PROGRAMME DETAILS

Programme Code: F191-MEL

Department: Mathematics

Main Award: BSCH - Bachelor of Science Honours

Full Award Title: Bachelor of Science in Mathematics with a European Language

Level: Undergraduate

LOCATION OF STUDY

<table>
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<tr>
<th>Location</th>
<th>Y</th>
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ASSOCIATED AWARDS

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<tr>
<td>F191-ZZZ</td>
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ACCREDITATION

N/A

LEARNING OUTCOMES – SUBJECT MASTERY

Understanding, Knowledge and Cognitive Skills

On completion of the programme students should be able to:

- demonstrate an understanding across a broad range of mathematics
- demonstrate a detailed knowledge and understanding in certain specific areas of mathematics
- 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
- be proficient in both oral and written interpreting into and from French German or Spanish

Scholarship, Enquiry and Research (Research Informed Learning)

On completion of the programme 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
- demonstrate a critical appreciation of intercultural issues

LEARNING OUTCOMES – PERSONAL ABILITIES
F191-MEL Bachelor of Science in Mathematics with a European Language

**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 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, 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. They will also have working knowledge of another culture.

**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 & Information and Communications Technology**

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. They should also have fluency in French German or Spanish

**APPROACHES TO TEACHING AND LEARNING**

The following teaching methods are used: lectures, tutorials, computing laboratory work, coursework, projects, language labs. 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.

**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
- enable students to develop detailed knowledge and critical understanding of both theoretical and applied elements of mathematics
- 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 necessary to go onto to further study or straight into graduate jobs
- enable students to be fluent in their chosen language
- provide experience of university education and cultural life in a partner university in which the language of instruction is either French, German or Spanish

**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.

**PROGRAMME STRUCTURE**

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<tr>
<th>Mandatory Courses</th>
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</thead>
<tbody>
<tr>
<td><strong>Course Code</strong></td>
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<tr>
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# F191-MEL Bachelor of Science in Mathematics with a European Language

| X | 1 | 2 | F17GA | Problem Solving | 15 | 7 |
| X | 1 | 2 | F77SB | Introduction to Statistical Science B | 15 | 7 |
| X | 2 | 1 | F18CD | Multivariable Calculus and Real Analysis A | 15 | 8 |
| X | 2 | 1 | F18CF | Linear Algebra | 15 | 8 |
| X | 2 | 2 | F18CE | Multivariable Calculus and Real Analysis B | 15 | 8 |
| X | 2 | 2 | F18NA | Numerical Analysis A | 15 | 8 |
| X | 2 | 2 | F18PA | Pure Mathematics A | 15 | 8 |
| X | 3 | 1 | F19YA | Year Abroad | 60 | 9 |
| X | 3 | 2 | F19YB | Year Abroad | 60 | 9 |

## Optional Courses

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### COMPOSITION AND STAGE NOTES (UG)

**Stage 1**
8 courses: 6 mandatory, 2 optional

**Semester 1 optional courses, one of:**

French Language Intermediate 1 (C47LF), German Language Intermediate 1 (C47LG) or Spanish Language Intermediate 1 (C47LE)

**Semester 2 optional courses, one of:**

French Language Intermediate 2 (C47MF), German Language Intermediate 2 (C47MG) or Spanish Language Intermediate 2 (C47ME)

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**Stage 2**
8 Courses: (eg 5 mandatory, 3 optional)

**Semester 1 optional courses:**

One of: French Advanced 1 (C48LF), German Advanced 1 (C48LG) or Spanish Advanced 1 (C48LE)

And One of:
Applied Mathematics A (F18AA), Logic & Proof (F17LP) or Mathematics for Direct Entrants (F18GD)

**Semester 2 optional courses, one of:**

French Advanced 2 (C28MF), German Advanced 2 (C48MG) or Spanish Advanced 2 (C48ME)

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**Stage 3**

Year long course equivalent to 120 HWU credits.

The students will spend stage 3 studying mathematics in a university where the working language is French, German or Spanish as appropriate so that both mathematics and language skills will be enhanced in equal measure. The study abroad will include a project equivalent to 30 credits. Satisfactory completion of this year will result in the award of 120 credits and entry into year 4. The students will undergo a language oral examination on part of their project on their return that forms part of the assessment for the classification of Honours.

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<td><strong>Total 3</strong></td>
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**Stage 4**

8 courses: all optional

**Semester 1 optional courses, four of:**

Abstract Algebra (F19PL); Mathematical Biology A (F10AM); Functional Analysis (F10MF); Optimisation (F10MM) or Numerical Analysis C (F10NC)

**Semester 2 optional courses, four of:**
F191-MEL Bachelor of Science in Mathematics with a European Language

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Mandatory Credits</th>
<th>Optional Credits</th>
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<tr>
<td>Complex Analysis (F19MC); Mathematical Biology B (F10AN); Geometry (F10PG); Partial Differential Equations (F10MP) or Numerical Analysis D (F10ND)</td>
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**Stage 5**

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**ASSESSMENT AND PROGRESSION (UG)**

**Reassessment Opportunities**

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 examination 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.

**Progression Requirements**

**Part A.** The minimum number of credits required to progress through each stage are as follows

| Stage 1 to 2 | 120 credits |
| Stage 2 to 3 | 240 credits |
| Stage 3 to 4 | 360 credits |
| Stage 4 to 5 | N/A         |

**Part B.** The minimum grade of D is required in the following courses

**Stage 1**

a minimum of Grade D in at least 6 courses including Calculus A, Calculus B, Algebra A Problem Solving, and all language courses

**Stage 2**

a minimum of Grade B in at least 6 courses including Multivariable Calculus and Real Analysis A, Multivariable Calculus and Real Analysis B, Linear Algebra and all language courses and an overall average mark of at least 70% in all mathematics courses.

**Stage 3**

satisfactory completion of the year abroad including the completion of the project

**Stage 4**

N/A

**AWARDS, CREDITS AND LEVEL (UG)**
### Part A. Credit Requirements

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<th>Overall Credits</th>
<th>Specific Requirements</th>
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<td>Honours Degree (inc.MA)</td>
<td>480</td>
<td>480 SCQF credits including a minimum of 180 credit at Level 9 and 10 of which at least 90 credits at Level 10</td>
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<td>Ordinary or General Degree</td>
<td>360</td>
<td>360 SCQF credits including a minimum of 60 credit at Level 9</td>
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<td>Diploma of Higher Education</td>
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<td>Certificate of Higher Education</td>
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### Part B. Mark/Grade Requirements

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<th>Overall Grade</th>
<th>Basis of Overall Mark/Grade</th>
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<td>Integrated Masters</td>
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<td>Credit Weighted Average &gt;=50% over all qualifying courses at Grades A-D</td>
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</table>
| Honours Degree (inc.MA)             | >=40%        | D             | 1st: Credit Weighted Average >=70% Over all qualifying courses at Grades A-D.  
   2.1: Credit Weighted Average >=60% Over all qualifying courses at grades A-D.  
   2.2: Credit Weighted Average >=50% Over all qualifying courses at grades A-D.  
   3rd: Credit Weighted Average >=40% Over all qualifying courses at grades A-D. |
| Ordinary or General Degree          | >=40%        | D             | Minimum of grade D in all pre-requisite courses.                                           |
| Diploma of Higher Education         | >=40%        | D             | Minimum of grade D in all pre-requisite courses.                                           |
| Certificate of Higher Education     | >=40%        | D             | Minimum of grade D in all pre-requisite courses.                                           |

### Duration of Study

<table>
<thead>
<tr>
<th>IN MONTHS</th>
<th>Full-time</th>
</tr>
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<tbody>
<tr>
<td>Integrated Masters</td>
<td>60</td>
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<tr>
<td>Honours Degree</td>
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<tr>
<td>Ordinary or General Degree</td>
<td>36</td>
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<td>Diploma of Higher Education</td>
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<tr>
<td>Certificate of Higher Education</td>
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