University of Plymouth

Faculty of Science and Engineering

School of Engineering, Computing and Mathematics

Programme Specification

MSc Artificial Intelligence (7045)

September 2021

1. MSc Artificial Intelligence

Final award title	MSc Artificial Intelligence
UCAS code	N/A
HECOS code	CAH11 Computing

2. Awarding Institution: University of Plymouth

Teaching institution(s): University of Plymouth

3. Accrediting body(ies)

Not applicable

4. Distinctive Features of the Programme and the Student Experience

The MSc Artificial Intelligence programme operates within the University's Education and Student Experience Strategy, and has the following distinctive features:

- The potential for students to tailor their degree towards the industry in which they wish to apply their AI knowledge by selecting and exploring industry-relevant data sets and problems.
- A combination of module types, including technical modules facilitating a deep-dive of cutting-edge AI technologies and providing experience of constructing AI software from first principles, alongside workshop modules providing insight into the field of AI as a whole. Each Semester is comprised of two technical modules and a workshop module.
- An embedded research-informed teaching experience offering state-of-the-art knowledge, skills and practice, delivered by internationally recognised and world-leading academics[1]. Students will work directly with

[1] The results of the most recent Research Excellence Framework (REF2014) rated 75% of our outputs in the category of "Computer Science and Informatics" as internationally recognised and world leading.

these academics, receiving education, support and guidance from researchers at the forefront of AI research.

- Excellent facilities for conducting research and project work in AI and robotics, including a range of state-of-the-art robotics laboratories, recently-updated computing facilities and the forthcoming New Engineering Design Facility, all of which provide an inclusive learning environment for all.
- The Computing subject group has strong links with industry. We have links with many of the industrial leads (e.g. Apple, Microsoft, IBM, Oracle and Intel), and seek to embed real-world industrial problems directly into the programme. The programme is supported by the Computing Industrial Advisory Panel that provides feedback on the industrial relevance of its taught material.
- The programme incorporates a substantial element of practical and production-based work, relevant to the programme, resulting in an end product of industrial quality that solves a relevant problem. The programme's assessment is inclusive, being completely coursework and practice based, and providing authentic and holistic means of assessing progress.
- We promote learning through practice and doing, and a prominent feature of the programme is a dissertation module that enables students to draw together the rest of their taught content to produce outputs of a professional and publishable standard.
- As a result of our industrial links students have excellent employment opportunities with a wide variety of organisations. These include both providers and consumers of AI.
- A schedule of academic-supported student-led activities, such as hackathons and a thriving student-run society.

5. Relevant QAA Subject Benchmark Group(s)

QAA Master's degree in Computing Subject Benchmark[2] (to be read in conjunction with the ACM Subject Benchmark[3]).

[2] https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-computing-(masters).pdf?sfvrsn=15f2c881_10
[3] https://www.acm.org/binaries/content/assets/education/cs2013_web_final.pdf

QAA Characteristics of Master's Degrees, published in 2020[4].

6. Programme Structure

The programme is offered full-time over 12 months. There is no required module ordering for students studying part-time.
All modules are core, thus ensuring that all students are guaranteed a consistent experience in semesters of their coverage of the key discipline area. The programme consists of the following modules:

Semester 1 (60 credits)	Semester 2 (60 credits)	Summer
COMP5008 (20 credits) Advanced Machine Learning	**COMP5009 (20 credits)** Computational Intelligence	
AINT516 (20 credits) Topics in Advanced Intelligent Robotics	**COMP5010 (20 credits)** Topics in Applied Artificial Intelligence	**PROJ518 (60 credits)** MSc Dissertation and Research Skills
MATH513 (20 credits) Big Data and Social Network Visualization	**AINT515 (20 credits)** Artificial Vision and Deep Learning	

Module Code	Module Title	Exam	Test	Coursework	Practice
COMP5008	Advanced Machine Learning			100%	
COMP5009	Computational Intelligence			100%	
COMP5010	Topics in Applied Artificial Intelligence			100%	
AINT515	Artificial Vision and Deep Learning	50%		50%	
AINT516	Topics in Advanced Intelligent Robotics	50%		50%	
MATH513	Big Data and Social Network Visualization			60%	40%
PROJ518	MSc Dissertation and Research Skills			100%	

7. Programme Aims

[4] https://www.qaa.ac.uk/docs/qaa/quality-code/master's-degree-characteristics-statement8019abbe03dc611ba4caff140043ed24.pdf?sfvrsn=86c5ca81_12

The School of Engineering, Computing and Mathematics shares the values of the University of Plymouth and supports its mission through the provision of a range of courses relevant to the theory and practice of Artificial Intelligence.

1. To provide knowledge of the technologies for effective provision and management of artificial intelligence software tools.
2. To produce a high level awareness of the issues arising in the development of artificial intelligence software tools and associated user needs.
3. To provide a broad grounding in artificial intelligence concepts and a detailed knowledge of the underlying technologies.
4. To provide an understanding of the computing, business and ethical issues related to artificial intelligence.
5. To enable a graduate to follow a career in the Computer and Information Technology and/or artificial intelligence industry, or in academic research.

8. Programme Intended Learning Outcomes

8.1. Knowledge and understanding

On successful completion graduates should have developed:

1) An understanding of personal, professional and management techniques that are relevant to artificial intelligence professionals, and the ability to apply them in practice.
2) Detailed knowledge and critical understanding of the essential facts, concepts, principles and theories at the forefront of artificial intelligence.
3) The professional and ethical responsibility needed within the artificial intelligence field.
4) The ability to demonstrate originality in their use of artificial intelligence within IT systems, and within the organisations they support.

8.2. Cognitive and intellectual skills

On successful completion graduates should have developed the ability to:

1) Plan, conduct, report on and lead a programme of original research.
2) Critically evaluate designs, processes and products and make improvements.
3) Integrate and evaluate data from a variety of sources.

4) Select, apply and critique computer-based methods for modelling and analysing artificial intelligence problems.

8.3. Key and transferable skills

On successful completion graduates should have developed the ability to:

1) Communicate effectively in a variety of forms.
2) Manage resources and time and engage in self-directed research.
3) Learn independently in familiar and unfamiliar situations.

8.4. Employment related skills

On successful completion graduates should have developed the qualities and transferrable skills necessary for employment as an artificial intelligence specialist, requiring:

1) The exercise of initiative and personal responsibility.
2) A systems-based approach to decision making in complex and unpredictable situations.
3) The independent learning ability required for continuing professional development.

8.5. Practical skills

On successful completion graduates should have developed the ability to:

1) Plan and execute a series of experiments and analyse experimental results to determine their strength and validity, critically evaluating their work.
2) Prepare technical reports.
3) Research the literature effectively.
4) Use computational tools and packages.

9. Admissions Criteria, including APCL, APEL and Disability Service arrangements

Entry requirements for the programme are:

- A lower second class (2:2) honours degree or better in a STEM-based discipline.
- Applicants with a lower classification, or substantial industrial experience in lieu of formal qualifications may be considered subject to interview.

- A minimum IELTS English proficiency score of 6.5, with at least 5.5 in each component.

The programme adheres to the University regulations and guidelines for the Accreditation of Prior Experiential Learning (APEL) and Accreditation of Prior Certificated Learning (APCL) for Masters programmes.

Students are required to produce evidence of English language ability. This will normally be the equivalent of GCSE Grade C or above in English language or IELTS average score of 6.5 or above with at least 6.0 in the written component.

10. Progression routes/criteria for progression to Final and Intermediate Awards

The programme adheres to the University's Postgraduate Taught Regulations in determining classifications and awards, including interim classifications and awards: https://www.plymouth.ac.uk/student-life/your-studies/essential-information/regulations.

11. Non Standard Regulations

None

12. Transitional Arrangements for existing students looking to progress onto the programme

None

Appendices

Programme Specification Mapping (PGT)

A**ppendix 1: Programme Specification Mapping (PGT): module contribution to the meeting of Award Learning Outcomes**
Tick those Award Learning Outcomes the module contributes to through its assessed learning outcomes. Insert rows and columns as required.

Module	**Credits**	**C** core **E** elective	Award Learning Outcomes contributed to (for more information see Section 8)																		Compensation Y/N	**Assessment element(s) and weightings** [use KIS definition] E1 - exam E2 - clinical exam T1 - test C1 - coursework A1 - generic assessment P1 - practical
			Knowledge & understanding				Cognitive & intellectual skills				Key & transferable skills			Employment related skills			Practical skills					
			1	2	3	4	1	2	3	4	1	2	3	1	2	3	1	2	3	4		
COMP5008	20	C		X		X	X	X		X					X		X	X		X	N	C1
AINT516	20	C	X		X	X				X	X									X	N	C1, E1
MATH513	20	C		X		X		X	X	X	X				X		X			X	N	C1, P1
Learning Outcomes 60 credits			X	X	X	X	X	X	X	X	X				X		X	X		X		
COMP5009	20	C		X		X	X	X		X					X		X	X		X	N	C1
COMP5010	20	C	X		X	X			X	X	X		X			X			X		N	C1
AINT515	20	C		X		X				X							X			X	N	C1, E1
Learning Outcomes 120 credits			X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X		
PROJ518	60	C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N	C1
Learning Outcomes 180 credits			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Confirmed Award Los			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		