### MANDATORY COURSES & DISSERTATION/PROJECT

<table>
<thead>
<tr>
<th>Edinburgh/Orkney/SBC</th>
<th>HWUM</th>
<th>Dubai</th>
<th>IDL</th>
<th>Collaborative Partner</th>
<th>Semester</th>
<th>Phase (Part-time only)</th>
<th>Code</th>
<th>Course Title</th>
<th>Credit Value</th>
<th>SCQF</th>
<th>MQA</th>
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<td>F71DV</td>
<td>Derivatives Markets and Pricing</td>
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### OPTIONAL COURSES

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<th>Course Title</th>
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<td>F79BI</td>
<td>Bayesian Inference &amp; Computational Methods</td>
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</table>

### COMPOSITION

- 8 taught courses at 15 credits or equivalent plus dissertation.
- 3 mandatory taught courses + 5 optional (at 15 credits or equivalent) plus dissertation.

### AWARDS, CREDITS & LEVEL

- **Masters Degree**: 180 SCQF Credits including a minimum of 150 SCQF credits at Level 11
- **Postgraduate Diploma**: 120 SCQF Credits including a minimum of 90 SCQF credits at Level 11
- **Postgraduate Certificate**: 60 SCQF Credits including a minimum of 40 SCQF credits at Level 11
10. PROGRAMME ACCREDITED BY
Mathematics

11. QAA SUBJECT BENCHMARKING GROUP(S)

12. LEVEL OF COURSES
Level 11
Levels 7-10(UG)
Mixed
Courses not at level 11:
F79BI Bayesian Inference and Computational Methods

13. MODE OF STUDY
Full-time
Part-time
Mixed

14. MODE OF DELIVERY
√ Conventional
√ Blended
Independent

15. DURATION OF STUDY (MONTHS)

<table>
<thead>
<tr>
<th>Programme</th>
<th>Full-time</th>
<th>Part-time</th>
<th>Full-time</th>
<th>Part-time</th>
<th>ALP</th>
<th>IDL</th>
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<tr>
<td>Masters</td>
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<td>24</td>
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16. NOMINAL PASS MARK/GRADE

<table>
<thead>
<tr>
<th>Level</th>
<th>Nominal Pass Mark/Grade</th>
<th>Basis of Overall Mark/Grade</th>
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</thead>
<tbody>
<tr>
<td>Masters</td>
<td>50% C</td>
<td>Weighted Average &gt;=70% over 8 courses at grades A-C plus a dissertation at grade A</td>
</tr>
<tr>
<td>Diploma</td>
<td>40% D</td>
<td>Weighted Average &gt;=50% over 8 courses at grades A-D plus a dissertation at minimum grade C</td>
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<tr>
<td>Certificate</td>
<td>40% D</td>
<td>Weighted Average &gt;=40% over 4 courses at grades A-E</td>
</tr>
</tbody>
</table>

17. SUMMARY OF ASSESSMENT METHODS (Percentage)

<table>
<thead>
<tr>
<th>Level</th>
<th>Coursework:</th>
<th>Examination:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters</td>
<td>Variable according to course choice</td>
<td>Variable according to course choice</td>
</tr>
<tr>
<td>Diploma</td>
<td>If a variation in assessment methods across campuses/modes of study exists give details below</td>
<td></td>
</tr>
<tr>
<td>Certificate</td>
<td>If a variation in assessment methods across campuses/modes of study exists give details below</td>
<td></td>
</tr>
</tbody>
</table>

18. RE-ASSESSMENT OPPORTUNITIES
The re-assessment policy for this programme is in line with University Regulations as set out below (please tick) Yes √ No

1. A student who has been awarded a Grade E or F in a course may be re-assessed in that course. A student who has been awarded a Grade D in a course may be re-assessed in that course in order to proceed to, or be eligible to receive the award of, Masters.
2. A student shall be permitted one re-assessment opportunity in a maximum of three taught courses. The opportunity for re-assessment in four or more taught courses shall be at the discretion of the Progression Board.
3. Any further re-assessment opportunities in a course will require the approval of the Postgraduate Studies Committee.
4. A student may be permitted, at the discretion of the Progression Board, to be re-assessed in the dissertation, project or other supervised research component of the course of study.

19. AWARD CRITERIA
The award criteria for this programme is in line with University Regulations as set out below (please tick) Yes √ No

<table>
<thead>
<tr>
<th>Level</th>
<th>Total Course Passes</th>
<th>Overall Mark/Grade</th>
<th>Basis of Overall Mark/Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master (Distinction):</td>
<td>8 + Dissertation</td>
<td>70%/ A</td>
<td>Weighted Average &gt;=70% over 8 courses at grades A-C plus a dissertation at grade A</td>
</tr>
<tr>
<td>Master:</td>
<td>8 + Dissertation</td>
<td>50%/ C</td>
<td>Weighted Average &gt;=50% over 8 courses at grades A-D plus a dissertation at minimum grade C</td>
</tr>
<tr>
<td>Diploma (Distinction):</td>
<td>8</td>
<td>70%/ A</td>
<td>Weighted Average &gt;=70% over 8 courses at grades A-C</td>
</tr>
<tr>
<td>Diploma:</td>
<td>8</td>
<td>40%/ D</td>
<td>Weighted Average &gt;=40% over 8 courses at grades A-E</td>
</tr>
<tr>
<td>Certificate:</td>
<td>4</td>
<td>40%/ D</td>
<td>Weighted Average &gt;=40% over 4 courses at grades A-E</td>
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</tbody>
</table>

These are default marks/grades. The Board of Examiners may exercise some discretion in accordance to University Regulations.

20. COURSE CHOICE/DISSERTATION
In exceptional circumstances the Programme Director may approve a limited number of courses selected from final year undergraduate courses or those available on the MSc in Actuarial Science or on the MSc in Quantitative Financial Risk Management or the new MSc in Quantitative Finance & Mathematics.

Some choices of courses may not be available to students in some years because of timetabling constraints.

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.

21. ADDITIONAL INFORMATION
1. Programme Code(s) (recruitment & exit awards)
F7FM-QFE/F7FD-QFE/F7FC-ZZZ

2. Programme Titles for all awards (unabbreviated)
Quantitative Financial Engineering

3. Main Award(s) (to be recruited to)
F7FM-QFE - MSc
F7FD-QFE - PG Diploma

4. Exit Awards (for graduation only)
F7FM-QFE - MSc
F7FD-QFE - PG Diploma
F7FC-ZZZ – 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)
Mathematics

10. Date of Production/ Revision
10 October 2012

11. Educational Aims of the Programme

Structured finance plays an important and growing role in today’s financial markets. Indeed, a large part of financial innovation in recent years has been related to securitisation, credit derivatives, or a combination of the two. The aim of this programme is to introduce students to the mathematics of securitisation.

The principal aims of the course are to

- provide intensive and high-quality education in a postgraduate context in a wide range of subjects in contemporary financial engineering, including theory and practice
- provide coverage of derivative pricing and risk management core to structured finance along with key mathematical tools used in practice.
- enable students to develop detailed knowledge and critical understanding, and acquire a range of new skills, in central areas in actuarial management
- provide tutorial and discussion opportunities of a style and at a level appropriate for postgraduate studies
- enable students to communicate and work effectively with peers and academic staff, demonstrating appropriate levels of autonomy, initiative, and responsibility
- provide students at Master’s level with the opportunity to plan and execute a significant investigation and write a dissertation requiring detailed and critical understanding in an area of study related to actuarial management, and demonstrating originality

12. The Programme provides opportunities for learners to achieve the following outcomes:
<table>
<thead>
<tr>
<th>1. Programme Code(s) (recruitment &amp; exit awards)</th>
<th>2. Programme Titles for all awards (unabbreviated)</th>
<th>3. Main Award(s) (to be recruited to)</th>
<th>4. Exit Awards (for graduation only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F7FM-QFE/F7FD-QFE/F7FC-ZZZ</td>
<td>Quantitative Financial Engineering</td>
<td>F7FM-QFE - MSc</td>
<td>F7FD-QFE - PG Diploma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F7FC-ZZZ –PG Certificate</td>
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</tbody>
</table>

5. Type
PG Taught

6. Programme Accredited by
Mathematical & Computer Sciences

7. UCAS Code

8. School
Mathematics

9. QAA Subject Benchmarking Group(s)
Mathematics

10. Date of Production/ Revision
10 October 2012

Subject Mastery

**Understanding, Knowledge and Cognitive Skills**
On completion of the course, students will be able to demonstrate:

- extensive and detailed knowledge, and critical understanding, of the use of derivatives in structured finance and securitisation
- extensive and detailed knowledge, and critical understanding, of risk management in structured finance and securitisation
- knowledge and critical understanding of the mathematical tools essential for the development and management of structured financial products
- the acquisition of a range of new skills required in structuring and securitisation, including skills in applied mathematical modelling
- awareness and understanding of current issues in structured finance, through teaching informed by current developments in vocational practice and academic theory
- expertise in applying, in a practical context, the principal mathematical skills and techniques used in structured finance
- extensive knowledge and understanding of problems in some or all of the following areas: risk management, financial mathematics and mathematical modelling

**Scholarship, Enquiry and Research**
On completion of the course, students will be able to:

- demonstrate that they have developed and can apply skills in critical analysis and evaluation of a wide range of theories, concepts, and techniques which arise in the study and practice of structured finance and securitisation
- demonstrate that they have developed problem solving skills
- identify, analyse and solve problems, and discuss issues, at a professional level critically review existing practices and move on to professional careers with confidence
Form P10

Heriot-Watt University – Programme Description Template

Version 4.0 (2010/2011)

1. Programme Code(s) (recruitment & exit awards)
   F7FM-QFE/F7FD-QFE/F7FC-ZZZ

2. Programme Titles for all awards (unabbreviated)
   Quantitative Financial Engineering

3. Main Award(s) (to be recruited to)
   - F7FM-QFE - MSc
   - F7FD-QFE - PG Diploma

4. Exit Awards (for graduation only)
   - F7FM-QFE - MSc
   - F7FD-QFE - PG Diploma
   - F7FC-ZZZ – PG Certificate

5. Type
   PG Taught

6. Programme Accredited by
   Mathematical & Computer Sciences

7. UCAS Code
   Mathematics

8. QAA Subject Benchmarking Group(s)

9. School
   Industrial, Commercial and Professional Practice

10. Date of Production/ Revision
    10 October 2012

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.

On completion of the course students will be able to:

- Plan and organise own learning through self-management and time management
- Assess issues associated with working as part of a team
- Communicate effectively at all levels and using a range of media

Communication, Numeracy and ICT

On completion of the course, students will be able to:

- Demonstrate high levels of numeracy as required by the actuarial profession
- Adopt a mature and professional attitude to the solution of technical problems.
- Demonstrate use of computer packages such as Matlab problems in finance
- Exposure to modern financial management systems such as Calypso (or similar)

13. Approaches to Teaching and Learning:

Course learning outcomes derive from the requirements of the actuarial profession. Achievement of them 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 within 12 full courses. All 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.
1. Programme Code(s) (recruitment & exit awards)
   F7FM-QFE/F7FD-QFE/F7FC-ZZZ

2. Programme Titles for all awards (unabbreviated)
   Quantitative Financial Engineering

3. Main Award(s) (to be recruited to)
   F7FM-QFE - MSc
   F7FD-QFE - PG Diploma

4. Exit Awards (for graduation only)
   F7FM-QFE - MSc
   F7FD-QFE - PG Diploma
   F7FC-ZZZ – PG Certificate

5. Type
   PG Taught

6. Programme Accredited by
   Mathematical & Computer Sciences

7. UCAS Code
   Mathematics

8. School
   Mathematical & Computer Sciences

9. QAA Subject Benchmarking Group(s)
   Mathematics

10. Date of Production/ Revision
    10 October 2012

14. 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, consisting of a set of twelve full courses – two core, ten optional - defined in the programme structure, of which the students will normally study eight over two semesters. Assessment of the taught phase is through a variety of methods including coursework and/or examination, students must submit all elements of assessment before being permitted to progress.
- A dissertation phase, consisting of a project dissertation report over the summer.
- Progression to the dissertation 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. 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.

The accompanying Programme Structure template provides details of courses, awards and credits for the programme.

The accompanying Programme Notes provide details of stage notes, progression requirements and award requirements for the programme.