1. Programme Title(s):

MSc/PGDip*/PGCert* Data Analysis for Business Intelligence

*Exit award only

2. Awarding body or institution:

University of Leicester

3. a)   Mode of study

Full time

b)   Type of study

Campus-based

4. Registration periods:

The normal period of registration is 12 months.

The maximum period of registration is 24 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:

None.

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 databases (and achieve two professionally accredited certificates) and a rigorous understanding of applied statistics, data mining, operational research and related areas.

In particular it aims to
- foster confidence, convey knowledge and develop expertise in data analysis and handling;
- provide an advanced education in the fundamental mathematical concepts and techniques relevant to data analysis;
- 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 Benchmarking Statement Mathematics, Statistics and Operational Research (MMath)
- QAA Annex to subject benchmark statement: Mathematics, statistics and operational research (2009)
- University Learning Strategy
- University Employability Strategy
- Graduate Survey (2014)
- First Destination Survey
- External Examiner's Reports
- Informal concept document used to aid discussion with partner departments

9. Programme Outcomes:

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
(a) Subject and Professional skills		
Knowledge		
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. Ability to modify and innovate.		
Familiarization with common industrial applications of data modeling and commonly used techniques.		
Knowledge of relevant computing languages and relevant software.	Lectures. Practical sessions. Project (MSc only).	
Concepts		
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	

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Techniques		
Ability to code algorithms in a range of commonly used languages. Ability to develop and apply strategies to solve problems. Ability to use commonly used commercial software.	Practical sessions. Project (MSc only).	Assessed coursework, project.
Critical analysis		
Analysis of problem and development of appropriate solution strategy. Analyze and solve `messily defined' industrial problems.	Lectures. Problem classes. Feedback on assessed problems. Project (MSc only).	Written examinations, assessed coursework, project.
Presentation		
Presentation of concepts, algorithms and solutions.	Practical sessions. Tutorials. Project (MSc only).	Assessed coursework, project.
Appraisal of evidence		
Critical appraisal of algorithms and solutions.	Course work. Project (MSc only).	Written examinations, assessed coursework, project.
(b) Transferable skills		
Research skills		
Conduct background research and literature surveys. Summarize content from information sources.	Course work. Project (MSc only).	Assessed coursework. Project.
Communication skills		
Response to questioning. Scientific communication (written and oral). Project presentation (written and oral.)	Practical sessions. Tutorials. Project (MSc only).	Assessed coursework. Project.
Data presentation		
Project presentation (written and oral.)	Practical sessions. Tutorials. Project (MSc only).	Assessed coursework, project.
Information technology		
Various computer languages (FORTRAN, C, C++) and specialist software (FLUENT). Office software.	Throughout. Coursework. Project (MSc only).	Assessed coursework, project.
Problem solving		
Analysis, breakdown, synthesis, critical examination. Computational modeling skills.	Practical sessions. Tutorials. Project. Coursework. Project (MSc only).	Written examinations, assessed coursework, project. Assessed coursework, project.

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Working relationships		
Scientific discussion.	Practical sessions. Tutorials. Project (MSc only).	Project.
Managing learning		
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.
Career management		
Scientific discussion.	Practical sessions. Tutorials. Project (MSc only).	Project.
Organisation. Time management.	Structured support decreasing through year. Project (MSc only).	Meeting deadlines.
Careers and business awareness.	Careers workshops. Industry-led project. Guest speakers.	Destination data. Student feedback.

10. Special features:
- Interdisciplinary programme using expertise from across the College.
- Industry-linked dissertations.

11. Indications of programme quality:

Letters of support from industry.

External examiners' reports.

12. Scheme of Assessment
As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see Senate Regulations)

13. Progression points
As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see Senate Regulations)

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 award where appropriate.

14. Rules relating to re-sits or re-submissions:
As defined in Senate Regulation 6: Regulations governing Taught Postgraduate Programmes of Study (see Senate Regulations)

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

Given that Informatics is a partner department in this programme, programme-level monitoring will be carried out between Maths and Informatics - the existing MSc Committee within the Department of Mathematics undertakes the role of the Board of Studies for this degree, with representation from

the Department of Informatics invited to the meetings twice a year. At these joint meetings the MSc Committee will undertake the annual developmental review of the programme and monitor students' performances.

16. External examining

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports can be found here

Appendix 1: Programme structure (programme regulations)
All programmes to formally include range of non-credit bearing attendance only activities for careers, student support etc.

Updates to the programme

Year affected	Module	Update
2023/24	Data Analytics for eSports	Optional module deleted
2023/24	Introduction to Functional Data Analysis	Optional module added

	Code	Title	Credits
Semester 1			
Core modules			
	MA7080	Mathematical Modelling	15
	MA7419	Data Science for Actuaries	15
	MA7023	Linear Statistical Models	15
Options			
15credits selected from:			
	CO7105	C++ Programming and Advanced Algorithms	15
	PA7081	Practical Programming	15
Semester 2			
Core modules:			
	MA7022	Data Mining and Neural Networks	15
	CO7002	Analysis and Design of Algorithms	15
Options			
30 credits selected from:			
	MA7011	Computational Partial Differential Equations with Applications	15
	MA7021	Generalised Linear Models	15
	MA7202	Introduction to Functional Data Analysis	15
Summer			
Core modules			
	MA7098	MSc DABI Project	60
Total			180

Appendix 2: Module Specifications

See module specification database http://www.le.ac.uk/sas/courses/documentation

Appendix 3: Programme Updates