Programme Specification (Postgraduate)

FOR ENTRY YEAR: 2026/27

Date created: 01/09/2024 **Last amended:** 18/03/2026 **Version no.** 1

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

MSc/PGDip*/PGCert* AI for Business Intelligence (including *with Industry* option)

Notes

* An award marked with an asterisk is only available as an exit award and is not available for students to register onto.

HECOS Code

HECOS Code	%
100400	20%
100402	80%

2. Awarding body or institution

University of Leicester

3. a) Mode of study

Full-time

b) Type of study

Campus-based

4. Registration periods

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

5. Typical entry requirements

2:2 UG degree in Mathematics or other numerate subject such as Physics from a British university or equivalent international level as defined under regulations. Applicants from a computer science background would be considered on a case by case basis through the assessment of the student transcript. Applicants with non-standard first degrees and/or significant work experience will again be assessed on a case by case basis, taking the nature and currency of their work experience into account. This will be done through personal interviews of such applicants, taken by the programme director.

Standard College English language requirements, in line with Senate Regulation 1.

6. Accreditation of Prior Learning

N/A

7. Programme aims

The programme aims to provide a route for students in their transition from undergraduate study to employment in data-led sectors. It provides the opportunity to gain practical experience in data modelling, analysis and AI including a rigorous understanding of applied statistics, data mining, operational research and related foundations.

In particular it aims to

- foster confidence, convey knowledge and develop expertise in data handling, analysis and AI;
- provide an advanced education in the fundamental mathematical concepts and techniques relevant to data analysis and AI;
- develop the ability to produce rigorous justifications of assertions by logical arguments;
- enhance the ability to model the world using mathematical models, and to be able to produce innovative, cost-effective, and robust solutions to real-world problems;
- enhance the ability to infer valid conclusions from raw data;
- stimulate intellectual development and hone powers of critical analysis, problem solving, written communication skills and improve presentational skills;
- develop the ability to communicate solutions to problems using language appropriate to any target audience;
- develop project-management skills;
- enhance practical computing skills in software relevant to industry;
- raise students' expertise and understanding to a point where they could embark upon doctoral interdisciplinary study or enter data-led industrial sectors;
- raise students' ability to complete independent project work and foster the skill of developing innovative tools.

The 'with industry' variant of this programme is offered in accordance with the University's standard specification for with industry programme variants

For the with industry variant only, these additional programme aims apply:

- Prepare students for career and training opportunities which relates to their degree – in both the private and public sectors, and voluntary organisations.
- Construct effective applications for placement opportunities
- Provide students the opportunity to recognise suitable plans for transitioning into the workplace
- To provide experience of applications of professional and discipline-specific skills in Industry and to reinforce knowledge through its use in different environments.

8. Reference points used to inform the programme specification

- QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland
- QAA Master's Degree Characteristics
- QAA Subject Benchmark Statement: Mathematics, Statistics and Operational Research
- University Education Strategy

- University Assessment Strategy [log in required]
- University Employability Strategy
- Graduate Survey
- First Destination Survey
- External Examiner's Reports
- Informal concept document used to aid discussion with partner departments

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 Outcomes	Teaching and Learning Methods	How Demonstrated?
Advanced knowledge of fundamental theories and techniques.	Lectures, specified reading, andproblem classes.	Written examinations, assessed coursework, project.
Knowledge and understanding of key techniques and algorithms in data analysis and AI. Ability to modify and innovate.	Lectures, specified reading and problem classes.	Written examinations, assessed coursework, project.
Familiarization with common industrial applications of data modelling and commonly used techniques.	Lectures, specified reading and problem classes.	Written examinations, assessed coursework, project.
Knowledge of relevant computing languages and relevant software.	Lectures. Practical sessions. Project .	Written examinations, assessed coursework, project.

ii) Concepts

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Rigorous understanding of relevant methods.	Lectures, specified reading and problem classes.	Written examinations, assessed coursework, project.
Practical understanding of implementations.	Lectures, specified reading and problem classes -).	Written examinations, assessed coursework, project.

iii) Techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Ability to code algorithms in a range of commonly used languages.	Practical sessions, project -.	Assessed coursework, project.
Ability to develop and apply strategies to solve problems.	Practical sessions, project.	Assessed coursework, project.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Ability to use commonly used commercial software.	Practical sessions, project.	Assessed coursework, project.

iv) Critical analysis

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Analysis of problem and development of appropriate solution strategy. Analyse and solve `messily defined' industrial problems.	Lectures. Problem classes, feedback on assessed problems, project -.	Written examinations, assessed coursework, project.

v) Presentation

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Presentation of concepts, algorithms and solutions.	Practical sessions, tutorials, project .	Assessed coursework, project.

vi) Appraisal of evidence

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Critical appraisal of algorithms and solutions.	Course work, project.	Written examinations, assessed coursework, project.

b) Transferable skills

i) Research skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Conduct background research and literature surveys.	Course work, project .	Assessed coursework, project.
Summarize content from information sources.	Course work, project.	Assessed coursework, project.

ii) Communication skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Response to questioning.	Practical sessions, tutorials, project .	Assessed coursework, project.
Scientific communication (written and oral).	Practical sessions, tutorials, project.	Assessed coursework, project.
Project presentation (written and oral.)	Practical sessions, tutorials, project.	Assessed coursework, project.

iii) Data presentation

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Project presentation (written and oral.)	Practical sessions, tutorials, project .	Assessed coursework, project.

iv) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Various programming languages and specialist software.	Throughout.	Assessed coursework, project.
Office software.	Coursework, project .	Assessed coursework, project.

v) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Analysis, breakdown, synthesis, critical examination.	Practical sessions, tutorials, project.	Written examinations, assessed coursework, project.
Computational modelling skills.	Coursework, project .	Assessed coursework, project.

vi) Working relationships

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Scientific discussion.	Practical sessions, tutorials,project .	Project.

vii) Managing learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Study skills.	Throughout.	Written examinations, assessed coursework, project.
Independence and time management.	Structured support decreasing through year, project .	Meeting deadlines.
Information retrieval.	Coursework,project .	Assessed coursework, project.

viii) Career management

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Scientific discussion.	Practical sessions, tutorials project .	Project.
Organisation. Time management.	Structured support decreasing through year, project .	Meeting deadlines.
Careers and business awareness.	Careers workshops, industry- led project, guest speakers.	Destination data, student feedback.

For the with Industry variant of the programme, the following apply

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?

On Placement		
1. Apply the theoretical and practical aspects of the material studied at the University and demonstrate the personal and professional skills necessary for your role within the organisation. 2. Compose a Professional Development Plan considering your strengths, development areas and motivations for your next step 3. Modify your CV to include the skills and experience you have gained through your significant experience gained in the past 12 months.	Students undertake a minimum of 9 months experience in the workplace. Supervised employment, including independent research and development, training.	Completion of Monthly Reflective Journals to record skills development, major achievements, key areas of work, learning points and challenges overcome. Assessed by a Placement Portfolio, comprising of a Reflective Summary, Professional Development Plan, and Updated CV (excluded from word count) to formally assess on a pass or fail basis. Formative feedback during a Placement Visit (in person or via Skype) from Placement Provider and Placement Tutor regarding reflection on skills development, areas of strength and weakness and contribution to the workplace.

10. Special features

- Interdisciplinary programme using expertise across Maths and Computing.
- Industry-linked dissertations.

For the 'with Industry' variants these additional special features apply

10a. Research-inspired Education

Students on this programme will advance through the four quadrants of the University of Leicester Research-inspired Education Framework as follows:

RiE Quadrant	Narrative
Research-briefed Bringing staff research content	The programme aims to provide a route for students in their transition from undergraduate study to employment in data-led sectors. It provides the opportunity to gain practical experience in databases (and achieve two professionally accredited certificates) and a rigorous understanding of applied statistics, data mining, operational research and related areas. *Research-briefed:* Students will develop an awareness of the methodologies and fundamental techniques that are used in data science. Throughout the modules, staff emphasise the importance of the use of these fundamental techniques to ensure that the students' future research conclusions are reliable, reproduceable, and free from bias.

into the curriculum. **Research-based** Framed enquiry for exploring existing knowledge. **Research-oriented** Students critique published research content and process. **Research-apprenticed** Experiencing the research process and methods; building new knowledge.	*Research-based:* During practical classes, students will learn to use software tools to apply scientific techniques for the exploration, modelling and visualisation of data by solving real-world problems. *Research-oriented:* Students will be able to search information effectively, and demonstrate advanced analytical skills to interpret data and other collected information into a clear and substantial report. They will also develop the skills to critically analyse their own 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. *Research-apprenticed:* Students work individually, with an academic as a supervisor, as well as an industrial supervisor, to produce a solution to a business-related project. Students will then have the opportunity to present their work and process, and be challenged on choices that were made throughout the development of the project.

As part of studying at a research-intensive university, students on this programme have the following extra or co-curricular opportunities available to them to gain exposure to research culture:

Students work with industrial partners for their dissertation projects in various areas. These collaborative projects with industry partners provide unique insights into how theory and research translate into business applications, bridging the gap between academic theory and practice.

Throughout the term, the School schedules subject-specific career drop-in sessions, which are added to the students' timetables.

The School organizes weekly research seminars, inviting experts from other universities to present their work. These seminars are open to all students, both on-campus and online via Teams.

Teaching on this programme will be research-informed (it draws consciously on systematic inquiry into the teaching and learning process itself) in the following way:

The School supports all staff involved in teaching to gain an accredited Higher Education teaching qualification, in which they demonstrate their use of teaching theory to support their own practice and reflect on their current teaching and continuing professional development.

All module convenors are part of teaching pods, which group similar fields together. These pods are designed to provide a forum for discussion between teaching-focussed and teaching/research staff, and as a way for more experienced staff to support others by, for example, peer observation and feedback. This provides a platform for staff to share considerations and observations of their teaching experience and obtain research-based input.

Teaching staff meet once a year for a 'Teaching Away Day', which gives the opportunity to discuss some key issues in depth with the other members within the teaching pods, and shared with everyone. This gives a chance to share ideas and experience, and to identify questions that need answers.
Additionally, staff will be paired within their teaching pods to observe each other's teaching sessions then meet to agree actions in order to participate in UoL's Peer Observation of Teaching scheme.

11. Indicators of programme quality

Letters of support from industry.

External examiners' reports.

12. Criteria for award and classification

This programme follows the standard scheme of taught postgraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation 6 governing taught postgraduate programmes of study* relevant to year of entry.

The following modules have restrictions on the assessment components that can be reassessed:

- MA7097

Please refer to the module specification for full details.

13. Progression points

As defined in Senate Regulations - refer to the version of *Senate Regulation 6 governing taught postgraduate programmes of study* relevant to 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 and a recommendation will be made to the Board of Examiners for an intermediate/exit award where appropriate.

For the 'with industry' variants these additional progression points apply

14. Rules relating to re-sits or re-submissions

As defined in Senate Regulations - refer to the version of *Senate Regulation 6 governing taught postgraduate programmes of study* relevant to year of entry.

15. Additional information [e.g. timetable for admissions]

Admissions are in September and January.

- Students admitted in September undertake their individual project during the summer of the following year and submit their dissertation in September (12 months in total).
- Students admitted in January start by following semester 2 modules and break during the summer; in September they follow semester 1 modules and start their project in the second

half of February of the following year, submitting their dissertation at the end of May. Although this implies 16 months in total, only 12 are actually spent in the course.

- Examinations are taken in January for first semester modules and in May/June for second semester ones.

16. External Examiners 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]

UNIVERSITY OF LEICESTER

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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.

MSc AI for Business Intelligence

Updates to the programme

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

Level 7/Year 1 2026/27
Credit breakdown for September Intake

Status	Year long	Semester 1	Semester 2	Summer Term
Core taught	n/a	45 credits	15 credits	n/a
Optional	n/a	15 credits	45 credits	n/a
Dissertation/project	Choose an item.	n/a	n/a	60 credits

180 credits in total

Core modules

Delivery period	Code	Title	Credits
Semester 1	MA7023	Statistics for Data Science	15 credits
Semester 1	MA7419	Fundamentals of Data Science	15 credits
Semester 1	CO7091	Computational Intelligence and Software Engineering	15 credits
Semester 2	MA7022	Data Mining and Neural Networks	15 credits

Option modules

Delivery period	Code	Title	Credits
Semester 1	MA7080	Mathematical Modelling	15 credits
Semester 1	PA7081	Practical Programming	15 credits
Semester 1	MA7911	Network Science	15 credits
Semester 2	MA7021	Generalised Linear Models	15 credits
Semester 2	MA7202	Introduction to Functional Data Analysis	15 credits
Semester 2	MK7406	International Business	15 credits
Semester 2	CO7113	AI for Space	15 credits

Core modules

Delivery period	Code	Title	Credits
Term 3	MA7097	AI for Business Intelligence Project	60 credits

Credit breakdown for January Intake

Status	Year long	Semester 1	Semester 2	Other delivery period
Core taught	n/a	30 credits	30 credits	n/a
Optional	n/a	30 credits	30 credits	n/a
Dissertation/project		n/a	n/a	60 credits

180 credits in total

Core modules

Delivery period	Code	Title	Credits
Semester 2	MA7419	Fundamentals of Data Science	15 credits
Semester 2	MA7022	Data Mining and Neural Networks	15 credits
Semester 1	CO7091	Computational Intelligence and Software Engineering	15 credits
Semester 1	MA7023	Statistics for Data Science	15 credits
Semester 2	MA7097	AI for Business Intelligence Project	60 credits

Option modules

Delivery period	Code	Title	Credits
Semester 2	MA7021	Generalised Linear Models	15 credits
Semester 2	MA7202	Introduction to Functional Data Analysis	15 credits
Semester 2	MK7406	International Business	15 credits

Semester 2	CO7113	AI for Space	15 credits
Semester 1	MA7080	Mathematical Modelling	15 credits
Semester 1	PA7081	Practical Programming	15 credits
Semester 1	MA7911	Network Science	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.

Students on a 'with industry' degree will take MA7097 AI for Business Intelligence Project after their industry placement is complete at the next available start time (Feb or June).

Students in the September intake will take Semester 1 first, then Semester 2, followed by the project. Students in the January intake will take Semester 2 first, have a break over the Summer, then take Semester 1, followed by the project.

Appendix 2: Module specifications

See taught postgraduate module specifications.