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<th>Courses: (Please highlight any new courses and include the course descriptors)</th>
<th>Code</th>
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Updated by Academic Registry April 2014
1. Programme Code(s) (recruitment & exit awards)
F141-MWP: F141-ZZZ

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

3. Main Award(s) (to be recruited to)
BSc Honours

4. Exit Awards (graduation only)
BSc Honours, BSc Ordinary

5. Date of Production
3 March 2016

7. OPTIONAL COURSES

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<th>Edinburgh/Orkney/HWUM/Dubai/ALP/IDL Collaborative Partner</th>
<th>Stage</th>
<th>Semester</th>
<th>Phase (Part-time only)</th>
<th>Courses: (Please highlight any new courses and include the course descriptors)</th>
<th>New Course</th>
<th>SCQF Credits</th>
<th>SCQF Level</th>
<th>Notes</th>
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STAGE 2

|                                                           |       | 4 | 1 | F10AC | Applied Mathematics C | 15 | 10 | Choose 3 options in semester 1 |
|                                                           | √     | 4 | 1 | F10AM | Mathematical Biology A | 15 | 10 | |
|                                                           | √     | 4 | 1 | F10MF | Functional Analysis | 15 | 10 | |
|                                                           | √     | 4 | 1 | F10MM | Optimisation | 15 | 10 | |
|                                                           | √     | 4 | 1 | F10NC | Numerical Analysis C | 15 | 10 | |
|                                                           | √     | 4 | 1 | F10PC | Pure Mathematics C | 15 | 10 | |
|                                                           | √     | 4 | 2 | F10AN | Mathematical Biology B | 15 | 10 | Choose 3 options in semester 2 |
|                                                           | √     | 4 | 2 | F10MP | PDEs | 15 | 10 | |
|                                                           | √     | 4 | 2 | F10ND | Numerical Analysis D | 15 | 10 | |
|                                                           | √     | 4 | 2 | F10PD | Pure Mathematics D | 15 | 10 | |
|                                                           | √     | 4 | 2 | F10PG | Geometry | 15 | 10 | |
|                                                           | √     | 4 | 2 | F19AB | Applied Mathematics B | 15 | 9 | |

8. ELECTIVES (please provide a detailed description and course lists where possible)

Stage 1: None
Stage 2: None
Stage 3: None
Stage 4: None
Stage 5: None

9. COMPOSITION & STAGE NOTES e.g. xx taught Courses (xx mandatory & xx optional)

Stage 1: Eight courses, all mandatory
Stage 2: Eight courses, 7 mandatory plus one optional
Stage 3: Eight courses, all mandatory
Stage 4: Eight courses, 2 mandatory plus six optional
Stage 5:

10. ASSESSMENT METHODS

A. Please list all courses which are assessed by 100% written examination below and include course descriptors
N/A
1. Programme Code(s) (recruitment & exit awards)  
F141-MWP: F141-ZZZ

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

3. Main Award(s) (to be recruited to)  
BSc Honours

4. Exit Awards (graduation only)  
BSc Honours, BSc Ordinary

5. Date of Production  
3 March 2016

B. Please list all courses which consist of a variation in assessment methods across locations/modes of study. Please provide details and a rationale for variations and include course descriptors.

N/A

11. PROGRESSION REQUIREMENTS

Part A. Minimum number of credits required to progress through each stage are as follows

- **Stage 1 to 2:** 120 credits (8 courses)
- **Stage 2 to 3:** 240 credits (16 courses)
- **Stage 3 to 4:** 360 credits (24 courses)
- **Stage 4 to 5:**

Part B. Minimum grade D required in the following courses: *(a rationale must be provided if a grade higher than D is required in any courses)*

- **Stage 1:** A minimum of Grade D in at least 6 courses including F17CA Calculus A, F17CB Calculus B, F17CC Algebra A, F17GA Problem Solving, B27MW Mechanics and Waves and B27FF Fields and Forces
- **Stage 2:** A minimum of Grade D in at least 6 courses including F18CD Multivariable Calculus and Real Analysis A, F18CE Multivariable Calculus and Real Analysis B, F18CF Linear Algebra, B28PO Photonics & Optics and B28TP Thermal Physics & Properties of Matter.
- **Stage 3:** An average mark on qualifying courses of at least 40% and an average mark of at least 40% in the seven qualifying courses other than F19GB (Project Presentation). A minimum of grade D in each of B29EM Electromagnetism and B29QS Quantum Theory and Spectroscopy.
- **Stage 4:**

12. RE-ASSESSMENT OPPORTUNITIES

The re-assessment policy for this programme is in line with University Regulations as set out below *(please tick)*

<table>
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<tr>
<th>Yes</th>
<th>No</th>
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If you have selected "No" please amend the statement below and highlight changes.

1. A student who has been awarded a Grade E or a Grade F in a course may be re-assessed in that course.
2. A student shall be permitted only one re-assessment opportunity to be taken at the Resit diet of examinations following the first assessment of the course.
3. A student shall not be re-assessed in any qualifying course taken in the final stage of a course of study.
4. 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.

Please provide a rationale for any changes below

13. AWARDS, CREDITS & LEVEL

The awards, credits and level for this programme is in line with University Regulations as set out below *(please tick)*

<table>
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<th>Yes</th>
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If you have selected "No" please amend the statement below and highlight changes.

**Part A. Credit Requirements**

- **Integrated Masters:** 600 SCQF credits including a minimum of 120 credits at Level 11
- **Honours Degree (inc MA):** 480 SCQF credits including a minimum of 180 credits at Level 9 and 10 of which at least 90 credits at Level 10
- **Ordinary or General Degree:** 360 SCQF credits including a minimum of 60 credits at Level 9
- **Diploma of Higher Education:** 240 SCQF credits including a minimum of 90 credits at Level 8
- **Certificate of Higher Education:** 120 SCQF credits including a minimum of 90 credits at Level 7

**Part B. Mark/Grade Requirements**

- **Integrated Masters:** Credit weighted average ≥50% over all qualifying courses at grades A-D
- **Honours Degree (inc MA):**
  1. Credit weighted average ≥70% over all qualifying courses at grades A-D
  2. Credit weighted average ≥60% over all qualifying courses at grades A-D
  2. Credit weighted average ≥50% over all qualifying courses at grades A-D

Updated by Academic Registry April 2014
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F141-MWP: F141-ZZZ

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BSc Honours

4. Exit Awards (graduation only)
BSc Honours, BSc Ordinary

5. Date of Production
3 March 2016

3rd: Credit weighted average ≥40% over all qualifying courses at grades A-D

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<th>Ordinary or General Degree</th>
<th>Minimum of grade D in all pre-requisite courses</th>
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<td>Diploma of Higher Education</td>
<td>Minimum of grade D in all pre-requisite courses</td>
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<tr>
<td>Certificate of Higher Education</td>
<td>Minimum of grade D in all pre-requisite courses</td>
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Please provide a rationale for any changes below

Part C. Additional 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 these years rated SCQF level 9 or 10.

14. ADDITIONAL PROGRAMME INFORMATION
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.

15. Programme Accredited by

16. QAA Subject Benchmarking Group(s)
Mathematics

17. UCAS Code(s)
G1F3

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Approval Date:  
Meeting:  
Paper Ref:  

Updated by Academic Registry April 2014
### Educational Aims of the Course

The principal aims of the course are to:
- provide high-quality undergraduate education in a wide range of subjects in modern mathematics and physics
- enable students to develop detailed knowledge and critical understanding of both theoretical and applied elements of mathematics and physics
- 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 physics necessary to go onto to further study or straight into graduate jobs

### The Course provides opportunities for learners to achieve the following outcomes:

#### Understanding, Knowledge and Cognitive Skills

On completion of the course students should be able to:
- demonstrate an understanding across a broad range of mathematics and physics
- demonstrate a detailed knowledge and understanding in certain specific areas of mathematics and physics
- demonstrate an understanding of the power of abstraction and of the notions of proof and logical reasoning
- demonstrate an appreciation of the usefulness of mathematics over a wide range of applications

#### Scholarship, Enquiry and Research

On completion of the course students should be able to:
- demonstrate a good level of skill in calculation and in mathematical manipulation
- demonstrate the ability to present rigorous arguments
- model real-life situations in mathematical terms and analyse the resulting models
- demonstrate computational skills involving the use of a range of software packages
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<td>BSc Honours, BSc Ordinary, DipHE, CertHE</td>
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6. Course Accredited by: G1F3

7. UCAS Code: G1F3

8. QAA Subject Benchmarking Group(s): Mathematics

9. Date of Production/Revision: 11 February 2008

### Personal Abilities

**Industrial, Commercial and Professional Practice**

On completion of the course, students will have the knowledge and skills for the development, application and consequent analysis of mathematics and mathematical models as currently required in modern industrial sectors, including IT, finance, engineering, and general science and technology. They will be able to identify, analyse and solve problems especially those arising from the physical sciences, 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 course 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 course, 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.

### 12. Approaches to Teaching and Learning:

The following teaching methods are used: lectures, tutorials, computing laboratory work, coursework, projects. **Teaching on the course 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 modules 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.

### 13. Assessment Policies:

The assessment policy for the course incorporates a range of assessment types. Continuous assessment during some modules and summative assessment at the conclusion of modules 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 module descriptors.**