

Programme Specification

MMath Mathematics

For students entering Part 1 in September 2024

UCAS Code: G103

UFMATHM

UFMATHMPE

UFMATHMSY

This document sets out key information about your Programme and forms part of your Terms and Conditions with the University of Reading.

Awarding Institution	University of Reading
Teaching Institution	University of Reading
Length of Programme	4 years
Length of Programme with placement/year abroad	MMath Mathematics with a Placement Year - 5 years (UCAS Code: G104) MMath Mathematics with Study Year Abroad - 5 years (internal transfer only)
Accreditation	Accredited by the Institute of Mathematics and its applications to meet the educational requirements of the Chartered Mathematician designation.
QAA Subject Benchmarking Group	Mathematics, Statistics and Operational Research

Programme information and content

These programmes aim to provide the foundation needed to become a professional mathematician. This is achieved by including a range of topics underlying the main areas of modern work in the subject together with a wide selection of specialist topics studied in depth.

Part 1:	Introduces you to core skills and knowledge through a number of introductory modules designed to manage the transition from A level (or equivalent) to university level mathematics. The Foundations of Mathematics module will establish the need for proof and will enable students to construct their own formal proofs. Other compulsory Part 1 mathematics modules build on and reinforce core material from the A level syllabus and form the basis for more advanced study in later years.
Part 2:	Provides you with more advanced topics in mathematics: Part 2 modules will employ techniques established in Part 1 Calculus and Linear Algebra. The concept of abstract algebra is introduced and builds on the Part 1 Foundations module. Students have the option here to explore modules in statistics, opening up Part 3 optional modules in this important area of mathematics.
Placement/Study abroad year:	A placement year, if undertaken, provides the opportunity to obtain practical experience and apply academic knowledge. It also helps provide focus in the final year of academic study. Students gain transferable skills demanded by graduate employers and on return to university are better

	informed about future career paths. A year abroad provides the opportunity for students to broaden both their academic and cultural awareness.
Part 3:	Gives you the opportunity to undertake some project work in mathematics or statistics. Most of your modules will be optional, allowing you to express your preference for certain topics in pure or applied mathematics and statistics.
Part 4:	In Part 4, students will undertake a major piece of advanced project work. Other modules will be optional, with a range of advanced topics in pure and applied mathematics available.

Programme Learning Outcomes - MMath Mathematics

During the course of the Programme, you will have the opportunity to develop a range of skills, knowledge and attributes (known as learning outcomes) For this programme, these are:

	Learning outcomes
1	Demonstrate logical thinking through the production of a structured argument.
2	Use skills in calculation and mathematical manipulation to solve problems in the mathematical sciences and cognate disciplines.
3	Select appropriate mathematical and statistical tools, techniques and theory to solve problems in the mathematical sciences and cognate disciplines, and critically evaluate and reflect on their appropriateness.
4	Recognise what constitutes a mathematical proof and articulate the role of the various constituent hypotheses.
5	Construct mathematical proofs to a range of propositions from the mathematical sciences.
6	Critically analyse so-called 'real world' problems and identify their essential mathematical or statistical features, and apply appropriate elements of discipline-based theory to solve these.
7	Reflect on aspects from one sub-field of the mathematical sciences and articulate how this applies to or illuminates another.
8	Competently plan, conduct and appropriately communicate work undertaken as part of an advanced project.
9	Communicate, clearly and effectively, discipline-based arguments to a variety of audiences through a variety of means.
10	Identify how skills obtained in the programme can be applied outside the context of your studies.

You will be expected to engage in learning activities to achieve these Programme learning outcomes. Assessment of your modules will reflect these learning outcomes and test how far you have met the requirements for your degree.

To pass the Programme, you will be required to meet the progression or accreditation and award criteria set out below.

Module information

Each part comprises 120 credits, allocated across a range of compulsory and optional modules as shown below. Compulsory modules are listed.

Part 1 Modules:

Module	Name	Credits	Level
MA1CA	Calculus	20	4
MA1FM	Foundations of Mathematics	20	4
MA1LA	Linear Algebra	20	4
MA1MC	Mathematical Communication	20	4
MA1RA1	Real Analysis I	20	4
ST1PS	Probability and Statistics	20	4

All modules at Part 1 of the programme are compulsory.

Part 2 Modules:

Module	Name	Credits	Level
MA2ALA	Algebra	20	5
MA2DE	Differential Equations	20	5
MA2MMS	Mathematical Modelling and Professional Skills	20	5

Students must also take either Real Analysis I or Real Analysis II, and must take a further 40 credits of optional modules from a list available from the Department of Mathematics and Statistics.

Modules during a placement year or study year (if applicable):

Module	Name	Credits	Level
MA2PY	Industrial Placement Year	120	5
MA2SA	Study Abroad Year	120	5

Students on the 5 year version of the programme will take one 120 credit module in either Industrial Placement Year (MA2PY) or Study Abroad Year (MA2SA).

If you take a year-long placement or study abroad, Part 3 as described below may be subject to variation.

Part 3 Modules:

Module	Name	Credits	Level
MA3PPR	Portfolio of Projects	20	6

Students must take 100 credits of optional modules from a list available from the Department of Mathematics and Statistics, at least 60 credits of which must be modules taught by the Department of Mathematics and Statistics.

Part 4 modules:

Module	Name	Credits	Level
MA4XA	Fourth Year Project	40	7

Students must take a further 80 credits of optional modules from a list available from the Department of Mathematics and Statistics, at least 40 credits of which must be modules taught by the Department of Mathematics and Statistics.

Placement opportunities

Placements:

You may be provided with the opportunity to undertake a credit-bearing placement as part of your Programme. This will form all or part of an optional module. You will be required to find and secure a placement opportunity, with the support of the University

Study Abroad:

You may be provided with the opportunity to undertake a Study Abroad placement during your Programme. This is subject to you meeting academic conditions detailed in the Programme Handbook, including obtaining the relevant permissions from your School, and the availability of a suitable Study Abroad placement. If you undertake a Study Abroad placement, further arrangements will be discussed and agreed with you.

Optional modules:

The optional modules available can vary from year to year. An indicative list of the range of optional modules for your programme can be found online in the Course Catalogue. Details of optional modules for each part, including any additional costs associated with the optional modules, will be made available to you prior to the beginning of the Part in which they are to be taken and you will be given an opportunity to express interest in the optional modules that you would like to take. Entry to optional modules will be at the discretion of the University and subject to availability and may be subject to pre-requisites, such as completion of another module. Although the University tries to ensure you are able to take the optional modules in which you have expressed interest this cannot be guaranteed.

Teaching and learning delivery:

You will be taught primarily through a mixture of lectures, tutorials, computer classes and supervised project work, depending on the modules you choose. Some modules may include group work.

Elements of your programme will be delivered via digital technology.

The scheduled teaching and learning activity hours and amount of technology enhanced learning activity for your programme will depend upon your module combination. In addition, you will undertake some self-scheduled teaching and learning activities, designed by and/or involving staff, which give some flexibility for you to choose when to complete them. You will also be expected to undertake guided independent study. Information about module study hours including contact hours and the amount of independent study which a student is normally expected to undertake for a module is indicated in the relevant module description.

Accreditation details

These programmes are accredited by the Institute of Mathematics and Its Applications (IMA). Accreditation guarantees that the educational requirements for the Chartered Mathematician (CMath) designation are met. When you successfully complete the degree you can apply for Associate Membership of the IMA.

Assessment

The programme will be assessed through a combination of written examinations, coursework (including class tests) and oral examinations. Further information is contained in the individual module descriptions.

Progression

Part 1

To achieve a threshold performance at Part 1, a student will normally be required to:

- (i) Obtain an overall average of 40% over 120 credits taken in Part 1;
- (ii) Obtain a mark of at least 40% in individual modules amounting to not less than 80 credits taken in Part 1; and
- (iii) Obtain marks of at least 30% in modules amounting to 120 credits.

In order to progress from Part 1 to Part 2, a student must achieve a threshold performance;

The achievement of a threshold performance at Part 1 qualifies a student for a Certificate of Higher Education if they leave the University before completing the subsequent Part.

Transferring from a Joint Honours to a Single Honours programme

Students are able to transfer from a Joint Honours to a Single Honours programme in one of their joint subject areas at the end of Part 1, subject to fulfilling the Part 1 University Threshold Standard, achieving marks of at least 40% in at least 40 credits of modules in the subject to which they wish to transfer, and fulfilling any programme-specific progression rules for the Part 1 Single Honours Programme to which they wish to transfer.

Students who transfer from a Joint Honours to a Single Honours programme may not have taken all of the Part 1 modules listed in the Single Honours Programme Specification. The modules which they have taken will be shown on their Diploma Supplement.

Part 2

To achieve a threshold performance at Part 2, a student shall normally be required to:

- (i) Obtain a weighted average of 40% over 120 credits taken in Part 2; and
- (ii) Obtain marks of at least 40% in individual modules amounting to at least 80 credits taken in Part 2; and
- (iii) Obtain marks of at least 30% in individual modules amounting to at least 120 credits,

except that a mark below 30% may be condoned in no more than 20 credits of modules owned by the Department of Mathematics and Statistics.

In order to progress from Part 2 to Part 3 in the Integrated Masters programme, a student must achieve a threshold performance; and

(iv) obtain an overall weighted average of 50% over 120 credits taken in Part 2.

Students who fail to progress are permitted one resit examination in each module in which they obtain less than 50%.

For any module passed in a resit examination the maximum mark carried forward into the final degree classification will be the higher of (a) the first attempt mark and (b) the lower of 40 and the mark achieved in the re-examination. Students who do not meet the requirements for progression on the MMath but gain a threshold performance at Part 2 are eligible to transfer to BSc Mathematics.

The achievement of a threshold performance at Part 2 qualifies a student for a Diploma of Higher Education if they leave the University before completing the subsequent Part.

Professional/placement year

Students are required to pass the professional placement year/study abroad year in order to progress on the programme which incorporates the professional placement year/study abroad year. Students who fail the professional placement year/study abroad year transfer to the non-placement year version of the programme.

Part 3

In order to progress from Part 3 to Part 4, a student must achieve an average of 40% over 120 credits taken in Part 3, with 80 credits with a mark of at least 40.

Students who fail to progress are permitted one re-sit examination in each module in which they obtain less than 40%. For any module passed in a re-sit examination the maximum mark carried forward into the final degree classification will be the higher of (a) the first attempt mark and (b) the lower of 40 and the mark achieved in the re-examination. Students who do not meet the requirements for progression to Part 4 will be eligible for the award of BSc Mathematics, provided they have satisfied the criteria for a Bachelor's degree.

The classification for the BSc programme will be based on one third of the overall weighted average in Part 2 and two-thirds of the overall weighted average in Part 3.

Classification

Bachelors' degrees

The University's honours classification scheme is based on the following:

Mark Interpretation

70% - 100% First class

60% - 69% Upper Second class

50% - 59% Lower Second class
40% - 49% Third class
35% - 39% Below Honours Standard
0% - 34% Fail

The weighting of the Parts/Years in the calculation of the degree classification is:

Integrated Masters Programmes (MEng, MMath, MChem etc.):

Part 2: 20%
Part 3: 30%
Part 4: 50%

The classification method is given in detail in [Section 18](#) of the Assessment Handbook.

Additional costs of the programme

During your programme of study you will incur some additional costs. For textbooks and similar learning resources, we recommend that you budget up to £100 per year, depending on your preference to have your own books rather than borrow from the library. Some books may be available second-hand, which will reduce costs. A range of resources to support your curriculum, including textbooks and electronic resources, are available through the library. Reading lists and module specific costs are listed on the individual module descriptions. You will need an approved scientific calculator (approximate cost £14).

Costs are indicative and may vary according to optional modules chosen and are subject to inflation and other price fluctuations. Estimates were calculated in 2023.

For further information about your Programme please refer to the Programme Handbook and the relevant module descriptions, which are available at <http://www.reading.ac.uk/module/>. The Programme Handbook and the relevant module descriptions do not form part of your Terms and Conditions with the University of Reading.

MMath Mathematics for students entering Part 1 in session 2024/25

7 July 2023

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