1. Programme Code
F1FM-QFM/F1FD-QFM/F1FC-ZZZ

2. Programme Titles for all awards
Quantitative Finance and Mathematics

3. Main Award(s) MSc / PGDip
F1FM-QFM - MSc
F1FD-QFM - PGDip

4. Exit Awards
F1FM-QFM - MSc
F1FD-QFM - PGDip
F1FC-ZZZ PGCert

5. Type
PG Taught programme

6. Programme Accredited by

7. UCAS Code

8. School
Mathematical and Computer Sciences

9. QAA Subject Benchmarking Group(s)
Mathematics

10. Date of Production/Revision
24 April 2014/201415

11. Composition

<table>
<thead>
<tr>
<th>Course Code &amp; Title</th>
<th>Effort Hours</th>
<th>Course Code &amp; Title</th>
<th>Effort Hours</th>
<th>Course Code &amp; Title</th>
<th>Effort Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory Courses</td>
<td></td>
<td>Mandatory Courses</td>
<td></td>
<td>MSc Project (F11HM)</td>
<td>600</td>
</tr>
<tr>
<td>F11MT Modelling and Tools</td>
<td>150</td>
<td>F11SS Stochastic Simulation</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F11MV Derivative Markets, Pricing and Financial Modelling</td>
<td>150</td>
<td>F71PT Portfolio Theory</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional Courses</td>
<td></td>
<td>Optional Courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose any two subject to timetabling constraints:</td>
<td></td>
<td>F79BI Bayesian Inference and Computational Methods</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F71SM Statistical Methods</td>
<td>150</td>
<td>F11ND Numerical Analysis (PDEs)</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F11MM Optimization</td>
<td>150</td>
<td>F71AP Advanced Derivative Pricing</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F11FM Functional Analysis</td>
<td>150</td>
<td>F71NT Numerical Techniques for PDE's with either</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F21DL Data mining and Machine Learning</td>
<td>150</td>
<td>F71TS Time Series or</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F71ER Enterprise Risk Management I</td>
<td>150</td>
<td>C21FE Financial Econometrics</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C31FM Financial Markets</td>
<td>150</td>
<td>F21AS Advanced Software Engineering</td>
<td>150</td>
<td></td>
<td></td>
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<tr>
<td>F21SF Software Engineering Foundations</td>
<td>150</td>
<td></td>
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</tr>
</tbody>
</table>

12. Arrangement of Courses

Mandatory and Optional Courses

13. Awards, Credits & Level

<table>
<thead>
<tr>
<th>Course Code &amp; Title</th>
<th>Effort Hours</th>
<th>Course Code &amp; Title</th>
<th>Effort Hours</th>
<th>Course Code &amp; Title</th>
<th>Effort Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>F11HM MSc Project</td>
<td>600</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

180 SCQF credits for MSc; incl 150 credits at Level 11

120 SCQF credits for PG Dip; incl 90 credits at Level 11

60 SCQF credits for PG Cert; incl 40 credits at Level 11
### Programme Notes

1. **Nominal Pass Mark/Grade**
   - Masters: 50%
   - Diploma: 40%
   - Certificate: 40%

2. **Summary of Assessment Methods**
   - % coursework: variable according to course choice.
   - % examination: variable according to course choice.

3. **Re-assessment Opportunities**
   There will be a single reassessment opportunity for each course at the next diet of examinations (usually the next academic year).

4. **Award Criteria**

<table>
<thead>
<tr>
<th>Number of Course Passes</th>
<th>Overall Mark/Grade</th>
<th>Basis of Overall Mark/Grade</th>
<th>Other Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master (Distinction):</td>
<td>8+dissertation</td>
<td>70%</td>
<td>Average &gt;= 70% over best 8 taught courses at grades A-C, plus dissertation at grade A</td>
</tr>
</tbody>
</table>

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**Programme Notes**

1. **Collaborative/Approved Learning Partner Programme** *(Please specify details of partner institutions)*
1. Programme Code
F1FM-QFM/F1FD-QFM/F1FC-ZZZ

2. Programme Titles for all awards
Quantitative Finance and Mathematics

3. Main Award(s) MSc / PGDip
F1FM-QFM - MSc
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4. Exit Awards
F1FM-QFM - MSc
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F1FC-ZZZ PGCert

5. Type
PG Taught programme

6. Programme Accredited by

7. UCAS Code

8. School
Mathematical and Computer Sciences

9. QAA Subject Benchmarking Group(s)
Mathematics

10. Date of Production/Revision
24 April 2014/201415

- Master: 8+dissertation 50% Average >=50% over best 8 taught courses at grades A-D, plus dissertation at grade C
- Diploma (Distinction): 8 70% Average >=70% over best 8 taught courses at grades A-C
- Diploma: 8 40% Average >= 40% over best 8 taught courses at grades A-D
- Certificate: 4 40% Average >= 40% over best 4 taught courses at grades A-D

5. Course Choice/Dissertation

In the event that a student has previously completed and passed any of the mandatory courses (or equivalent courses from another HE Institution) through previous study the programme director will select alternative suitable courses, at the equivalent level, ensuring that these course substitutions do not alter the programme learning outcomes.

The choice of courses may vary from year to year. Choice of dissertation must be approved by the course leader or programme director.

An optional course may not run if there is insufficient demand for it. Some choices may not be available to students in some years because of timetabling constraints.

In exceptional circumstances the Programme Director may approve up to two courses selected from final year undergraduate courses or those available on other MSc programmes.

Students are given a range of dissertation choices. Students also have the opportunity to propose their own topics but such proposals are subject to the approval of the Programme Director.

6. Additional Information

The accompanying Programme Description provides details of aims, outcomes, teaching & learning and assessment policies for the course. Details of individual Courses are provided in the appropriate Course Descriptors.
| 1. Programme Code(s) (recruitment & exit awards) | F1FM-QFM/F1FD-QFM/F7FC-QFM |
| 2. Programme Titles for all awards (unabbreviated) | Quantitative Finance and Mathematics |
| 3. Main Award(s) (to be recruited to) | F1FM-QFM MSc F1FD-QFM PG Diploma |
| 4. Exit Awards (for graduation only) | F1FM-QFM MSc F1FD-QFM PG Diploma F1FC-QFM PG Certificate |
| 5. Type | PG Taught |
| 6. Programme Accredited by | Mathematical & Computer Sciences |
| 7. UCAS Code | |
| 8. School | Mathematics |
| 9. QAA Subject Benchmarking Group(s) | |
| 10. Date of Production/Revision | 22 November 2012/201314 |

11. Educational Aims of the Programme

The principal aims are to

16. provide intensive and high-quality education in a postgraduate context in a wide range of subjects relating to quantitative finance and mathematics, including theory and practice
17. enable students to develop detailed knowledge and critical understanding, and acquire a range of new skills relevant to modelling and finance.
18. provide coverage of derivative pricing and assets along with key mathematical tools used in practice.
19. provide tutorial and discussion opportunities of a style and at a level appropriate for postgraduate studies
20. enable students to communicate and work effectively with peers and academic staff, demonstrating appropriate levels of autonomy, initiative, and responsibility
21. provide students at Master's level with the opportunity to plan and execute a significant investigation and write a project requiring detailed and critical understanding in an area of study related to financial mathematics

12. The Programme provides opportunities for learners to achieve the following outcomes:

| Subject Mastery | Understanding, Knowledge and Cognitive Skills
| | 13. extensive and detailed knowledge, and critical understanding, of the use of mathematics and simulation to evaluate uncertainty and quantify risk
| | 14. extensive and detailed knowledge, and critical understanding, of finance
| | 15. the acquisition of a range of new skills required in finance, including skills in applied mathematical modelling
| | 16. demonstrate that they have developed and can apply skills in critical analysis and evaluation of a wide range of theories, concepts, and computational techniques which arise in the study and practice of mathematics and finance
| | 17. demonstrate that they have developed problem solving skills
| | 18. identify, analyse and solve problems, and discuss issues, at a professional level critically review existing practices and move on to professional careers with confidence
| Scholarship, Enquiry and Research | 7. ability to access, use and demonstrate an understanding of the appropriate research literature
| | 8. broad knowledge of quantitative finance and mathematics
| | 9. skills in reading research papers in relevant areas
| | 10. Detailed and critical understanding of a selected recent developments in mathematics related to quantitative finance
### Form P10

<table>
<thead>
<tr>
<th>1. Programme Code(s) (recruitment &amp; exit awards)</th>
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<td>7. UCAS Code</td>
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<td>8. School</td>
<td>Mathematical &amp; Computer Sciences</td>
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<tr>
<td>9. QAA Subject Benchmarking Group(s)</td>
<td>Mathematics</td>
</tr>
<tr>
<td>10. Date of Production/Revision</td>
<td>22 November 2012/201314</td>
</tr>
</tbody>
</table>

### Personal Abilities

#### Industrial, Commercial and Professional Practice

On completion of the course, students will be in a strong position to move on to a professional environment, with sound knowledge and awareness of the nature of that environment and the demands it will make. They will also have the necessary background and experience to enable them to be ready and able to communicate on technical and general matters with peers and senior colleagues.

#### Autonomy, Accountability and Working with Others

1. Plan and organise own learning through self-management and time management
2. Communicate effectively at all levels and using a range of media
3. Adopt a mature and professional attitude to the solution of technical problems.
4. Demonstrate use of computer packages such as Matlab problems in finance

#### Communication, Numeracy and ICT

Will develop strong communication numeracy and ICT skills.

### 13. Approaches to Teaching and Learning:

Achievement of the course outcomes demonstrates skill and mastery of the subject at an advanced level. Teaching on the course is student-focussed, with students encouraged to take responsibility for their own learning and development. The full-time MSc/Diploma course is offered in a traditional campus-based model. The material is organised with 8 full taught courses. Material is presented in a manner appropriate to postgraduate study. Some lecture courses may be given jointly with final-year Honours undergraduate students.

The Department uses a wide range of L&T approaches and techniques to achieve this, from traditional lectures and discussions to demanding tutorial and computer lab work. Lecturers use a range of tools from chalk/OHs to extensive use of web-based materials. Approaches to teaching and learning are continually reviewed and developed with the aim of matching them to the abilities and experiences of our students with regard to the subject area, for example we are investigating the integration of a commercial financial management system into the programme to give students “hands on” experience. Specific details about teaching and learning methods are provided in the appropriate course descriptors.
<table>
<thead>
<tr>
<th>1. Programme Code(s) (recruitment &amp; exit awards)</th>
<th>2. Programme Titles for all awards (unabbreviated)</th>
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<tr>
<td>F1FM-QFM/F1FD-QFM/F7FC-QFM</td>
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<td>F1FM-QFM MSc  F1FD-QFM PG Diploma</td>
<td>F1FM-QFM MSc  F1FD-QFM PG Diploma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F1FC-QFM PG Certificate</td>
<td>F1FC-QFM PG Certificate</td>
</tr>
<tr>
<td>PG Taught</td>
<td></td>
<td>Mathematical &amp; Computer Sciences</td>
<td>Mathematics</td>
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<tr>
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</tr>
<tr>
<td>22 November 2012/201314</td>
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</table>

### Assessment Policies:

The assessment policy for the programme incorporates a range of assessment types. Continuous assessment during some courses and summative assessment at the conclusion of courses both contribute to the overall assessment and are used to formally measure achievement in specified learning outcomes.

Understanding, knowledge and subject-specific skills are assessed by coursework assignments and written examinations. Approaches to assessment are continually reviewed. Specific details about methods of assessment are provided in the appropriate course descriptors.

The programme consists of two phases:

A taught phase, defined in the programme structure, which students will normally study over two semesters.

- Assessment of the taught phase is through a variety of methods including coursework and/or examination.

A project phase, consisting of a project over the summer.

- Progression to the project phase is dependent on assessed performance. To progress, students must meet the criteria set out in the programme structure document. Students meeting the required standards for Masters in the taught phase will be permitted to progress.
- Students meeting the required standards for Postgraduate Diploma and Postgraduate Certificate in the taught phase, but not meeting the Masters standard, will not be permitted to progress to the dissertation phase.
- Students failing to meet the required standards for Postgraduate Diploma and Postgraduate Certificate in coursework and examination in the taught phase will not be permitted to progress to the dissertation phase, nor will they be eligible for any award.

Any student will be able to retake the assessment of up to a maximum of 3 courses at the next opportunity, subject to payment of the appropriate fees to the University, and may be required to do so to obtain the necessary credits for completion of their programme or for progression. Students may only resit courses for which their examination grade is E or F and have the opportunity to resit examinations where a D grade is achieved in line with University Regulation 48, paragraph 17.3. The method of reassessment for each course is specified in the appropriate course descriptor. In any circumstance which it deems to be exceptional the Exam Board has the discretion to permit student progress or award, irrespective of student performance against required standards and policies.

1. The accompanying Programme Structure template provides details of courses, awards and credits for the programme.
2. The accompanying Programme Notes provide details of stage notes, progression requirements and award requirements for the programme.