Bournemouth University

KEY PROGRAMME INFORMATION

Originating institution(s) Bournemouth University	**Faculty responsible for the programme** Faculty of Science and Technology
Final award(s), title(s) and credits MSc Data Science and Artificial Intelligence - 180 Credits (90 ECTS)	
Intermediate award(s), title(s) and credits PGDip Data Science and Artificial Intelligence - 120 Credits (60 ECTS) PGCert Computing - 60 Credits (30 ECTS)	
UCAS Programme Code(s) (where applicable and if known) Click here to enter text.	**HECoS (Higher Education Classification of Subjects) Code and balanced or major/minor load.** 100359 - Artificial Intelligence - Balanced 100371 - Information Systems - Balanced
External reference points www.cphc.ac.uk/docs/cphc_masters_april_final.pdf http://www.qaa.ac.uk/academicinfrastructure/fheq/EWNI/default.asp QAA Chapter A1: The national level (incorporating the Framework for Higher Education Qualifications (FHEQ) in England, Wales and Northern Ireland) QAA Chapter A2: The Subject and Qualification Level (incorporating Masters Degree Characteristics)	
Professional, Statutory and Regulatory Body (PSRB) links Not applicable	
Places of delivery Bournemouth University, Talbot Campus	
Mode(s) of delivery Full-time; Part-time; CPD	**Language of delivery** English
Typical duration Sept FT = 12 months, with placement 24 months Sept PT = 24 months, with placement 36 months Jan FT = 16 months, with placement 24 months Jan PT = 32 months, with placement 44 month	
Date of first intake September 2019	**Expected start dates** September and January
Maximum student numbers 30	**Placements** 30 weeks, optional
Partner(s) Not applicable	**Partnership model** Not applicable
Date of this Programme Specification March 2019	
Version number V1.1-0923	
Approval, review or modification reference numbers E20181916	

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PROGRAMME STRUCTURE

Programme Award and Title: MSc Data Science and Artificial Intelligence								
Stage 1/Level 7 Students are required to complete 4 core units and choose 2 optional units								
Unit Name	**Core/ Option**	**No. of Credits**	**Assessment Element Weightings**			**Expected Contact hours per unit**	**Unit Version No.**	**HECoS Code** (plus balanced or major/minor load)
			Exam 1	**Cwk 1**	**Cwk 2**			
Research Methods and Professional Issues	Core	20	-	100%	-	30	2.0	100962 (Major), 101090 (Minor)
Search and Optimisation	Core	20	-	100%	-	30	1.0	100359 (Major)
Artificial Intelligence	Core	20	-	100%	-	30	1.0	100359 (Major) 100371(Minor)
Data Processing and Analytics	Core	20	-	100%	-	30	1.0	100371 (Major)
Neuronal Analysis	Option	20	-	100%	-	30	1.0	100390 (Major) 100366 (Minor)
Blockchain and Digital Futures	Option	20	-	100%	-	30	1.0	100376 (Major) 100755 (Minor)
Computer Vision	Option	20	-	100%	-	30	1.0	100968 (Major) 100359 (Minor)
Smart Systems	Option	20	-	100%	-	30	1.0	100359 (Balanced) 100373 (Balanced)
Progression requirements: There are no progression requirements. **Exit qualification:** PG Dip Data Science and Artificial Intelligence requires 120 credits at Level 7 (excluding 60 credit Individual Masters Project). PG Cert Computing requires 60 credits at Level 7.								

Stage 2/Level 7 Students are required to complete the Masters Project								
Unit Name	**Core/ Option**	**No. of Credits**	**Assessment Element Weightings**			**Expected Contact hours per unit**	**Unit Version No.**	**HECoS Code** (plus balanced or major/minor load)
			Exam 1	**Cwk 1**	**Cwk 2**			
Individual	Core	60	-	100%	-	10	1.0	100367 (Major),

Masters Project								100962 (Minor)

Exit qualification: MSc Data Science and Artificial Intelligence requires 180 credits at Level 7.

PG Dip Data Science and Artificial Intelligence requires 120 credits at Level 7 (excluding 60 credit Individual Masters Project).

PG Cert Computing requires 60 credits at Level 7.

Placement*:* Optional non-credit bearing placement in industry normally after completion of the taught units and individual masters project (30 weeks minimum). Students are expected to search for suitable placement opportunities, with the support of the Faculty placements team

AIMS OF THE DOCUMENT

The aims of this document are to:

- define the structure of the programme;
- specify the programme award titles;
- identify programme and level learning outcomes;
- articulate the regulations governing the awards defined within the document.

AIMS OF THE PROGRAMME

The MSc Data Science and AI (DSAI) aims to furnish students with knowledge of methods and processes that enable them to analyse, devise, and deploy data science and artificial intelligence solutions for real-world problems. In particular, the Masters programme emphasises different facets of exploratory/confirmatory data science techniques and artificial intelligence algorithms in different contexts ranging from digital health to fraud detection. Students learn about recent advances in the fields of data science and artificial intelligence, including state-of-the-art tools to perform analytics and experiments to enable data-driven decision making and automation. The programme equips students with methodological thinking, research disposition, and communication skills in addition to the theoretical and practical skills within data science and artificial intelligence.

This programme is intended for candidates who aspire to work as data scientists and providers of data science and artificial intelligence services to various types of consumers and consultancy professionals. Moreover, this programme can also lead to a follow up in the PhD track.

This programme aims to develop critically informed, agile and resourceful graduates, who:

- have a critical understanding in creating cutting-edge business analytics applications and originality in the application of knowledge and skills to create data science and artificial intelligence solutions to real-world design problems;
- have a critical understanding of business methods and management concepts required for support large business process systems;
- have technical skills and competencies to work across data, operations, analytics, processes, technology & architecture of different industries and segments, such as healthcare, hospitality, transportation and banking;
- have research skills in areas such as literature reviews, critical analysis of research findings, project proposals, planning, experiment design and analysis, and dissemination.

ALIGNMENT WITH THE UNIVERSITY'S STRATEGIC PLAN

MSc Data Science and Artificial Intelligence is informed by and well-aligned with the BU 2025 strategic plan and the University's fusion agenda. BU identified four strategic investment areas as part of its 2025 strategic plan where data science and artificial intelligence plays a vital role in supporting the growth of all these subject areas]. This programme will complement the broad range of data science and artificial intelligence related expertise already spread across the University and it forms an important component of the BU 2025 vision that indicates it can be used to support/inform/improve sustainable social, environmental and economic growth and development. The programme is designed and delivered by academics with a wealth of industrial experience and research excellence and supported by the industries presenting synergised insights into the relevant fields. Through its fusion approach, it also offers students the opportunity to learn by engaging in a series of practical, industry focused tasks as well as a range of co-creation and co-production projects with academics and industrial contacts to acquire hands-on experience and improve their employability.

LEARNING HOURS AND ASSESSMENT

Bournemouth University taught programmes are composed of units of study, which are assigned a credit value indicating the amount of learning undertaken. The minimum credit value of a unit is normally 20 credits, above which credit values normally increase at 20-point intervals. 20 credits is the equivalent of 200 study hours required of the student, including lectures, seminars, assessment and independent study. 20 University credits are equivalent to 10 European Credit Transfer System (ECTS) credits.

The assessment workload for a unit should consider the total time devoted to study, including the assessment workload (i.e. formative and summative assessment) and the taught elements and independent study workload (i.e. lectures, seminars, preparatory work, practical activities, reading, critical reflection).

Assessment per 20 credit unit should normally consist of 3,000 words or equivalent. Dissertations and Level 6 and 7 Final Projects are distinct from other assessment types. The word count for these assignments is 5,000 words per 20 credits, recognising that undertaking an in-depth piece of original research as the capstone to a degree is pedagogically sound.

STAFF DELIVERING THE PROGRAMME

Students will usually be taught by a combination of senior academic staff with others who have relevant expertise including – where appropriate according to the content of the unit – academic staff, qualified professional practitioners, demonstrators/technicians and research students.

INTENDED LEARNING OUTCOMES – AND HOW THE PROGRAMME ENABLES STUDENTS TO ACHIEVE AND DEMONSTRATE THE INTENDED LEARNING OUTCOMES

PROGRAMME AND LEVEL 7 INTENDED PROGRAMME OUTCOMES

<table>
<tr><td>A: Subject knowledge and understanding

This programme provides opportunities for students to develop and demonstrate knowledge and understanding of:</td><td>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme learning outcomes:</td></tr>
<tr><td rowspan="2">A1 Principles and techniques of Data Science-based research;
A2 Enabling technologies for Data Science and Artificial Intelligence applications;
A3 A rigorous engineering approach to investigating and solving Data Science and Artificial Intelligence problems such as those in business, healthcare, and security contexts;
A4 The management and development of IT solutions to address business, healthcare, security, or other problems;
A5 The professional, legal, and ethical responsibilities of IT personnel within the organisational, technical and global contexts in which Data Science and Artificial Intelligence is applied.</td><td>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):

• lectures (A1 – A5);
• seminars (A1 – A5);
• directed reading (A1 - A5);
• independent research (for dissertation) (A1 - A5).</td></tr>
<tr><td>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):

• coursework essays (A1 – A5);</td></tr>
</table>

	• dissertation (A1 – A5).
B: Intellectual skills This programme provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme outcomes:
B1 Critical thinking, problem-solving and decision-making to solve complex Data Science and Artificial Intelligence problems; **B2** Analyse, interpret, synthesis, and critically evaluate information from current research; **B3** Critically evaluate and justify alternative approaches to solutions development; **B4** Formulate, plan, execute, and report on a Data Science and Artificial Intelligence project involving original contributions; **B5** Communicate findings to professional and academic standards.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (B1 – B5); • seminars (B1 – B5); • directed reading (B1 – B5); • use of the VLE (B1 – B5); • independent research (for dissertation) (B1 - B5).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (B1 - B5); • dissertation (B1 - B5).
C: Practical skills This programme provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme learning outcomes:
C1 Retrieve, select, and evaluate information from a variety of sources; **C2** Analyse, specify, design and implement Data Science and Artificial Intelligence applications to meet business goals; **C3** Select appropriate methods and tools for solving Data Science and Artificial Intelligence problems; **C4** Plan, monitor and evaluate the progress of a Data Science and Artificial Intelligence solution.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (C1 – C4); • coursework essays (C1 – C4); • independent research for empirical dissertation (C1 – C4); • group exercises (C1 – C4).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (C1 – C4); • dissertation (C1 – C4).
D: Transferable skills	The following learning and teaching and

This programme provides opportunities for students to:	assessment strategies and methods enable students to achieve and to demonstrate the programme learning outcomes:
D1 Demonstrate problem solving skills and the application of knowledge across the discipline areas; **D2** Gather, select, and analyse a range of experimental and fieldwork data and present professionally using appropriate media; **D3** Structure and communicate ideas professionally and effectively to appropriate professional and academic standards; **D4** Demonstrate initiative, self direction and exercise personal responsibility for management of own learning; **D5** Distil, synthesise and critically analyse alternative approaches and methodologies to problems and research results reported in literature and elsewhere.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (D1 - D5); • seminars (D1- D5); • use of the VLE (D1 - D5); • directed reading (D1- D5).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (D1 - D5); • dissertation (D1- D5).

PG Dip INTENDED LEVEL OUTCOMES

A: Knowledge and understanding This level provides opportunities for students to develop and demonstrate knowledge and understanding of*:*	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
A1 Principles and techniques of Data Science-based research; **A2** Enabling technologies for Data Science and Artificial Intelligence applications; **A4** The management and development of IT solutions to address business, healthcare, security, or other problems; **A5** The professional, legal, and ethical responsibilities of IT personnel within the organisational, technical and global contexts in which Data Science and Artificial Intelligence is applied.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (A1, A2, A4, A5); • seminars (A1, A2, A4, A5); • directed reading (A1, A2, A4, A5).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (A1, A2, A4, A5).
B: Intellectual skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
B1 Critical thinking, problem-solving and decision-making to	Learning and teaching strategies and

solve complex Data Science and Artificial Intelligence problems; **B2** Analyse, interpret, synthesis, and critically evaluate information from current research; **B3** Critically evaluate and justify alternative approaches to solutions development; **B5** Communicate findings to professional and academic standards.	methods (referring to numbered Intended Learning Outcomes): • lectures (B1 – B3, B5); • seminars (B1 – B3, B5); • directed reading (B1 – B3, B5); • use of the VLE (B1 – B3, B5).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (B1 – B3, B5).
C: Practical skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
C1 Retrieve, select, and evaluate information from a variety of sources; **C3** Select appropriate methods and tools for solving Data Science and Artificial Intelligence problems; **C4** Plan, monitor and evaluate the progress of a Data Science and Artificial Intelligence solution.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (C1, C3, C4); • coursework essays (C1, C3, C4); • group exercises (C1, C3, C4).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (C1, C3, C4);
D: Transferable skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
D1 Demonstrate problem solving skills and the application of knowledge across the discipline areas; **D2** Gather, select, and analyse a range of experimental and fieldwork data and present professionally using appropriate media; **D3** Structure and communicate ideas professionally and effectively to appropriate professional and academic standards; **D4** Demonstrate initiative, self direction and exercise personal responsibility for management of own learning.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (D1 – D4); • seminars (D1- D4); • use of the VLE (D1 – D4); • directed reading (D1- D4).

	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (D1 – D4);

PG Cert INTENDED LEVEL OUTCOMES

A: Knowledge and understanding This level provides opportunities for students to develop and demonstrate knowledge and understanding of*:*	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
A1 Principles and techniques of Data Science-based research; **A4** The management and development of IT solutions to address business, healthcare, security, or other problems; **A5** The professional, legal, and ethical responsibilities of IT personnel within the organisational, technical and global contexts in which Data Science and Artificial Intelligence is applied.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (A1, A4, A5); • seminars (A1, A4, A5); • directed reading (A1, A4, A5); • Independent research (for dissertation) (A1, A4, A5).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (A1, A4, A5); • dissertation (A1, A4, A5).
B: Intellectual skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
B1 Critical thinking, problem-solving and decision-making to solve complex Data Science and Artificial Intelligence problems; **B2** Analyse, interpret, synthesis, and critically evaluate information from current research; **B5** Communicate findings to professional and academic standards.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (B1, B2, B5); • seminars (B1, B2, B5); • directed reading (B1, B2, B5); • use of the VLE (B1, B2, B5).
	Assessment strategies and methods

	(referring to numbered Intended Learning Outcomes): • coursework essays (B1, B2, B5).
C: Practical skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
C1 Retrieve, select, and evaluate information from a variety of sources; **C4** Plan, monitor and evaluate the progress of a Data Science and Artificial Intelligence solution.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (C1, C4); • coursework essays (C1, C4); • group exercises (C1, C4).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (C1, C4).
D: Transferable skills This level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:
D2 Gather, select, and analyse a range of experimental and fieldwork data and present professionally using appropriate media; **D3** Structure and communicate ideas professionally and effectively to appropriate professional and academic standards; **D4** Demonstrate initiative, self direction and exercise personal responsibility for management of own learning.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (D2 – D4); • seminars (D2- D4); • use of the VLE (D2 – D4); • directed reading (D2- D4).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework essays (D2 – D4);

The units of the Master programme will run as lectures combined with practical sessions.

ADMISSION REGULATIONS

Please refer to the course website for further information regarding admission regulations for this programme: MSc Data Science and Artificial Intelligence | Bournemouth University

ASSESSMENT REGULATIONS

The regulations for this programme are the University's Standard Postgraduate Assessment Regulations.

https://intranetsp.bournemouth.ac.uk/pandptest/6a-standard-assessment-regulations-postgraduate.pdf

WORK BASED LEARNING (WBL) AND PLACEMENT ELEMENTS

A 30 week placement is optional for students, which normally starts after they have completed all the taught units and the project.

The placement is non-credit bearing and is assessed on a pass/fail basis (i.e. satisfactory completion of 30 weeks). The placement will appear on students' degree transcripts. Students are required to find their own placements. Students must comply with visa requirements. Students will normally have completed all 180 credits before proceeding to the placement but this requirement may be relaxed in the case of students who need to resit an assessment. In such cases, decisions will be made on an individual basis and in the best interests of the student.
Refer to *4K – Placements: Policy and Procedure* for more details

Programme Skills Matrix

	Units	Programme Intended Learning Outcomes																			
		A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	D 1	D 2	D 3	D 4	D 5
STAGE 1 / L 7	Research Methods and Professional Issues	x	x	x		x	x	x	x	x	x	x		x	x	x	x	x	x	x
	Search and Optimisation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Artificial Intelligence	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Data Processing and Analytics	x	x	x	x	x	x	x	x		x	x		x	x	x	x	x	x	x
	Neuronal Analysis	x	x	x			x	x	x	x	x	x		x	x	x	x	x	x	x
	Blockchain and Digital Futures	x	x	x	x		x	x	x	x		x	x	x		x		x	x	x
	Computer Vision	x	x	x			x	x	x	x	x	x	x	x	x	x		x	x	x
	Smart Systems	x	x		x		x	x	x	x	x	x		x		x		x	x	x
STAGE2 / L7	Individual Masters Project	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

A – Subject Knowledge and Understanding
This programme provides opportunities for students to develop and demonstrate knowledge and understanding of:

1. Principles and techniques of Data Science-based research;
2. Enabling technologies for Data Science and Artificial Intelligence applications;
3. A rigorous engineering approach to investigating and solving Data Science and Artificial Intelligence problems such as those in business, healthcare, and security contexts;
4. The management and development of IT solutions to address business, healthcare, security, or other problems;
5. The professional, legal, and ethical responsibilities of IT personnel within the organisational, technical and global contexts in which Data Science and Artificial Intelligence is applied.

C – Subject-specific/Practical Skills
This programme provides opportunities for students to:

1. Retrieve, select, and evaluate information from a variety of sources;
2. Analyse, specify, design and implement Data Science and Articial Intelligence applications to meet business goals;
3. Select appropriate methods and tools for solving Data Science and Artificial Intelligence problems;
4. Plan, monitor and evaluate the progress of a Data Science and Artificial Intelligence solution.

B – Intellectual Skills
This programme provides opportunities for students to:

1. Critical thinking, problem-solving and decision-making to solve complex Data Science and Artificial Intelligence problems;
2. Analyse, interpret, synthesis, and critically evaluate information from current research;
3. Critically evaluate and justify alternative approaches to solutions development;
4. Formulate, plan, execute, and report on a Data Science and Artificial Intelligence project involving original contributions;
5. Communicate findings to professional and academic standards.

D – Transferable Skills
This programme provides opportunities for students to:

1. Demonstrate problem solving skills and the application of knowledge across the discipline areas;
2. Gather, select, and analyse a range of experimental and fieldwork data and present professionally using appropriate media;
3. Structure and communicate ideas professionally and effectively to appropriate professional and academic standards;
4. Demonstrate initiative, self direction and exercise personal responsibility for management of own learning;
5. Distil, synthesise and critically analyse alternative approaches and methodologies to problems and research results reported in literature and elsewhere.