



## Programme Specification (Postgraduate) FOR ENTRY YEAR: 2024/25

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Version no. 1

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### 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 September 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 September 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 September 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 18 months

**g) PG Certificate Intake**

The normal period of registration is 6 months

The maximum period of registration is 12 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 (MSc only);
- 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 (MSc only).

## 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 Learning Strategy
- University Employability Strategy
- 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. Problem classes.	Written examinations, assessed coursework, project.
Knowledge and understanding of key techniques and algorithms in data analysis and AI. Ability to modify and innovate.	As above.	As above
Familiarization with common industrial applications of data modelling and commonly used techniques.	As above.	As above
Knowledge of relevant computing languages and relevant software.	Lectures. Practical sessions. Project (MSc only).	As above

#### ii) Concepts

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Rigorous understanding of relevant methods.	Lectures. Specified reading. Problem classes.	Written examinations, assessed coursework, project.
Practical understanding of implementations.	Lectures. Specified reading. Problem classes. Project (MSc only).	As above.

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 (MSc only).	Assessed coursework, project.
Ability to develop and apply strategies to solve problems.	As above.	As above.
Ability to use commonly used commercial software.	As above.	As above.

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 (MSc only).	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 (MSc only).	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 (MSc only).	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 (MSc only).	Assessed coursework. Project.
Summarize content from information sources.	As above.	As above.

ii) Communication skills

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Response to questioning.	Practical sessions. Tutorials. Project (MSc only).	Assessed coursework. Project.
Scientific communication (written and oral).	As above.	As above.

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Project presentation (written and oral.)	As above.	As above.

iii) Data presentation

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Project presentation (written and oral.)	Practical sessions. Tutorials. Project (MSc only).	Assessed coursework, project.

iv) Information technology

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Various programming languages and specialist software.	Throughout.	Assessed coursework, project.
Office software.	Coursework. Project (MSc only).	As above.

v) Problem solving

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Analysis, breakdown, synthesis, critical examination.	Practical sessions. Tutorials. Project.	Written examinations, assessed coursework, project.
Computational modelling skills.	Coursework. Project (MSc only).	Assessed coursework, project.

vi) Working relationships

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Scientific discussion.	Practical sessions. Tutorials. Project (MSc only).	Project.

vii) Managing learning

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Study skills.	Throughout.	Written examinations, assessed coursework, project.
Independence and time management.	Structured support decreasing through year. Project (MSc only).	Meeting deadlines.
Information retrieval.	Coursework. Project (MSc only).	Assessed coursework, project.

viii) Career management

<b>Intended Learning Outcomes</b>	<b>Teaching and Learning Methods</b>	<b>How Demonstrated?</b>
Scientific discussion.	Practical sessions. Tutorials. Project (MSc only).	Project.
Organisation. Time management.	Structured support decreasing through year. Project (MSc only).	Meeting deadlines.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Careers and business awareness.	Careers workshops. Industry- led project. Guest speakers.	Destination data. Student feedback.

## 10. Special features

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

### Placements

This part of the specification should be read in conjunction with the standard specification for PGT 'with industry' programme variants:

- [Postgraduate Year in Industry](#)

Students registered on the 'with Industry' variant of their degree programme undertake an industrial placement after completing the taught modules of their programme and before undertaking the final project/dissertation. The placement must be 12 months in duration.

As a condition of the 'with Industry' programme, students are required to undertake preparatory training during the first year of the degree.

Students are responsible for securing their own placement but will receive support in this from the Career Development Service.

### Progression criteria for placements

Students on the "with Industry" programme are subject to the following four progression rules (in addition to any rules applicable to their core programme):

1. If a student:
  - a. does not achieve an overall merit level, or;
  - b. fails more than 15 credits with a mark of less than 50, or;
  - c. fails at least 15 credits with a mark of less than 40,
they will revert to the degree without industry.
2. If a student fails more than 60 credits at the end of their second semester they will not be able to proceed with the programme, in accordance with Senate Regulation 6.28, and will have to cancel any arrangements made for placements.
3. If a student fails to secure a placement they will revert to the non-industry variant of their degree programme and will continue on to their final project/dissertation.
4. Failure to satisfactorily perform (attendance, participation and completion of set tasks) in the employability modules will lead to the student being transferred to the degree without industry.

In the course of their placement the student will receive one or two support visits from a member of staff. The second 'visit' can be in the form of a Skype call. Typically where an overseas placement is secured both visits will be conducted via a Skype call.

## Assessment of the Year in Industry

Students will be required to undertake reflective activities whilst on placement which are marked on a pass/fail basis.

### **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.

### **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.

### **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.

### **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](mailto:exampapers@Leicester) [log-in required]

### **17. Additional features (e.g. timetable for admissions)**

N/A

## Programme Specification (Postgraduate) **FOR ENTRY YEAR:** Choose an item.

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**Last amended:** Click or tap to enter a date. **Version no.** Choose an item.

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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 Code(s)	Update
2024/25	MA7023	Name change from 'Linear Statistical Models' to 'Statistics for Data Science'
2024/25		<p>Programme name changed from DABI to AI4BI: AI for Business Intelligence, with changes to individual modules as follows</p> <ul style="list-style-type: none"> <li>• CO7091 Computational Intelligence for Software Engineering added as new core module in Sem 1</li> <li>• CO7105 Advanced C++ Programming removed from Sem 1</li> <li>• CO7002 Analysis and Design of Algorithms removed as from Sem 2</li> <li>• CO7113 AI for Space added to Sem 2</li> </ul>



### Credit breakdown

Status	Year long	Semester 1	Semester 2	Other delivery period
Core taught	n/a	45 credits	15 credits	n/a
Optional	n/a	15 credits	45 credits	n/a
Dissertation/project	60 credits	n/a	n/a	n/a

Choose an item. credits in total

### Level 7/Year 1 Choose an item.

#### 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 for Software Engineering	15 credits
Semester 2	MA7022	Data Mining and Neural Networks	15 credits

#### Notes

N/A

#### Option modules

Delivery period	Code	Title	Credits
Semester 1	MA7080	Mathematical Modelling	15 credits
Semester 1	PA7081	Practical Programming	15 credits
Semester 2	MA7011	Computational Partial Differential Equations with Applications	15 credits

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	MN7406	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

#### 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 taught postgraduate [module specifications](#).