

## Programme Specification

### BSc Mathematics and Meteorology

For students entering Part 1 in September 2021

UCAS Code: GF19

UFMAXMTB

UFMAXMTBPE

**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                            | 3 years   |
| Length of Programme with placement/year abroad | BSc Mathematics and Meteorology with a Placement Year - 4 years (UCAS Code: GF20)   |
| Accreditation                                  | <p>Approved by the Royal Meteorological Society as an appropriate academic training for meteorologists seeking the qualification Chartered Meteorologist.</p> <p>Accredited by the Institute of Mathematics and its applications to meet the educational requirements of the Chartered Mathematician designation when followed by subsequent training and experience in employment to obtain competencies to those specified by the QAA for taught masters degrees.</p> |

### Programme information and content

The programme aims to provide you with a good general mathematical education and a broad knowledge of modern meteorology and environmental physical science, with emphasis on the physics of the Earth's atmosphere and oceans.

|         |  |
|---------|--|
| Part 1: | <p>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 1 also introduces you to the basic concepts and terminology of weather systems around the globe. Key concepts from physics will be applied specifically to the atmosphere and oceans to form the basis of a solid scientific study of the Earth's weather and climate.</p> |
| Part 2: | <p>Provides you with more advanced topics in mathematics: the modules Vector Calculus and Differential Equations will employ techniques established in Part 1 Calculus and Linear Algebra. Part 2 also provides you with an opportunity to use the skills and concepts introduced in Part 1 in order to conduct a thorough scientific investigation of how the atmosphere and oceans evolve and develop on timescales from seconds to centuries.</p>   |

|                              |  |
|------------------------------|--|
| Placement/Study abroad year: | The placement year provides experience of working in industry, government, research or other appropriate organisations. Training takes place in the workplace, usually including attendance at Continuing Professional Development courses as well as mentoring by a line manager. Actual contact hours will vary according to the placement and employer. |
| Part 3:                      | Gives you the opportunity to undertake some project work in mathematics or meteorology. The choice of optional modules will allow you to express your preference for certain topics in pure or applied mathematics, and atmospheric and ocean science.   |

### 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 |
|--------|----------------------------------|---------|
| MA1CA  | Calculus                         | 20      |
| MA1FM  | Foundations of Mathematics       | 20      |
| MA1LA  | Linear Algebra                   | 20      |
| MT11C  | Introduction to Meteorology      | 20      |
| MT11D  | Weather and Climate Fundamentals | 20      |

Students must take a further 20 credits of optional modules from a list available from the Department of Mathematics and Statistics

#### Part 2 Modules:

| Module | Name  | Credits | Level |
|--------|---|---------|-------|
| MA1RA1 | Real Analysis I                             | 20      | 4     |
| MA2DE  | Differential Equations                      | 20      | 5     |
| MA2VC  | Vector Calculus                             | 10      | 5     |
| MT24A  | Atmosphere and Ocean Dynamics               | 20      | 5     |
| MT24B  | Atmospheric Physics                         | 20      | 5     |
| MT24C  | Numerical Methods for Environmental Science | 10      | 5     |

Students must take a further 20 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):

Students on the 4 year version of the programme will take one 120 credit module during their placement year.

Students may be permitted to undertake a placement year between Part 2 and Part 3 of the programme. In such cases students will transfer to a 4-year programme. The placement year should not normally be shorter than nine months full-time.

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 |
|--------|------------------------|---------|-------|
| MT37B  | General Studies        | 10      | 6     |
| MT38A  | The Global Circulation | 10      | 6     |
| MT38B  | Climate Change         | 10      | 6     |

Students must select a further 90 credits of optional modules from a list available from the Department of Mathematics and Statistics, 30 credits of which must be Meteorology modules.

The selection must include a Mathematics or Meteorology project.

**Optional modules:**

The optional modules available can vary from year to year. An indicative list of the range of optional modules for your Programme is set out in the Further Programme Information. 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.

**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 £12).

Costs are indicative and may vary according to optional modules chosen and are subject to inflation and other price fluctuations.

The estimates were calculated in 2020.

### **Placement opportunities**

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.

### **Teaching and learning delivery:**

You will be taught through lectures, tutorials, practical classes and supervised project work.

The contact hours for your Programme will be (on average) 360 hours for Part 1, 348 hours for Part 2 and 204 hours for Part 3, and will depend upon your module combination; however information about module contact hours can be located in the relevant module description.

### **Accreditation details**

The programme is accepted by the Royal Meteorological Society as fulfilling the requirements for core content under the Society's Chartered Meteorologist Accreditation Scheme.

Both the programmes of BSc Mathematics and Meteorology and BSc Mathematics and Meteorology with a Placement Year are accredited by the Institute of Mathematics and Its Applications (IMA). Accreditation guarantees that the educational requirements for the Chartered Mathematician (CMath) designation, subject to subsequent training and experience in employment to obtain equivalent competences to those specified by the Quality Assurance Agency (QAA) for taught masters degrees, 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 and coursework. However, some modules are assessed only by coursework, while others are assessed solely by examination. Details are given in the relevant module descriptions.

### **Progression**

The University-wide rules relating to 'threshold performance' as follows

#### *Part 1*

- (i) obtain an overall weighted average of 40% in 120 credits
- (ii) obtain a mark of at least 30% in individual modules amounting to at least 100 credits taken in Part 1.

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

- (iii) obtain a weighted average of at least 40% over all compulsory modules in Mathematics at Part 1(MA1CA, MA1FM, MA1LA); and
- (iv) obtain a weighted average of at least 40% over all compulsory modules in Meteorology at Part 1(MT11C, MT11D); and
- (v) obtain a mark of at least 30% in 120 credits.

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.

*Part 2*

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

- (i) obtain a weighted average of 40% over 120 credits taken at Part 2; and
- (ii) obtain marks of at least 40% in individual modules amounting to at least 80 credits; 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 **3 year programme**, a student must achieve a threshold performance

In order to progress from Part 2 to Part 3 in the **4 year programme**, a student must achieve a threshold performance and obtain a pass in the professional/work placement or study abroad year. Students who fail the professional/placement year transfer to the non-placement year version of the programme.

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.

**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:

Three year programmes:

Part 2: one-third

Part 3: two-thirds

Four year programmes, including professional/work placement or study abroad:

Part 2: one-third

Placement/Study Abroad Year abroad not included in the classification

Part 3: two-thirds

**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.**

BSc Mathematics and Meteorology for students entering Part 1 in session 2021/22

31 July 2020

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