

Programme Specification

MSc Data Science and Advanced Computing (full-time)

PFTZDATSACHM

MSc Data Science and Advanced Computing (part-time)

PPTZDATSACHM

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 Data Science and Advanced Computing (full-time) - 12 months MSc Data Science and Advanced Computing (part-time) - 24 months
Accreditation	British Computer Society (BCS)
Programme Start Dates	September
QAA Subject Benchmarking Group	Computing

Programme information and content

This programme aims to provide students with industry-relevant knowledge and skills in data science, as well as hands-on experience of solving data science problems with real-world, real-time and large-scale data streams, also including real-world challenges such as big data, data security and ethical issues. In addition, students will get an in-depth understanding of advanced and modern computing paradigms such as artificial intelligence, machine learning, and cloud computing. Students will also develop transferable skills for workplace or further research/degree and be able to utilise knowledge and skills to continue learning and adapting to new data science technologies.

The design of the programme follows the guidance provided by QAA and ACM and aligns with the Teaching and Learning Strategy of University of Reading. This programme is carefully designed to provide a comprehensive coverage from fundamental knowledge and essential skills in data science to advanced computing paradigms and real-world challenges.

On completion of the course, students will be well placed to progress into a variety of roles in data-intensive industries or a related research career.

Programme Learning Outcomes - MSc Data Science and Advanced Computing (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	Describe and explain general data science concepts, principles and algorithms.

2	Acquire and be able to apply mathematical and statistical, programming, artificial intelligence and machine learning techniques for data science tasks; as well as cloud computing skills for data management and distributed and parallel data processing.
3	Evaluate, select and use state-of-the-art tools and platforms for solving data science problems.
4	Design, implement, and execute solutions for data science problems from small-scale to large-scale and real-world data.
5	Evaluate data science solutions, including their outcomes, efficacy, constraints, and technical uncertainty.
6	Critically evaluate ethical, legal, security and social issues in data science context.
7	Undertake research, manage project and communicate technical concepts and research/project output precisely and effectively.
8	Utilise knowledge and skills to continue learning and adapting to new data science technologies.

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 modules as shown below. Compulsory modules are listed.

Compulsory modules

Module	Name	Credits	Level
CSMAD	Applied Data Science with Python	20	M
CSMAI	Artificial Intelligence and Machine Learning	20	M
CSMBD	Big Data and Cloud Computing	20	M
CSMDE	Data Security and Ethics	20	M
CSMDS	Data Science Algorithms and Tools	20	M
CSMMS	Mathematics and Statistics for Data Science	20	M
CSMPR	MSc Project	60	M

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 compulsory modules totalling no less than 60 credits. In the second year of study, a student will normally be required to complete the compulsory module CSMPR MSc Project and any remaining compulsory modules. The programme may not be completed over more than two years.

Placement opportunities

N/A

Study abroad opportunities

N/A

Optional modules

N/A

Teaching and learning delivery

You will be taught primarily through a mixture of lectures, lab practical, tutorials and seminars, depending on the individual modules. 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

Accredited by BCS, The Chartered Institute for IT for the purposes of partially meeting the academic requirement for registration as a Chartered IT Professional, and accredited by BCS, The Chartered Institute for IT on behalf of the Engineering Council for the purposes of partially meeting the academic requirement for registration as a Chartered Engineer.

Assessment

The programme will be assessed through a range of assessment types, such as written examination, written coursework assignment, set exercise, dissertation, presentation and demonstration. 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

For textbooks and other learning resources, we shall recommend the students to budget up to £100, if the students prefer to have their own books rather than borrowing them from the library. Some resources to support the study, including textbooks and electronic material, are available through the library and the content management system of the University.

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 Data Science and Advanced Computing (full-time) for students entering in session 2024/25

15 August 2023

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