Programme Specification (Postgraduate)

FOR ENTRY YEAR: 2026/27

Date created: 07/08/2023 **Last amended:** 18/03/2026 **Version no.** 1 **Date approved by EQED:**
Click or tap here to enter text.

1. Programme title(s) and code(s):

MSc Data Science (including with Industry option)
PGDip Data Science

a) HECOS Code

HECOS Code	%
100370	100

2. **Awarding body or institution:** University of Leicester

3. a) Mode of study Full-time

b) Type of study Campus-based

4. Registration periods:

MSc Data Science

a) **MSc October Intake**
The normal period of registration is 12 months
The maximum period of registration is 24 months

b) **MSc January Intake**
The normal period of registration is 16 months
The maximum period of registration is 28 months

c) **MSc with Industry October Intake**
The normal period of registration is 24 months
The maximum period of registration is 36 months

d) **MSc with Industry January Intake**
The normal period of registration is 28 months
The maximum period of registration is 40 months

e) **PG Diploma October Intake**
The normal period of registration is 9 months
The maximum period of registration is 18 months

f) **PG Diploma January Intake**
The normal period of registration is 12 months
The maximum period of registration is 24 months

5. Typical entry requirements

2:1 Honours degree or international equivalent in any subject.

No requirement for mathematics or programming background, but a demonstrable interest in developing statistical and programming skills shown in the personal statement or CV if there is no relevant academic qualification

6. Accreditation of Prior Learning

n/a

7. Programme aims

Subject knowledge, understanding and skills
The programme will give you practical knowledge of the concepts and techniques making up the area of practice known as data science, and their relationship to other areas of practice involving the collection and analysis of data.

Intellectual and analytical skills
You will also develop the skills to critically analyse your work, and that of others, in particular in relation to the appraisal of data sources and the ethical issues arising from data collection and algorithmic decision making.

Statistical and modelling skills

You will be able to formulate a data science problem mathematically, obtain solutions by appropriate modelling methods, and draw valid inferences.

Computational problem-solving & practical computing skills
You will learn to use software tools to apply scientific techniques for the exploration, modelling and visualisation of data by solving real-world problems.

Research and project planning skills
A characteristic of data science is its multidisciplinary and collaborative style of working. You will work in a group to plan and conduct an advanced project in data science, recognising that complex problems require consideration from different viewpoints for an effective solution.

Professional skills
Recognising the importance of presentation skills and impactful visualisation of results in influencing decision makers, you will learn concepts and techniques of data visualisation and use them when exploring different approaches to presenting your work.

In addition, for the 'with Industry' variants
• The 'Year in industry' variant of this programme is offered in accordance with the University's standard specification for year in industry programme variants.

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- Education Strategy
- University Assessment Strategy [log in required]
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- United Nations Education for Sustainable Development Goals
- Student Destinations Data

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9. Programme Outcomes

Unless otherwise stated, programme outcomes apply to all awards specified in 1. Programme title(s).

a) Discipline specific knowledge and competencies

i) Knowledge

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: explain what is meant by data science and its relationship to other areas involving collection and analysis of data	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects
Students should be able to: assess the role of data science in addressing the challenges of climate change and promoting sustainability	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

ii) Concepts

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: explain the purposes and limitations of modelling data (including ethical and EDI issues)	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

Students should be able to: recognise the importance of presentation skills and impactful visualisation	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects
Students should be able to: explain and discuss fundamental concepts related to visual perception and representation	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

iii) Techniques

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: plan and build simple program scripts to read data from various sources and formats, and undertake data cleaning and manipulation in a reproducible way	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects
Students should be able to: apply basic statistical techniques and use the key data structures used in data science to draw reliable inferences from data	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects
Students should be able to: implement examples from each of the main categories of data model in a high-level programming language	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

iv) Critical Analysis

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: Demonstrate skills in critically reflecting on the applications and implications of data analysis and visualisation tools at each stage of the data science workflow	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects
Students should be able to: Constructively critique the work of oneself and others at each stage of the data science workflow	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects

v) Presentation

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: use software tools or scripting languages to create effective visualizations	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

vi) Appraisal of evidence

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type

Students should be able to: identify important sources of data and critically evaluate them	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects
Students should be able to: explain the various kinds of risk in data science, including ethical risks, for example, those arising from historical biases due to race and gender; identify the risks in particular case studies; and discuss how to handle them	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects

b) Transferable Skills

i) Research Skills

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: use library sources and online materials to supplement recommended texts and sources to explore syllabus components	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects
Students should be able to: demonstrate advanced analytical skills to interpret data and other collected information into a clear and substantial report	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects

ii) Communication skills

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: communicate in a way that is appropriate to the intended audience and business or research context	Lectures, online learning material and group discussions	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects

iii) Data Presentation

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: Present data in a way that is appropriate to the intended audience and business or research context	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

iv) Information Technology

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: identify and use appropriate software tools	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

v) Problem Solving

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type

Students should be able to: analyse problems to identify the role of data science in formulating a solution map the stages of problem solving onto a data science workflow	Lectures, online learning material practical classes	Group problem-based learning, independent reading and research, marked and self-assessed assignments	Written examinations, reports and presentations on problem-based projects

vi) Working relationships

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: work in a group to plan and conduct an advanced project in data science, recognising that complex problems require consideration from different viewpoints for an effective solution	Lectures, online learning material practical classes	Group problem-based learning	reports and presentations on problem-based group projects

vii) Managing learning

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: work independently and make effective use of resources in guided independent study	Lectures, online learning material, group discussions and project supervision	Group discussion, independent reading and research, marked and self-assessed assignments, maintenance of a reflective learning journal	Written examinations, reports and presentations on problem-based projects including final research project

viii) Career Management

Intended learning Outcome	Teaching methods	Learning Activities	Assessment Type
Students should be able to: Understand the role of data science in a range of business, research and	Lectures, online learning material, group discussions and project supervision	Group discussion, independent reading and research	Reports and presentations on problem-based projects including final research project

other application areas and identify the skills required by data scientists to contribute effectively in these areas			

For the Year in Industry variant, the additional programme outcomes apply

10. Progression points

This programme follows the standard Scheme of Progression set out in Senate Regulations – see the version of *Senate Regulation 6 governing postgraduate programmes* relevant to the year of entry.

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course.

a) Course transfers

n/a

b) Year in Industry

For the Year in Industry variant the additional progression points apply.

11. Criteria for award and classification

This programme follows the standard scheme of postgraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation governing postgraduate programmes* relevant to the year of entry.

12. Special features

This programme is designed to be accessible to students from a wide range (including non-STEM) of previous academic experience.

For the Year Industry variant the additional Special Features apply

13. Indications of programme quality

QAA subject review [www/qaa.org/], external examiners reports ("the performance of the students is comparable with similar high-quality UK institutions"), QAA benchmark descriptors for a master's degree, taken from the benchmark statements for Computing (2022, pp.24-26) and Mathematics, Statistics and Operational Research (2023, p.29) where relevant.

For the Year Industry variant the additional indications of programme quality apply

14. External Examiner(s) reports

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports for this programme can be found at exampapers@Leicester [log-in required].

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Appendix 1: Programme structure (programme regulations)

The University regularly reviews its programmes and modules to ensure that they reflect the current status of the discipline and offer the best learning experience to students. On occasion, it may be necessary to alter particular aspects of a course or module.

Updates to the programme

Academic year	Module	Change
2026/27	MA7911 Network Science	New optional module

MSc Data Science

Level 7/Year 1 Delivery Year 2026/27 Intake Month September Mode of Study Full Time Structure

Credit breakdown

Status	**Summer Term**	**Semester 1**	**Semester 2**
Core	60 credits	45 credits	45 credits
Optional	n/a	15 credits	15 credits

180 credits in total

Core modules

Delivery period	**Code**	**Title**	**Credits**
Semester 1	MA7441	Overview of Data Science Practice	15 credits
Semester 1	MA7419	Fundamentals of Data Science	15 credits

Delivery period	Code	Title	Credits
Semester 1	MA7023	Statistics for Data Science	15 credits
Semester 2	MA7442	Modelling Data	15 credits
Semester 2	GY7413	Information Visualisation	15 credits
Semester 2	CO7441	Creative Problem Solving	15 credits
Summer Term	MA7443	Data Science Research Project	60 credits

Notes
n/a

Option modules

Delivery period	Code	Title	Credits
Semester 1	MA7444	Excel for Data Science	15 credits
Semester 1	PA7081	Practical Programming	15 credits
Semester 1	MA7911	Network Science	15 credits
Semester 2	MA7202	Introduction to Functional Data Analysis	15 credits
Semester 2	MK7406	International Business	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Level 7/Year 1 Delivery Year 2026/27 Intake Month January Mode of Study Full Time Structure

Credit breakdown

Status	Summer Term	Semester 1	Semester 2
Core	60 credits	45 credits	45 credits

Status	Summer Term	Semester 1	Semester 2
Optional	n/a	15 credits	15 credits

180 credits in total

Core modules

Delivery period	Code	Title	Credits
Semester 1	MA7442	Modelling Data	15 credits
Semester 1	GY7413	Information Visualisation	15 credits
Semester 1	MA7023	Statistics for Data Science	15 credits
Semester 2	MA7419	Fundamentals of Data Science	15 credits
Semester 2	MA7441	Overview of Data Science Practice	15 credits
Semester 2	CO7441	Creative Problem Solving	15 credits
Spring Term	MA7443	Data Science Research Project	60 credits

Notes
n/a

Option modules

Delivery period	Code	Title	Credits
Semester 1	MA7444	Excel for Data Science	15 credits
Semester 1	PA7081	Practical Programming	15 credits
Semester 1	MA7911	Network Science	15 credits
Semester 2	MA7202	Introduction to Functional Data Analysis	15 credits
Semester 2	MK7406	International Business	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Appendix 2: Module specifications

See postgraduate module specification database (Note - modules are organized by year of delivery) [login-require