

## Programme Specification

MSc in Atmosphere, Ocean and Climate (full-time)

PFTAOCM

MSc in Atmosphere, Ocean and Climate (part-time)

PPTAOCM

**For students entering in 2024/25**

**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	MSc in Atmosphere, Ocean and Climate (full-time) - 1 years MSc in Atmosphere, Ocean and Climate (part-time) - 2 years
Accreditation	Approved by the Royal Meteorological Society
Programme Start Dates	September
QAA Subject Benchmarking Group	N/A

### Programme information and content

The aim of the Atmosphere, Ocean and Climate (AOC) MSc programme is to provide students with the skills and knowledge needed to understand the physical processes important for weather and climate and apply this understanding to a range of problems including weather forecasting and climate projection. It focuses particularly on a quantitative description of the physical processes that produce weather, the ways weather systems combine to form climates and the techniques used to simulate weather systems and climate on computers. Students will learn fundamental science that underpins both simple models and complex numerical models of the atmosphere and ocean. They will also learn how to formulate and solve problems related to a range of theoretical and practical settings involving the weather and climate system.

Students graduating from this programme should have the knowledge and the technical and computing skills to equip them to carry out quantitative scientific research and technical projects not only within meteorology but also within related areas of environmental science. This programme can prepare students for careers in scientific research, industry, weather and climate prediction, climate services, and other related fields. The AOC is approved by the Royal Meteorological Society as a first step on the way to accreditation.

The first semester will provide students with core understanding in the areas of Meteorology, Climate, Fluid Dynamics, Numerical Modelling, Data Analysis, Statistics, Thermodynamics and Radiation. Students will also make real-world observational measurements during a field trip and apply the fundamental concepts to these data.

The second semester will provide students with several optional modules in more advanced, or career-specific, topics such as Advanced Atmospheric Dynamics, Remote Sensing, Oceanography, Climate Change, and Tropical and Extratropical Weather Systems. There will also be an in-depth research project at the end of the course.

### Programme Learning Outcomes - MSc in Atmosphere, Ocean and Climate (full-time)

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 in-depth scientific understanding of fundamental physical processes governing the atmosphere, ocean and climate system.
2	Build and apply simple models of the atmosphere, ocean, and global climate system, and explain the science underlying more complex global and regional numerical models of these systems.
3	Investigate, and offer solutions to, theoretical and practical problems involving the atmosphere, ocean and climate system.
4	Explain the principles of weather forecasting and climate prediction over different time scales and how they are used in numerical simulations.
5	Select and apply appropriate mathematical and physical concepts and techniques related to the atmosphere, ocean and climate system.
6	Analyse weather and climate datasets using appropriate computing tools and statistical methodologies.
7	Communicate complex scientific results and concepts in a way that is appropriate to specific stakeholders ranging from experts to business clients to policymakers to the general public.
8	Conduct, and report findings from, in-depth research into a specific area of atmosphere, ocean and climate science.

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

The programme comprises 180 credits, allocated across a range of compulsory and optional modules as shown below. Compulsory modules are listed.

#### Compulsory modules

Module	Name	Credits	Level
MTMFAO	Fluid Dynamics of the Atmosphere and Oceans	20	M
MTMFMD	Fundamentals of Modelling and Data Analysis	20	M
MTMFWC	Fundamentals of Weather and Climate	20	M
MTMRES	Research Project	60	M
MTMWCD	Weather and Climate Discussion	0	M

Remaining credits will be made up of optional modules available in the Department of Meteorology. There will also be an optional zero-credit pre-sessional supplement for

students who would like a review of relevant maths and physics, as well as an optional zero-credit module on Academic English for Meteorologists for non-native English speakers.

### **Part-time or flexible modular arrangements**

The programme can be taken part-time over two years. In the first year of study, a student will normally be required to complete 20-40 credits of compulsory modules and 20-40 credits of optional modules. In the second year of study, a student will be required to complete any remaining compulsory modules, including the research project, as well as enough optional modules to complete 60 credits of these. The programme may not be completed over more than two years.

### **Placement opportunities**

N/A

### **Study abroad opportunities**

N/A

### **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 and practicals, 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**

The programme is approved by the Royal Meteorological Society as a first step on the way to accreditation.

**Assessment**

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

**Progression**

N/A

**Classification**

The University's taught postgraduate marks classification is as follows:

**Mark Interpretation**

70 - 100% Distinction

60 - 69% Merit

50 - 59% Good standard (Pass)

**Failing categories:**

40 - 49% Work below threshold standard

0 - 39% Unsatisfactory Work

**For Masters Degree**

The following conditions must be satisfied for the award of a Master's degree:

**Award of a Master's degree**

(i) an overall weighted average of 50% or more over 180 credits

(ii) a mark of 50% or more in at least 120 credits

(iii) not more than 20 credits with a mark below 40%

(iv) a mark of 50% or more for the Dissertation

In addition to the threshold conditions for the award of a Master's degree, the following **further** conditions must be satisfied for a classification of Distinction or Merit:

**Distinction**

An overall weighted average of 70% or more over 180 credits

OR

an overall weighted average of 68% or more over 180 credits and marks of 70% in at least 90 credits

AND

A mark of at least 60% in the dissertation

AND

No marks below 40%.

**Merit**

An overall weighted average of 60% or more over 180 credits

OR

an overall average of 58% or more over 180 credits and marks of 60% in at least 90 credits

AND

No marks below 40.

### **For Postgraduate Diploma**

The following conditions must be satisfied for the award of a Postgraduate Diploma:

#### **Award of a Postgraduate Diploma**

(i) an overall weighted average of 50% or more over 120 credits

(ii) a mark of 50% or more in at least 80 credits

(iii) not more than 20 credits with a mark below 40%

In addition to the threshold conditions for the award of a Postgraduate Diploma, the following further conditions must be satisfied for a classification of Distinction or Merit:

#### **Distinction**

An overall weighted average of 70% or more over 120 credits

OR

an overall weighted average of 68% or more over 120 credits and marks of 70% in at least 60 credits

AND

No marks below 40.

#### **Merit**

An overall weighted average of 60% or more over 120 credits

OR

an overall average of 58% or more over 120 credits and marks of 60% in at least 60 credits

AND

No marks below 40.

### **For Postgraduate Certificate**

The following conditions must be satisfied for the award of a Postgraduate Certificate:

#### **Award of a Postgraduate Certificate**

(i) an overall weighted average of 50% or more over 60 credits

### **Additional costs of the programme**

Outdoor clothing suitable for UK autumn weather is required for the module MTMFWC Fundamentals of Weather and Climate. Costs depend on what needs to be purchased.

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 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.**

MSc in Atmosphere, Ocean and Climate (full-time) for students entering in session 2024/25  
15 August 2023

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