### Programme Titles for all awards (unabbreviated)
Mathematics with Finance

### Main Award(s) (to be recruited to)
BSc (F1B1-MWF)

### Exit Awards (for graduation only)
- BSc (Hons) (F1B1-YYY)
- BSc (Ord) (F1B1-ZZZ)

<table>
<thead>
<tr>
<th>Type</th>
<th>Accredited by</th>
<th>UCAS Code</th>
<th>School</th>
<th>Group(s)</th>
<th>Benchmarking</th>
<th>Date of Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>School specialist degree</td>
<td>G1N3</td>
<td>Mathematical &amp; Computer Sciences</td>
<td>Mathematics</td>
<td></td>
<td></td>
<td>March 2016</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage Composition</th>
<th>Arrangement of Courses: (Themes and Subject Streams)</th>
<th>Awards, Credits &amp; Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory Courses</td>
<td>Optional Courses</td>
<td>Elective Courses</td>
</tr>
</tbody>
</table>

#### Stage 1
- 8 courses: 8 mandatory
- Calculus A F17CA
- Introduction to University Mathematics F17CC
- Introduction to Statistical Science A F77SA
- Introductory Economics C27OA

#### Stage 2
- 8 courses: 7 mandatory 1 optional
- Multivariable Calculus and Real Analysis A F18CD
- Linear Algebra F18CF
- Finance Theory and Markets C38FM

### Courses
- Semester 1
  - Calculus A F17CA
  - Problem Solving F17GA
  - Introduction to Statistical Science B F77SB
  - Finance and Financial Reporting C37FF
- Semester 2
  - Multivariable Calculus and Real Analysis B F18CE
  - Pure Mathematics A F18PA
  - Corporate Financial Theory C38FN
- Semester 1
  - Applied Mathematics A F18AA
  - Financial Reporting C38FR
  - Logic & Proof F17LP
- Semester 2
  - Mathematics for Direct Entrants F18GD
  - Linear Algebra F18CF
- Semester 2
  - Finance Theory and Markets C38FM

### Exit Awards
- BSc (Hons) (F1B1-YYY)
- BSc (Ord) (F1B1-ZZZ)

### Date of Revision
March 2016
## Form P6  Heriot-Watt University – Undergraduate Programme Structure Template

<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>F1B1-MWF /YYY/ZZZ</td>
<td>Mathematics with Finance</td>
<td>BSc (F1B1-MWF)</td>
<td>BSc (Hons) (F1B1-YYY) BSc (Ord) (F1B1-ZZZ)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Type</th>
<th>6. Programme Accredited by</th>
<th>7. UCAS Code</th>
<th>8. School</th>
<th>9. QAA Subject Benchmarking Group(s)</th>
<th>10. Date of Production/Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>School specialist degree</td>
<td>G1N3</td>
<td>Mathematical &amp; Computer Sciences</td>
<td>Mathematics</td>
<td>March 2016</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11. Stage Composition</th>
<th>12. Arrangement of Courses: (Themes and Subject Streams)</th>
<th>13. Awards, Credits &amp; Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mandatory Courses</td>
<td>Optional Courses</td>
</tr>
</tbody>
</table>

### Stage 3
- 8 courses: 6 mandatory, up to 2 optional, up to 2 elective

<table>
<thead>
<tr>
<th>Mandatory Courses</th>
<th>Optional Courses</th>
<th>Elective Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract Algebra F19PL</td>
<td>Ordinary Differential Equations F19MO</td>
<td>Up to one of:</td>
</tr>
<tr>
<td>Project Preparation F19GB</td>
<td>Complex Analysis F19MC</td>
<td>Vector Analysis F19MV</td>
</tr>
<tr>
<td>Complex Analysis F19MC</td>
<td>Financial Derivatives C39SN</td>
<td>Up to one of:</td>
</tr>
<tr>
<td>Financial Derivatives C39SN</td>
<td></td>
<td>Numerical Analysis B F19NB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied Mathematics B F19AB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any SCQF Level 7,8,9 course from approved list¹</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Any SCQF Level 7,8,9 course from approved list²</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ordinary or General Degree</td>
</tr>
</tbody>
</table>

1. The choice of electives at different stages will be published in the student handbook.

2. The choice of electives at different stages will be published in the student handbook.

Ordinary or General Degree
- 360 credits, incl. 60 at Level 9
- (24 courses to be completed)
## Programme Code(s) (recruitment & exit awards)
F1B1-MWF /YYY/ZZZ

## Programme Titles for all awards (unabbreviated)
Mathematics with Finance

## Main Award(s) (to be recruited to)
BSc (F1B1-MWF)

## Exit Awards (for graduation only)
BSc (Hons) (F1B1-YYY)
BSc (Ord) (F1B1-ZZZ)

## Type
School specialist degree

## Programme Accredited by
G1N3

## UCAS Code
Mathematical & Computer Sciences

## School
Mathematics

## QAA Subject Benchmarking Group(s)
Mathematics

## Date of Production/Revision
March 2016

### Stage Composition

<table>
<thead>
<tr>
<th>Stage 4</th>
<th>8 courses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 mandatory, 5 optional</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mandatory Courses</th>
<th>Optional Courses</th>
<th>Elective Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Management and Derivatives C30SX</td>
<td>Mathematics Project Dissertation F10GP</td>
<td>Three of:</td>
</tr>
<tr>
<td>Equity Markets and Fund Management C30SY</td>
<td></td>
<td>Applied Mathematics C F10AC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mathematical Biology A F10AM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Functional Analysis F10MF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Optimisation F10MM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Numerical Analysis C F10NC</td>
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<tr>
<td></td>
<td></td>
<td>Pure Mathematics C F10PC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mathematical Biology B F10AN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geometry F10PG</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Partial Differential Equations F10MP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Numerical Analysis D F10ND</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pure Mathematics D F10PD</td>
</tr>
</tbody>
</table>

Honours Degree
Requires 480 SCQF credits including a minimum of 180 at Level 9 and 10 and at least 90 at Level 10 (32 courses to be completed)

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

The accompanying Programme Description provides details of aims, outcomes, teaching & learning and assessment policies for the programme.
<table>
<thead>
<tr>
<th>1 Programme Code(s) (recruitment &amp; exit awards)</th>
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</thead>
<tbody>
<tr>
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<td>Mathematics with Finance</td>
<td>BSc (F1B1-MAT)</td>
<td>BSc (Hons) (F1B1-YYY) BSc (Ord) (F1B1-ZZZ)</td>
</tr>
</tbody>
</table>

| 5 Type School specialist degree               | 6 Programme Accredited by UCAS Code Mathematical & Computer Sciences QAA Subject Benchmarking Group(s) Date of Production/ Revision |
|---------------------------------------------|-----------------------------------------------|-----------------------------------|----------------------------------|
| School Mathematical & Computer Sciences    | G1N3                                           | Mathematics                       | April 2014                       |

### Stage Notes

Stage One: Students must study 8 mandatory courses.

Stage Two: Students must study 7 mandatory courses and 1 optional course.

Stage Three:
- Honours degree students must study 6 mandatory courses, together with 2 optional courses and no electives.
- Ordinary degree students must study 6 mandatory courses, together with up to 2 optional courses and up to 2 approved elective courses.
- The choice of electives will be published in the student handbook

An optional course may not run if there is insufficient demand for it; some choices of courses may not be available to students in some years because of timetabling constraints
Form P8
Heriot-Watt University – Undergraduate Programme Notes Template

<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></td>
<td></td>
<td>BSc (Ord) (F1B1-ZZZ)</td>
<td></td>
</tr>
</tbody>
</table>

5 Type
School specialist degree

6 Programme Accredited by
G1N3

7 UCAS Code
G1N3

8 School
Mathematical & Computer Sciences

9 QAA Subject Benchmarking Group(s)
Mathematics

10 Date of Production/Revision
April 2014

Progression Requirements

(a) Progression through the programme normally requires a minimum of number of credit points:

- Progression from Stage 1 to Stage 2: 120 credits
- Progression from Stage 2 to Stage 3: 240 credits
- Progression from Stage 3 to Stage 4: 360 credits

(b) Progression through the programme for an Honours degree normally requires:

- Stage 1: a minimum of Grade D in at least 6 courses including Finance and Financial Reporting (C37FF), Calculus A (F17CA), Calculus B (F17CB), Algebra A (F17CC) and Problem Solving (F17GA).
- Stage 2: a minimum of Grade D in at least 6 courses including Finance Theory and Markets 1 (C38FM), Finance and Theory and Markets 2 (C38FN), Multivariable Calculus and Real Analysis A (F18CD), Multivariable Calculus and Real Analysis B (F18CE), and Linear Algebra (F18CF).
- Stage 3: average mark on qualifying courses of at least 40% and an average mark of at least 40% in the seven qualifying courses other than Project Presentation (F19GB), with a minimum Grade D in Securities Markets 1 (C39SM) and Securities Markets 2 (C39SN).

The Progression Board may permit a student to be re-assessed in any qualifying course not taken in the final stage in order to gain credits for the course, provided that the mark or grade obtained in the first assessment of any such course is used in determining the classification of the degree to be awarded.

(c) Progression through the programme for an Ordinary degree normally requires:

- Stage 1: a minimum of Grade D in at least 5 courses including Finance and Financial Reporting (C37FF), Calculus A (F17CA), Calculus B (F17CB), Algebra A (F17CC) and Problem Solving (F17GA).
- Stage 2: a minimum of Grade D in at least 5 courses including Finance Theory and Markets 1 (C38FM), Finance and Theory and Markets 2 (C38FN), Multivariable Calculus and Real Analysis A (F18CD), Multivariable Calculus and Real Analysis B (F18CE), and Linear Algebra (F18CF).

Award Requirements

Honours degree classification is determined by performance in:
- Stage 3, averaged over all qualifying courses (40%)
- Stage 4, averaged over all qualifying courses (60%)

The qualifying courses are all courses in the programme that are rated SCQF level 9 or 10.

The accompanying Programme Structure provides details of courses, awards and credits for the programme.
The accompanying Programme Description template provides details of aims, outcomes, teaching & learning and assessment policies for the programme.
List of Optional courses to be appended
### 11. Educational Aims of the Programme

The principal aims of the programme are to:

- provide high-quality undergraduate education in a wide range of subjects in modern mathematics and finance
- enable students to develop detailed knowledge and critical understanding of both theoretical and applied elements of mathematics and finance
- provide students with training and practical experience of modelling, analysing and interpreting mathematical and real-world problems
- enable students to communicate and work effectively with peers and academic staff, demonstrating appropriate levels of autonomy, initiative, and responsibility
- provide students at the undergraduate level with the opportunity to plan and write a dissertation requiring detailed and critical understanding in an area of mathematics
- equip students with the grounding in mathematics and finance necessary to go onto to further study or straight into graduate jobs

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

#### Subject Mastery

<table>
<thead>
<tr>
<th>On completion of the programme students should be able to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• demonstrate an understanding across a broad range of mathematics, finance and accountancy</td>
</tr>
<tr>
<td>• demonstrate a detailed knowledge and understanding in certain specific areas of mathematics and finance</td>
</tr>
<tr>
<td>• demonstrate an understanding of the power of abstraction and of the notions of proof and logical reasoning</td>
</tr>
<tr>
<td>• demonstrate an appreciation of the usefulness of mathematics and finance over a wide range of applications</td>
</tr>
</tbody>
</table>

#### Scholarship, Enquiry and Research

On completion of the programme students should be able to:

- demonstrate a good level of skill in calculation and in technical manipulation in mathematics and finance
- demonstrate the ability to present rigorous arguments in mathematics and finance
- model real-life situations in mathematical terms and analyse the resulting models
- demonstrate computational skills involving the use of a range of software packages.
Form P10  
Heriot-Watt University – Programme Description Template  
Version 4.0 (2010/2011)

1. Programme Code(s) (recruitment & exit awards)  
F1B1-MWF/YYY

2. Programme Titles for all awards (unabbreviated)  
Mathematics with Finance

3. Main Award(s) (to be recruited to)  
BSc (F1B1-MAT)

4. Exit Awards (for graduation only)  
BSc (Hons) (F1B1-YYY)  
BSc (Ord) (F1B1-ZZZ)

5. Type  
School specialist degree

6. Programme Accredited by  
G1N3

7. UCAS Code  
Mathematical & Computer Sciences

8. School Subject Benchmarking Group(s)  
Mathematics

9. QAA Subject Benchmarking Group(s)  

10. Date of Production/Revision  
31 March 2008/201415

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Industrial, Commercial and Professional Practice

On completion of the programme, students will have the knowledge and skills for the development, application and consequent analysis of mathematics and mathematical models and finance as currently required in modern industrial sectors, in particular for the finance sector also including including IT, engineering, and general science and technology. They will be able to identify, analyse and solve problems, and discuss issues at a professional level; they will also be able to critically review existing practices and will be in a strong position to move on to a professional environment, with sound knowledge, confidence and awareness of the nature of that environment and the demands it will make.

Autonomy, Accountability and Working with Others

On completion of the programme students will be able to:
- plan and organise their own learning through self management and time management
- demonstrate the ability to work with relatively little guidance or support, to undertake self-directed work and to meet deadlines
- communicate effectively at all levels and using a range of media
- interact effectively with professionals from a wide and diverse range of areas

Communication, Numeracy and ICT

On completion of the programme, students will be numerate, able to make presentations on specialised topics and able to communicate well with peers and other colleagues. They will have extensive IT knowledge and skills and will be able to use them confidently. They will also have the necessary background to enable them to be ready and able to communicate on technical and general matters with peers and senior colleagues.

13. Approaches to Teaching and Learning:

The following teaching methods are used: lectures, tutorials, computing laboratory work, coursework, projects. Teaching on the programme is student-focussed, with students encouraged to take responsibility for their own learning and development. In addition, students learn through structured group work in problems solving, collaborative student presentations, and independent study and technical project work. Resource-based and problem-based teaching styles are used to facilitate the motivational and assimilative phases of the learning process. The level and type of support available via VISION will vary between the courses as is appropriate for the subject matter.

Approaches to learning and teaching are continually reviewed and developed with the aim of matching them to the abilities and experiences of the students.

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. Formative assessment is used to provide feedback and to inform student learning.

Approaches to assessment are continually reviewed. Specific details about methods of assessment are provided in the appropriate course descriptors.

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