F7IM-ACP Master of Science in Actuarial Science and Management

PROGRAMME DETAILS
Programme Code: F7IM-ACP
Department: Actuarial Maths & Statistics
Main Award: MSC - Master of Science
Full Award Title: Master of Science in Actuarial Science and Management
Level: Postgraduate Taught

LOCATION OF STUDY
Edinburgh Y Scottish Borders N Orkney N
Dubai N Malaysia N Approved Learning Partner N
Independent Distance Learners N Collaborative Learning Partner N Other N

ASSOCIATED AWARDS
Programme Code | Award | Title
--- | --- | ---
F7IC-ZZZ | PGCERT | Postgraduate Certificate in Actuarial Science and Management
F7ID-ACP | PGDIP | Postgraduate Diploma in Actuarial Science and Management
F7IM-ACP | MSC | Master of Science in Actuarial Science and Management

ACCREDITATION
The Institute and Faculty of Actuaries

LEARNING OUTCOMES – SUBJECT MASTERY
Understanding, Knowledge and Cognitive Skills

Stage 1

- extensive and detailed knowledge, and critical understanding, of central areas in actuarial science and statistics, including at Master's level one or more specialist area
- knowledge and critical understanding of certain areas in economics and finance
- the acquisition of a range of new skills required in actuarial science, including skills in statistical analysis
- awareness and understanding of current issues in actuarial science, through teaching informed by current developments in professional matters and in actuarial research
- extensive knowledge and critical understanding of many of the principal theories and concepts of contemporary actuarial science, and of some of the principal theories and concepts of contemporary statistics, economics, and finance
- expertise in applying many of the principal skills and techniques used in actuarial science and some of the principal skills and techniques used in statistics, economics, and finance
- extensive knowledge and understanding of problems in some or all of the following areas: financial mathematics, life insurance mathematics, survival models, risk theory, stochastic processes, financial economics, and the statistics of general insurance

Stage 2

- extensive and detailed knowledge, and critical understanding, of central areas in actuarial management, including at Master's level two or more specialist areas
knowledge and critical understanding of certain areas in the actuarial management of a range of financial institutions
- the acquisition of a range of new skills required in actuarial management, including skills in applied actuarial modelling
- awareness and understanding of current issues in actuarial management, through teaching informed by current developments in professional matters and in actuarial research
- extensive knowledge and critical understanding of many of the principal theories and concepts of contemporary actuarial management, and of some of the principal theories and concepts of professional practice
- expertise in applying, in a practical context, many of the principal skills and techniques used in actuarial management
- extensive knowledge and understanding of problems in some or all of the following areas: actuarial risk management, financial mathematics, life insurance
- practice, pension funds, investment, derivative pricing, and enterprise risk management

Scholarship, Enquiry and Research (Research Informed Learning)

On completion of the programme, 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 actuarial science and actuarial management
- 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
LEARNING OUTCOMES – PERSONAL ABILITIES

Industrial, Commercial and Professional Practice

On completion of the programme, 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

On completion of the programme 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 & Information and Communications Technology

• 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 R and Excel for solving actuarial problems

APPROACHES TO TEACHING AND LEARNING

Programme 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 programme 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 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 labwork. 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. Specific details about teaching and learning methods are provided in the appropriate course descriptors.

EDUCATIONAL AIMS OF THE PROGRAMME

The principal aims of the programme are to:
Stage 1

• provide intensive and high-quality education in a postgraduate context in a wide range of subjects in contemporary actuarial science and statistics, and in economics and finance
• provide coverage of the material in the syllabuses of the subjects CT1 – CT8 in the "Core Technical" series of the Institute and Faculty of Actuaries and provide an opportunity for students to gain exemptions from some or all of the corresponding professional examinations as a result of dedicated study over a nine-month period
• provide a challenging period of study which enables students to test themselves against standards requiring intensive work and strong commitment in a demanding postgraduate environment
• enable students to develop detailed knowledge and critical understanding, and acquire a range of new skills, in central areas in actuarial science and statistics
• 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

Stage 2

• provide intensive and high-quality education in a postgraduate context in a wide range of subjects in contemporary actuarial management, and professional practice
• provide coverage of the material in the syllabuses of the subjects CA1, CA3, ST2, ST4, ST5, ST6 and ST9 of the Institute and Faculty of Actuaries and provide an opportunity for students to gain exemptions from some or all of the corresponding professional examinations as a result of dedicated study over a nine-month period
• provide a challenging period of study which enables students to test themselves against standards requiring intensive work and strong commitment in a demanding postgraduate environment
• 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 practice, and demonstrating originality.

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 stages:
Stage 1

1. A taught phase, consisting of a set of ten full and two half courses – of which 3 full courses are mandatory, as defined in the programme structure. Students choose courses leading to at least 120 credits, but are not limited to 120 credits. They may choose as many as they wish to try to gain maximum exemptions from the examinations of the Institute and Faculty of Actuaries. 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.

2. 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.

Stage 2

1. 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.

2. A dissertation phase, consisting of a project dissertation report over the summer.

3. 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.

4. 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.

5. 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.

PROGRAMME STRUCTURE

<table>
<thead>
<tr>
<th>Mandatory Courses</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orkney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dubai</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HWUM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coll. Partner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edinburgh</td>
<td>1 1</td>
<td>F71AB</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>1 2</td>
<td>F71BF</td>
</tr>
</tbody>
</table>
## Optional Courses

<table>
<thead>
<tr>
<th>Stage</th>
<th>Semester</th>
<th>Phase</th>
<th>Course Code</th>
<th>Course Title</th>
<th>SCQF Cr</th>
<th>SCQF Lvl</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td>C21AO</td>
<td>Economics</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td>C31FF</td>
<td>Finance and Financial Reporting</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td>F71SM</td>
<td>Statistical Methods</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td>F71SZ</td>
<td>Stochastic Modelling</td>
<td>7.5</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>F71AE</td>
<td>Survival Models</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>F71AG</td>
<td>Risk Theory</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>F71AH</td>
<td>Financial Economics 1</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>F71AJ</td>
<td>Financial Economics 2</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td>F71DA</td>
<td>Data Analytics and Time Series Analysis</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>C31FM</td>
<td>Financial Markets</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>F71DV</td>
<td>Derivatives Markets and Pricing</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>F71LA</td>
<td>Life Insurance 1</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>F71PC</td>
<td>Pensions A</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>F71QR</td>
<td>Quantitative Risk Analysis</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td>C31FV</td>
<td>Finance and Investment</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td>F71AP</td>
<td>Advanced Derivative Pricing</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td>F71LB</td>
<td>Life Insurance 2</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td>F71PD</td>
<td>Pensions B</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td></td>
<td>F71TT</td>
<td>Risk Management: Techniques and Tools</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>

## COMPOSITION NOTES(PG)

### Stage 1

There are three mandatory courses in stage 1 (F71AF/AB/BF). All other courses in Stage 1 are optional. Students may choose any courses leading to a minimum of 120 credits, but not limited to 120 credits. Students may study all available courses in order to obtain maximum possible exemptions from the examinations of the Institute and Faculty of Actuaries (IFoA). Guidance is provided to students on selection of courses. Progression to stage 2 will be on the basis of an average mark of 60% over any set of courses at grades A-D taken at the first attempt, bearing 120 credits in total, and grade C in all mandatory courses. Transfer to the MSc/PGDip in Actuarial Science as an exit award will be on the basis of their highest average mark and required grades over any set of courses bearing 120 credits in total.

### Stage 2

Two mandatory courses (F71CA/CB) and three pairs of optional courses from F71PC/PD, F71LA/LB, C31FM/FV, F71DV/AP and F71QR/TT totalling 120 credits. Each pair of courses is associated with exemption from one examination of the Institute and Faculty of Actuaries and must be chosen in pairs as above. Subject to meeting the requirements below,
students may proceed to the Dissertation stage of the programme.

No credits from the 1st stage of study will count towards the MSc/PGDip; they count only for exemption purposes, or for progressing onto the MSc study.

The 2nd stage credits are:

- Mandatory - 30
- Optional - 90
- Dissertation - 60

Total - 180

<table>
<thead>
<tr>
<th>Credits Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory Credits</td>
<td>30</td>
</tr>
<tr>
<td>Optional Credits</td>
<td>90</td>
</tr>
<tr>
<td>Elective Credits</td>
<td>0</td>
</tr>
<tr>
<td>Dissertation Credits</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>

AWARDS, CREDITS AND CRITERIA (PG)

<table>
<thead>
<tr>
<th>Awards, Credits and Levels</th>
<th>Overall Credits</th>
<th>Specific Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters Degree</td>
<td>300</td>
<td>300 SCQF credits including a minimum of 240 credit at Level 11</td>
</tr>
<tr>
<td>Postgraduate Diploma</td>
<td>240</td>
<td>240 SCQF credits including a minimum of 180 credit at Level 11</td>
</tr>
<tr>
<td>Postgraduate Certificate</td>
<td>180</td>
<td>180 SCQF credits including a minimum of 150 credit at Level 11</td>
</tr>
</tbody>
</table>

**Award Requirements**

<table>
<thead>
<tr>
<th>Award</th>
<th>Total Course Passes</th>
<th>Overall Mark</th>
<th>Overall Grade</th>
<th>Basis of Overall Mark/Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master (Distinction)</td>
<td>8 + Dissertation</td>
<td>70</td>
<td>A</td>
<td>Credit Weighted Average greater than or equal 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</td>
<td>C</td>
<td>Credit Weighted Average greater than or equal 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</td>
<td>A</td>
<td>Credit Weighted Average greater than or equal 70% over 8 courses at grades A-C</td>
</tr>
<tr>
<td>Diploma</td>
<td>8</td>
<td>40</td>
<td>D</td>
<td>Credit Weighted Average greater than or equal 40% over 8 courses at grades A-E</td>
</tr>
<tr>
<td>Certificate</td>
<td>4</td>
<td>40</td>
<td>D</td>
<td>Credit Weighted Average greater than or equal 40% over 4 courses at grades A-E</td>
</tr>
</tbody>
</table>

DURATION OF STUDY

<table>
<thead>
<tr>
<th>IN MONTHS</th>
<th>Full-time</th>
<th>Part-time</th>
</tr>
</thead>
</table>
### F7IM-ACP Master of Science in Actuarial Science and Management

<table>
<thead>
<tr>
<th></th>
<th>Diploma</th>
<th>Certificate</th>
<th>Masters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### RE-ASSESSMENT (PG)

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 only 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.

Re-assessment takes place in the next academic year.

### PROGRESSION TO DISSERTATION/PROJECT

In accordance with University Regulations, to progress to Masters level a minimum of Grade C is required