Queen Mary
University of London

Programme Specification

Awarding Body/Institution	Queen Mary University of London
Teaching Institution	Queen Mary University of London
Name of Final Award and Programme Title	BSc Mathematics with Actuarial Science
Name of Interim Award(s)	CertHE, DipHE
Duration of Study / Period of Registration	3 years
QM Programme Code / UCAS Code(s)	UBSF-QMMATH1-UMMASACT / G1N3
QAA Benchmark Group	Mathematics, statistics and operational research
FHEQ Level of Award	Level 6
Programme Accredited by	Institute and Faculty of Actuaries
Date Programme Specification Approved	
Responsible School / Institute	School of Mathematical Sciences

Schools which will also be involved in teaching part of the programme

School of Business & Management

Institution(s) other than Queen Mary that will provide some teaching for the programme

Programme Outline

Actuaries deal with uncertainties of future events, drawing on their mathematical skills, in particular in probability and statistics. The BSc in Mathematics with Actuarial Science is a 3-year taught programme which combines all the elements of a generalist undergraduate mathematics degree with a large number of specialist modules. It thus provides solid technical skills in mathematics and actuarial science, as well as economics and financial reporting, to prepare for a career as an actuary or a related career in the financial sector. Successful students will be able to obtain exemptions from up to eight of the Core Technical Examinations of the Institute and Faculty of Actuaries.

The programme is designed to deliver an integrated package of mathematical, computational and business knowledge which will prepare students for the job market. The programme provides useful skills including project and group work, as well as presentational skills, some of which are delivered via compulsory, non credit bearing, Actuarial Professional Development modules in the first and second years.

The School recognises the benefits of short placements and internships during vacations and will encourage and try to facilitate these at suitable companies in London, although it cannot guarantee these will be possible.

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Aims of the Programme

The programme is designed to attract high performing students in Mathematics who are interested in careers in the financial services sector, in particular insurance or pensions where qualified actuaries are sought after and attract high salaries. By introducing many of the skills which a qualified actuary needs at an early stage in their development it also allows students to decide whether they are perhaps more suited to a general financial, statistical or other career. The programme contains a range of both general and specialist modules.

What Will You Be Expected to Achieve?

Academic Content:	
A 1	Core techniques in mathematics.
A 2	Statistical modelling relevant to actuarial and business applications.
A 3	Techniques of financial modelling.
A 4	Knowledge of economics and financial reporting.

Disciplinary Skills - able to:	
B 1	Solve mathematical problems using a range of analytical tools.
B 2	Apply techniques from probability and statistics to problems in insurance and pensions.
B 3	Report results of analyses appropriately.
B 4	Understand the legal, social, ethical and professional issues of being an actuary.

Attributes:	
C 1	Integrate knowledge from many different fields.
C 2	Choose the appropriate mathematical tools for solving particular problems.
C 3	Have a broad knowledge of the work of an actuary.

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QMUL Model Learning Outcomes - Level 4:	
D 1	Identify and discuss their own career aspirations or enterprise skills and knowledge and how they impact on others
D 2	Identify and discuss what their own role in their programme and/or subject discipline might mean to them for future (
D 3	

How Will You Learn?

Throughout the three year programme, you will attend lectures in a range of subject areas. Many lecturers make their lecture notes and other resources available to students via our online learning environment, QMplus. You will also attend examples classes and tutorials, where you can receive one-to-one support in learning how to solve mathematical problems. For some statistics and computing modules, you will undertake practical assignments in the computer laboratories, again with plenty of personal support.

In addition, you will be expected to spend a considerable amount of your own time in independent study, reviewing the material covered in the lectures, and working through various coursework assignments to help you fully understand how to apply your new knowledge.

How Will You Be Assessed?

The majority of our modules are assessed by written examination, although some also involve an element of assessed coursework, or practical work using computers.

How is the Programme Structured?

Please specify the full time and part time programme diets (if appropriate).

In the first year, students take eight compulsory level-4 modules plus Actuarial Professional Development I, and in the second year they take eight compulsory level-5 modules plus Actuarial Professional Development II. In the final year students take seven compulsory level-6 modules and in the second semester they choose one module from a list of level-6 mathematics and business modules.

All first-year Mathematical Sciences students must pass Essential Mathematical Skills in order to progress to the second year of a Mathematical Sciences degree programme.

For full details, please see http://qmplus.qmul.ac.uk/mod/book/view.php?id=489759.

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QMUL Model

Students are required to undertake the equivalent of one module (15 credits in 2017/18) per year of study which has been identified as meeting the requirements of the QMUL Model. Each of these modules has been designed to combine the best of QMUL's academic excellence with your ability to identify and develop your skills, networks and experience. This will help to ensure you become a graduate who can undertake further study or secure graduate employment in areas that interest you, and will support your ability to position yourself to find the right job or opportunity for you. The relevant module for your first year of study in 2017/18 is indicated below.

Where more than one module is specified, this is because pertinent elements from these modules have been identified as being appropriate to the QMUL Model and when studied together, deliver the equivalent content of one 15-credit QMUL Model module.

The QMUL Model modules for future years and associated Learning Outcomes will be identified as your studies continue.

Should Professional, Statutory and Regulatory Body requirements apply to your programme of study, these will be taken into account in the specification of QMUL Model requirements.

Academic Year of Study   FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Essential Mathematical Skills	MTH3100	0	3	Core	1	Semesters 1 & 2	No
Calculus I	MTH4100	15	4	Compulsory	1	Semester 1	No
Computing and Data Analysis with Excel	MTH4114	15	4	Compulsory	1	Semester 1	Yes
Numbers, Sets and Functions	MTH4113	15	4	Compulsory	1	Semester 1	Yes
Introduction to Probability	MTH4107	15	4	Compulsory	1	Semester 1	No
Calculus II	MTH4101	15	4	Compulsory	1	Semester 2	No
Geometry I	MTH4103	15	4	Compulsory	1	Semester 2	No
Introduction to Statistics	MTH4106	15	4	Compulsory	1	Semester 2	No
Economics for Business Management	BUS137	15	4	Compulsory	1	Semester 2	No

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Actuarial Professional Development I	MTH4112	0	4	Compulsory	1	Semesters 1 & 2	No

Academic Year of Study   FT - Year 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Applied Linear Algebra	MTH5212	15	5	Compulsory	2	Semester 1	No
Probability Models	MTH5121	15	5	Compulsory	2	Semester 1	No
Statistical Methods	MTH5122	15	5	Compulsory	2	Semester 1	No
Actuarial Mathematics I	MTH5124	15	5	Compulsory	2	Semester 1	No
Statistical Modelling I	MTH5120	15	5	Compulsory	2	Semester 2	No
Statistics for Insurance	MTH5126	15	5	Compulsory	2	Semester 2	No
Corporate Financial Reporting	BUS241	15	5	Compulsory	2	Semester 2	No
Actuarial Mathematics II	MTH5125	15	5	Compulsory	2	Semester 2	No
Actuarial Professional Development II	MTH5127	0	5	Compulsory	2	Semesters 1 & 2	No

Academic Year of Study   FT - Year 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Time Series	MTH6139	15	6	Compulsory	3	Semester 1	No
Financial Mathematics I	MTH6154	15	6	Compulsory	3	Semester 1	No

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester	QMUL Model
Survival Models	MTH6157	15	6	Compulsory	3	Semester 1	No
Corporate Financial Management	BUS341	15	6	Compulsory	3	Semester 1	No
Random Processes	MTH6141	15	6	Compulsory	3	Semester 2	No
Financial Mathematics II	MTH6155	15	6	Compulsory	3	Semester 2	No
Financial Mathematics III	MTH6156	15	6	Compulsory	3	Semester 2	No
Statistical Theory	MTH6136	15	6	Elective	3	Semester 2	No
Actuarial Project	MTH6153	15	6	Elective	3	Semester 2	No
Bayesian Statistics	MTH6909	15	6	Elective	3	Semester 2	No
Computational Statistics	MTH6931	15	6	Elective	3	Semester 2	No
Innovation and Entrepreneurship	BUS300	15	6	Elective	3	Semester 2	No
International Business	BUS304	15	6	Elective	3	Semester 2	No
Corporate Law and Governance	BUS329	15	6	Elective	3	Semester 2	No
Company Valuation	BUS331	15	6	Elective	3	Semester 2	No

What Are the Entry Requirements?

For UK applicants, we require 3 GCE A-levels at AAA–AAB including Mathematics at Grade A. Grade C or 4 in GCSE English Language is also required.

International Baccalaureate: Acceptable on its own and combined with other qualifications.
Subjects and grades required: 34–36 points total including Higher Level Mathematics at grade 6.

Non-UK applicants: Equivalent qualifications may be accepted. IELTS: 6.0 (with a minimum of 5.5 in all sections) is required.

How Do We Listen and Act on Your Feedback?

The Student-Staff Liaison Committee (SSLC) provides a formal means of communication and discussion between the School and its students. The committee consists of student representatives from each year in the School together with appropriate

representation from staff within the School. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. The Student-Staff Liaison Committee meets regularly throughout the year.

The School operates a Teaching and Learning Committee, which advises the School Director of Taught Programmes on all matters relating to the delivery of taught programmes at School level including monitoring the application of relevant QMUL policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in this Committee's work in a number of ways, such as through the SSLC and consideration of student surveys.

The School operates an Annual Programme Review of all its taught provision. The process is organised at a School-level basis with the Director of Taught Programmes responsible for updating the School's Taught Programmes Action Plan. Students' views are considered in this process through analysis of student surveys and module evaluations.

Academic Support

Each student is allocated a personal academic adviser, who acts as a first point of contact for general academic and pastoral support. Personal tuition is provided primarily through tutorial classes and visits to module organisers during their office hours, which are advertised on the web. Programme induction for new students begins during the enrolment period and extends into the first semester; it includes a series of presentations organised by the Student Support Officer. Each programme is assigned a Programme Director and all teaching is overseen by the Teaching and Learning Committee, which includes the Programme Directors and is chaired by the Director of Taught Programmes. Programmes are monitored continuously and reviewed every few years by the Teaching and Learning Committee.

Programme-specific Rules and Facts

All first-year Mathematical Sciences students must pass Essential Mathematical Skills in order to progress to the second year of a Mathematical Sciences degree programme.

The exact details of which exemptions from examinations of the Institute and Faculty of Actuaries are awarded will be decided by representatives of the Institute by looking at individual examination scripts.

Specific Support for Disabled Students

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.

Students can access advice, guidance and support in the following areas:
• finding out if you have a specific learning difficulty like dyslexia;
• applying for funding through the Disabled Students' Allowance (DSA);
• arranging DSA assessments of need;
• special arrangements in examinations;
• accessing loaned equipment (e.g. digital recorders);
• specialist one-to-one "study skills" tuition;
• ensuring access to course materials in alternative formats (e.g. Braille);
• providing educational support workers (e.g. note-takers, readers, library assistants);
• mentoring support for students with mental health issues and conditions on the autistic spectrum.

Links With Employers, Placement Opportunities and Transferable Skills

The School of Mathematical Sciences has established a Professional Advisory Board with representatives from Lloyds and other major employers of actuaries. It is hoped that this will enable students on the programme to have opportunities to gain insight

into the actuarial profession.

The School recognises the importance of vacation internships and placement and is developing a database of employers offering or interested in placements and internships.

Programme Specification Approval

Person completing Programme Specification	Dr Francis Wright, Director of Undergraduate Studies
Person responsible for management of programme	Mr James Webber
Date Programme Specification produced/amended by School Learning and Teaching Committee	18 Jan 2017
Date Programme Specification approved by Taught Programmes Board	

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