



**1. Programme Title(s):**

MSc/PGDip\*/PGCert\* Actuarial Sciences

\* Exit awards only

**2. Awarding body or institution:**

University of Leicester

**3. a) Mode of study**

Full-time

**b) Type of study**

Campus-Based

**4. Registration periods:**

The normal period of registration is 12 months

The maximum period of registration is 24 months

**5. Typical entry requirements:**

The entry requirements are at least a 2.1 class honours BSc degree or qualification of equivalent standard recognised by the University in Physics, Engineering or Mathematics. In general, it is expected that a student has a solid background in mathematics (calculus, linear algebra, ordinary differential equations, basics of probability and statistics). Because applications are treated on an individual basis, alternative qualifications, including work experience, may be considered.

Students' whose first language is not English will need to satisfy the University's English language requirements, equivalent to IELTS 6.0.

**6. Accreditation of Prior Learning:**

Students may be eligible to transfer into the course with up to 60 credits of prior exemptions. These will be exemptions from the Institute of Actuaries CT1-8 examinations completed in the last 5 years, students must present official letters from the profession confirming their successful completion of the subject at the point of application. Any accreditation awarded will then reduce the students' module liability as part of the MSc course.

**7. Programme aims:**

The overall aim of the programme is to provide foundation knowledge in all areas of actuarial science, based on the curriculum for the first stage of the Faculty and Institute of Actuaries (FIA) qualification process (the "core technical" (CT) examinations). We intend to introduce a higher level of mathematical rigour into the programme than the FIA is currently able to, placing modules firmly within level 7 as with the existing MSc via DL.

The programme also aims to

- develop links with the Profession and actuarial employers to benefit students across the University and research programmes;
- set a precedent for rigorous academic programmes that can respond directly to business needs;
- develop students' interest in actuarial mathematics and its applications in preparation for further study and career;
- foster students' independent learning, organisation skills and employability skills.

## 8. Reference points used to inform the programme specification:

- External accreditation (e.g. reports from professional body FIA)
- [The Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies \(Qualifications Frameworks\)](#)
- QAA [Master's Degree Characteristics](#)
- QAA Benchmarking Statement [Mathematics, Statistics and Operational Research \(MMath\)](#)
- QAA [Annex to subject benchmark statement: Mathematics, statistics and operational research \(2009\)](#)
- PDR report (April 2011)
- [University Learning Strategy](#)
- University Employability Strategy
- Graduate Survey (2014)
- First Destination Survey
- External Examiner's Reports

## 9. Programme Outcomes:

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
<b>(a) Subject and Professional skills</b>		
<b>Knowledge</b>		
Demonstrate knowledge of the principles of actuarial science.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, and contributions to forums.
Demonstrate mastery of mathematical conventions used within the industry.	As above.	As above.
<b>Concepts</b>		
Demonstrate knowledge, understanding and application of appropriate mathematical, statistical and financial techniques.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, and contributions to forums
Demonstrate knowledge of actuarial products including valuation and assessment of financial risks associated with each.	As above.	As above.
<b>Techniques</b>		
Apply mathematical, statistical and financial methods to analyse, evaluate and model actuarial	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, and contributions to forums.
<b>Critical analysis</b>		
Apply actuarial principles to model and analyse financial scenarios.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, and contributions to forums
Evaluate and discuss financial risks and possible impact on financial projects.	As above.	As above.

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
<b>Presentation</b>		
Interpret and report results, present data in alternative forms for a range of audiences.	Short projects, extended case study, presentations.	Project presentations, tutorials and electronic forums.
<b>Appraisal of evidence</b>		
Select and apply appropriate mathematical methods for modelling and analysing financial problems.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, and contributions to forums
Take into account commercial constraints when valuing and developing financial products.	As above.	As above.
<b>(b) Transferable skills</b>		
<b>Research skills</b>		
Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional level	Projects and independent research.	Project presentations and reports
<b>Communication skills</b>		
Present technical and financial information orally, in an appropriate form for a given audience.	Projects and independent research.	Project presentations
Communicate technical and financial information in an appropriate written form for a given audience.	As above	Written work.
<b>Data presentation</b>		
Analyse and interpret financial data.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, contributions to forums
Research current practice and conventions in the industry.	As above.	Projects.
<b>Information technology</b>		
Use statistical and numerical software where appropriate.*	Projects and independent research. Independent study using Excel.	Written reports.
Demonstrate a broad understanding of common IT tools.	As above.	Written assignments, electronic forums and submission,

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
<b>Problem solving</b>		
Solve problems relevant to the financial industry through the use of mathematics, economics and other financial techniques.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, and contributions to forums.
Use creativity and innovation to solve problems.	As above.	As above.
<b>Working relationships</b>		
Work collaboratively as part of a team.	Discussion forums.	Presentations or group submissions.
<b>Managing learning</b>		
Identifying a credible Research project, drawing up a realistic research time-table, reflecting on and 'writing up' results	Coursework in modules.	Oral presentations, completion of coursework, project plan, and project.
<b>Career management</b>		
Demonstrate knowledge and understanding of professional and ethical responsibilities of an actuary.	Lectures, learning material, short projects, extended case study.	Examinations, project presentations and reports, regular assessment, contributions to forums
Develop and implement personal plan of work to meet a deadline.	As above.	As above.
Learn independently and understand new concepts in the discipline readily.	Short projects, extended case study. DL components.	As above.
Use of IT in the process of learning.	As above.	As above.

#### 10. Special features:

Research/transferable skills distributed within all modules; some DL content; redistribution of 60cr research skills between the taught component and skills/business-focused module.

#### 11. Indications of programme quality:

External examiner's report; FIA accreditation and annual reviews.

#### 12. Scheme of Assessment

This programme follows the Senate Regulation 6 and the scheme of assessment applied will depend on student module selections. Students may select either 120 taught credits and a 60 credit dissertation (MA7006), or 150 taught credits and a 30 credit project (MA7409). The

schemes of assessment for the purposes of progression, award and classification will be those set out in Senate Regulation 6 for a 120:60 split programme or a 150:30 split programme respectively.

These schemes apply for the assessment of the MSc award only (180 credits) and **do not include any additional modules studied for the purposes of accreditation.**

### **13. Progression points**

At the end of taught modules (delivered between October and June) student progression will be reviewed. Students satisfactorily completing all taught modules to date at first attempt will be eligible to proceed to research project or further study. Those students who have not successfully passed all taught modules will be required to re-sit failed modules in line with the [Senate Regulation 6](#) on examination and progression.

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course and a recommendation will be made to the Board of Examiners for an intermediate award where appropriate.

### **14. Rules relating to re-sits or re-submissions:**

Students will be allowed one re-sit of each assessment component for all failed modules; dispensation from SR 6.24 has been agreed for this programme due to the accreditation agreement. The mark obtained for any re-taken component will be capped at 50%. See [Senate Regulation 6](#).

### **15. Additional information** [e.g. timetable for admissions]

There will be one intake a year in October and applications are accepted throughout the year. The department has a small number of academic scholarships for students expecting first class degrees, applications are assessed at the point of receipt, no additional application is required to be considered for a scholarship.

In order to obtain an MSc qualification a student must undertake 180 credits of modules; this should normally be made up of 120 credits of taught modules and a 60 credit research project or 120 credits of taught modules and two 30 credit business economics and business awareness and critical thinking modules. From the table below this will normally be four modules in each semester from the five offered and either two 30 credit modules or the 60 credit project in the summer term. The initial 180 credits of modules contributing to the University degree must be selected at the start of the academic year.

The full CT1-8 syllabus is covered by 11 modules in total, should a student wish to try and obtain all eight exemptions (CT1-CT8) they can opt to take additional modules above 180 credits for the purpose of accreditation only. These additional modules must be selected at the start of the academic year and will incur an additional fee of £400 per 15 credits.

### **16. External Examiners**

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports can be found [here](#).

## Appendix 1: Programme structure (programme regulations)

All programmes to formally include range of non-credit bearing attendance only activities for careers, student support etc.:

MA7903 – House hours

MA7902 – VBA MA7901- SAS MA7094 – SQL

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### MSc/PGDip in Actuarial Sciences

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<b>SEMESTER 1</b>			
<b>Modules:</b>			<b>Credits</b>
A minimum of 60 credits selected from:			
MA7401	THEORY OF INTEREST		15
MA7403	STATISTICS		15
MA7404	MODELS		15
MA7414	MORTALITY		15
MA7408	FINANCIAL MATHEMATICS		15
		<b>Semester Total</b>	<b>60</b>
<b>SEMESTER 2</b>			
<b>Modules:</b>			<b>Credits</b>
A minimum of 60 credits selected from:			
MA7405	CONTINGENCIES		15
MA7406	FURTHER STATISTICS		15
MA7416	APPLIED STATISTICS		15
MA7418	FINANCIAL ENGINEERING		15
MA7402	FINANCE AND FINANCE REPORTING		15
		<b>Semester Total</b>	<b>60</b>
<b>SUMMER</b>			
<b>Modules</b>			<b>Credits</b>
Study both:			
	MA7407	BUSINESS ECONOMICS	30
And	MA7409	BUSINESS AWARENESS AND CRITICAL THINKING	30
OR	MA7006	INDIVIDUAL PROJECT	60
		<b>Total Credits</b>	<b>180</b>

**Please note that modules cannot be selected if an undergraduate version has already been studied.**

## Appendix 2: Module Specifications

See module specification database <http://www.le.ac.uk/sas/courses/documentation>