgraduate and research level, including mathematical finance. It is primarily for the use of current graduate students and academic staff of the Mathematical Institute.

Your University Card will have been activated to open the library door and you will have 24/7 access.

Books taken out of the Library must be checked-out on the SOLO computer loan system at the terminal in the library. Please note that books are not allowed to be taken away from Oxford and should be returned to the library before you leave for vacation, or any other length of time.

8.2.2 Other libraries

Other libraries holding some mathematical finance material include:

Radcliffe Science Library (RSL): [http://www.bodleian.ox.ac.uk/science/](http://www.bodleian.ox.ac.uk/science/)

Sainsbury Library in the Said Business School: [http://www.bodleian.ox.ac.uk/business](http://www.bodleian.ox.ac.uk/business)

The Bodleian Social Science Library (SSL): [http://www.bodleian.ox.ac.uk/ssl](http://www.bodleian.ox.ac.uk/ssl)

8.2.3 College libraries

You will have access to the library in your own College.

Information about all Oxford Libraries can be found at: [https://www.bodleian.ox.ac.uk/subjects-and-libraries/libraries](https://www.bodleian.ox.ac.uk/subjects-and-libraries/libraries)

8.3 Resources for mathematical finance

8.3.1 Bench Collection

A small collection of books is held in a locked cupboard in the Mathematical Finance study room. This is an informal collection, not part of the University libraries. Please notify your course administrator with advanced notice if you wish to inspect this collection/borrow a book. The books in this collection can be borrowed whilst you are in Oxford for a course module, but please note that books are not to be taken away from the department.

8.3.2 E-books

Some of the books recommended for the course are available as e-books.
To search for an e-book: Go to the SOLO catalogue (http://solo.bodleian.ox.ac.uk) and search for the book title. Click on the title of the book, or click View all versions and then click View Online to read the e-book itself.

If the book is provided by EBL or Library, you will be prompted to log in with your Single Sign On Username and Password.

See also: E-Books Lib-Guide: https://ox.libguides.com/e-books/

### 8.3.3 LibGuides

A series of online guides to resources: https://libguides.bodleian.ox.ac.uk/oxford

- Mathematics LibGuide: https://libguides.bodleian.ox.ac.uk/maths (includes how to access e-books, e-journals, databases, conference proceedings, dissertations)
- Key Business Resources: https://libguides.bodleian.ox.ac.uk/business (includes company information, market research, industry and market reports)
- Economics LibGuide: https://libguides.bodleian.ox.ac.uk/economics
- Managing your references LibGuide: https://libguides.bodleian.ox.ac.uk/reference-management (RefWorks, EndNote, etc.)

### 9 IT matters

#### 9.1 Laptops

Students are expected to have a fully-functioning laptop for practical sessions, installed with relevant software such as Matlab (for which student licenses will be provided). The preferred platform for the programming courses is MS Windows.

#### 9.2 Computing Facilities

Desktop computers are available in the MSc study room, and in public-access areas throughout The Mathematical Institute. Some moderately large computers are available for shared computation and remote access use: see

http://www.maths.ox.ac.uk/members/it/machines/compute-terminal-services

For further information about IT matters, including rules and regulations surrounding the use of IT facilities, please see
Students will have access to various licences for further details go to

http://www.maths.ox.ac.uk/members/it/software-personal-machines

9.3 IT and Email accounts

At the departmental induction session you will be given a Mathematical Institute IT account and email address. The email address will be of the format

firstname.lastname@maths.ox.ac.uk

It is important that you either read this email regularly or set up a forward from it to an account which you do read regularly. It will be used to contact students about a variety of important matters.

You will also receive — as soon as you have returned your University contract — a University ‘single-sign-on’ IT account. This will have an email address associated with it which will be of the format

firstname.lastname@college.ox.ac.uk

For the same reason, it is important that you either read this email regularly or set up a forward from it to an account which you do read regularly.
10 Careers

The Mathematical & Computational Finance Research Group organises some career events exclusive to the students on this MSc. The department also organises a large Careers Fair which usually takes place at the end of Michaelmas Term. You will be emailed details of any relevant careers events.

In addition to this, the University Careers Service organises a range of events which are open to any member of the University. Please see 

http://www.careers.ox.ac.uk/careers-fairs/

for further details.

The Research Group is also approached by representatives of industry seeking to employ graduates, and with the permission of the student, is able to pass their details on.

10.1 Paid Work Guidelines for Oxford Graduate Students

The University recognises that some graduate students will want to undertake a limited amount of paid work during their studies, whether as part of their academic development (e.g. teaching and demonstrating) or to help to support themselves financially.

Full-time graduate students should generally regard their studies as a full-time occupation of at least 40 hours per week, and should normally be available for academic commitments during core working hours (i.e. 9 am to 5 pm on weekdays). Graduate students on taught courses should regard this as applying to term-time study.

More information can be found at

http://www.admin.ox.ac.uk/edc/policiesandguidance/policyonpaidwork/

11 Complaints and Appeals within the Mathematical Institute

The University, the MPLS Division and the Mathematical Institute all hope that provision made for students at all stages of their course of study will result in no need for complaints (about that provision) or appeals (against the outcomes of any form of assessment).

Where such a need arises, an informal discussion with the person immediately responsible for the issue that you wish to complain about (and who may not be one of the individuals identified below) is often the simplest way to achieve a satisfactory resolution.

Many sources of advice are available from colleges, faculties/departments and bodies like the Counselling Service or the OUSU Student Advice Service, which have extensive experience in advising students. You may wish to take advice from one of those sources before pursuing your complaint.
General areas of concern about provision affecting students as a whole should be raised through Joint Consultative Committees (Joint Supervisory Committee) or via student representation on the faculty/department’s committees.

**Complaints**

If your concern or complaint relates to teaching or other provision made by the faculty/department, then you should raise it with the Chairman of the Supervisory Committee (Prof. Ben Hambly) or with the Director of Graduate Studies (Prof. Raphael Hauser) as appropriate. Complaints about departmental facilities should be made to the departmental administrator. If you feel unable to approach one of those individuals, you may contact the Head of Department (Professor Mike Giles). The officer concerned will attempt to resolve your concern/complaint informally.

If you are dissatisfied with the outcome, you may take your concern further by making a formal complaint to the Proctors under the University Student Complaints Procedure: [https://www.ox.ac.uk/students/academic/complaints?wssl=1](https://www.ox.ac.uk/students/academic/complaints?wssl=1)

If your concern or complaint relates to teaching or other provision made by your college, you should raise it either with your tutor or with one of the college officers, Senior Tutor, Tutor for Graduates (as appropriate). Your college will also be able to explain how to take your complaint further if you are dissatisfied with the outcome of its consideration.

**Academic Appeals**

An academic appeal is an appeal against the decision of an academic body (e.g. Boards of Examiners, transfer and confirmation decisions etc.), on grounds such as procedural error or evidence of bias. There is no right of appeal against academic judgement.

If you have any concerns about your assessment process or outcome it is advisable to discuss these first informally with your subject or college tutor, Senior Tutor, Course Director, Director of Graduate Studies, supervisor or college or departmental administrator as appropriate. They will be able to explain the assessment process that was undertaken and may be able to address your concerns. Queries must not be raised directly with the examiners.

If you still have concerns you can make a formal appeal to the Proctors who will consider appeals under the University Academic Appeals Procedure: [https://www.ox.ac.uk/students/academic/complaints?wssl=1](https://www.ox.ac.uk/students/academic/complaints?wssl=1)

Please remember in connection with all the academic appeals that:

- The Proctors are not empowered to challenge the academic judgement of examiners or academic bodies
- The Proctors can consider whether the procedures for reaching an academic decision were properly followed; i.e. whether there was a significant procedural administrative error; whether there is evidence of bias or inadequate assessment; whether the examiners failed to take into account special factors affecting a candidate’s performance
- On no account should you contact the examiners or assessors directly
12 University Policies

The University has a wide range of policies and regulations that apply to students. These are easily accessible through the A-Z of University regulations, codes of conduct and policies available on the Oxford Students website at:

https://www.ox.ac.uk/students/academic/regulations/a-z

Particular attention is drawn to the following University policies.

Equal Opportunities Statement:
http://www.admin.ox.ac.uk/eop/policy/equality-policy/

Intellectual Property Rights:
www.admin.ox.ac.uk/rso/ip

Code on Harassment:
http://www.admin.ox.ac.uk/eop/harassmentadvice/policyandprocedure/

Policy on Plagiarism:
http://www.ox.ac.uk/students/academic/guidance/skills/plagiarism

Policy on recording lectures by students:
https://www.ox.ac.uk/students/academic/regulations?wssl=1

12.1 Departmental Safety Policies

You are urged to act at all times responsibly, and with a proper care for your own safety and that of others. Departmental statements of safety policy are posted in all departments, and you must comply with them. Students should note that they (and others entering onto departmental premises or who are involved in departmental activities) are responsible for exercising care in relation to themselves and others who may be affected by their actions. In the Mathematical Institute accidents should be reported immediately to reception, telephone 73525, who keep the accident book. There is a first aid room located on the ground floor of the South Wing. If you require access to this room please report to reception. Each lecture theatre has its own proper escape route and you are urged to familiarise yourself with these.

Those for the Mathematical Institute lecture and seminar rooms, are set online at:

http://www.maths.ox.ac.uk/members/building-information/security-safety-and-reporting-building-issues

In the case of evacuation of the lecture theatre give heed to the instructions of the lecturer.
13 Student feedback and representation

You will be asked to complete questionnaires evaluating the teaching received for each course, and at the end of the year to complete a questionnaire evaluating the course as a whole. You are encouraged to take the time to complete these, as the feedback will be used to inform future course planning.

One student on the MSc will be nominated to become student representative; they will sit on the MSc Supervisory Committee panel and act as a voice for their cohort.

Students on the MSc are also invited to serve on the Departmental Consultative Committee with Graduates. For further details about this, and about who the student representatives are, please contact graduate.studies@maths.ox.ac.uk.

13.1 Student Barometer

The Student Barometer surveys all full-time UK and international students at all levels of degree – undergraduate, postgraduate taught and postgraduate research.

It is a broad survey, covering not just academic matters, but also accommodation, support services and social aspects. Data can be viewed by college, course, department/faculty and Division, enabling benchmarking and comparisons within Oxford. The same survey is used by over 200 other universities internationally, including many from the Russell Group. In 2016, 43% of eligible undergraduate students completed the Student Barometer, but this has since dropped to 39% in 2017. Students are asked how far they agree with over 80 statements, covering four aspects of the student’s experience: ‘learning’, ‘living’, ‘support services’ and ‘arrival’. For each of these statements, students were asked: ‘Please say how satisfied you are at this stage of the year with the following:’

Students are given the option of 1 = Very dissatisfied, 2 = dissatisfied, 3 = satisfied, 4 = very satisfied. The Student Barometer is available to students, staff and the general public through the University website at:

https://www.ox.ac.uk/students/life/student-engagement?wssl=1
13.2 Divisional and University Representatives

The MPLS Division also runs a divisional Undergraduate Joint Consultative Forum, a divisional Graduate Joint Consultative Forum, and is establishing a Joint Consultative Forum for Graduate Taught Courses. Each Forum is chaired by the senior MPLS Academic who is responsible for that area across the Division, an undergraduate or graduate representative from each department, the undergraduate or graduate representative on the Academic Committee and Divisional Board, and the Oxford Union Student Union (OUSU) Vice-President (Access and Academic Affairs) or Vice-President (Graduates).

Student representative sitting on the MPLS Divisional Board are selected through a process organised by OUSU. Details can be found on the OUSU website along with information about student representation at the University level.

13.3 Opportunities to Provide Feedback

MSc students, like all students on matriculated courses, will be surveyed on all aspects of their course (learning, living, pastoral support, college) through the annual Student Barometer. Previous results can be viewed by students, staff and the general public at: https://www.ox.ac.uk/students/life/student-engagement?wssl=1

Key Student Representation Links
CCG: https://www.maths.ox.ac.uk/members/students/postgraduate-courses/doctor-philosophy/consultative-committee-graduates
Minutes of meetings and list of student representatives.
OUSU: http://ousu.org/
University Surveys:

https://www.ox.ac.uk/students/life/student-engagement?wssl=1

14 Further student support and information

There are many sources of information and support available to students.

Information on services and support provided by the University for all students can most readily be accessed via “Student Self Service” at

http://www.ox.ac.uk/students/

Information on services and support provided specifically by the Mathematical Institute can be accessed via

http://www.maths.ox.ac.uk/members/students/postgraduate-courses

The college is a further source of support and information.
In the first instance students are encouraged to discuss any problems or issues with their supervisor or college advisor.

Every college has their own systems of support for students, please refer to your College handbook or website for more information on who to contact and what support is available through your college.

Details of the wide range of sources of support available more widely in the University are available from the Oxford Students website [https://www.ox.ac.uk/students/welfare](https://www.ox.ac.uk/students/welfare), including in relation to mental and physical health and disability.

If you have a disability, please see information on provision for disability and on accessibility at the links below:

- [https://www.maths.ox.ac.uk/members/policies/disability](https://www.maths.ox.ac.uk/members/policies/disability)
- [https://www.maths.ox.ac.uk/members/building-information/accessibility](https://www.maths.ox.ac.uk/members/building-information/accessibility)
For further information please contact:

Email: mathcompfin@maths.ox.ac.uk

Phone: +44 1865 280612

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

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