

Course Specification

Course Summary Information		
1	Course Title	MSc Artificial Intelligence
2	Course Code	PT1415
3	Awarding Institution	Birmingham City University
4	Teaching Institution(s) (if different from point 3)	
5	Professional Statutory or Regulatory Body (PSRB) accreditation (if applicable)	

6	Course Description
	<p>This course will create graduates with a sound understanding of the theory and practice of Artificial Intelligence (AI) in industry and has been specifically designed to support female, black and disabled learners to enter this exciting, dynamic industry. As a conversion course, it is assumed all students are starting fresh with some or no experience of computer programming and little experience of using mathematics or statistics in your undergraduate courses or in work. A specialised teaching strategy has been developed which focusses on a single module taught every 4 weeks rather than the traditional 3 modules over 12 weeks. This allows for you to build on your knowledge base and dedicate yourself to a single assessment which has been designed to solve an industry-driven problem.</p> <p>You will begin by creating a foundation in programming and mathematics upon which you will build the expertise in several key areas of AI, going from your first Python code and basic algebra right through to Deep Learning. The core applied areas of data science that will be taught will include:</p> <ul style="list-style-type: none"> • Data Visualisation and Interpretation - analysis that can't be properly interpreted, explained and understood is a waste of time from a commercial point-of-view. We will teach you how to generate attractive and interpretable visualisations and tell the story of whatever data you're working with to a range of audiences. • Image Analysis - machine learning has shown incredible results recently in understanding the themes of images and video which are being applied in a range of commercial settings; from security and driverless cars, to online clothes shopping. • Natural Language Processing - being able to understand speech and text is one of the cornerstones of AI systems. Chatbots built on AI are appearing all over the internet, but more than this, technology giants are searching for ways that machines can have detailed conversations with one-another and to be able to read and understand text documents. • Time Series - dealing with dynamic data is vital to AI systems in finance, healthcare and defence; whether predicting system vulnerabilities, future stock prices or even predicting patient outcomes in ICU and how a virus outbreak will permeate through a population. <p>A strong focus on technology monitoring and ethics will be taught in a way to suit learners from all backgrounds. The masters' project will have an industrial route should you wish to work on</p>

	an applied project with a corporate partner and there will be a route on graduation to undertake a professional placement or, if you are interested, to go on to a doctoral research programme.
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7	Course Awards		
7a	Name of Final Award	Level	Credits Awarded
	Master of Science Artificial Intelligence	7	180
	Master of Science Artificial Intelligence with Professional Placement	7	240
7b	Exit Awards and Credits Awarded		
	Postgraduate Certificate Data Analytics	7	60
	Postgraduate Diploma Artificial Intelligence	7	120

8	Derogation from the University Regulations
	N/A

9	Delivery Patterns			
	Mode(s) of Study	Location(s) of Study	Duration of Study	Code(s)
	Part Time	City Centre	2 years	TBC
	Full Time	City Centre	1 year	PT1415
	Full Time with Professional Placement	City Centre	18 months	PT1417

10	Entry Requirements	
	Home:	At the point of application, you must have GCSE at Grade 4 (C) or above in English language and Mathematics. An Honours Degree (2:2+) or 3+ years professional work experience will be considered.
	EU:	As above plus IELTS 6.0 overall with 5.5 minimum in all bands
	International:	As above plus IELTS 6.0 overall with 5.5 minimum in all bands
	Access:	N/A.

11	Course Learning Outcomes
	Knowledge and Understanding
1	Critically analyse key concepts, theories, approaches, techniques, and principles related to the design and development of Artificial Intelligence systems.
2	Identify and justify the use of different evaluation and analytical approaches to determine the effectiveness of a variety of data modelling practices.
3	Assess emerging trends in the field of artificial intelligence and consider their potential for organisational and societal impact.
4	Examine and appraise key ethical, social, and commercial considerations around the design of Artificial Intelligence systems.
5	Understand and interpret the roles and responsibilities of a professional working in the Artificial Intelligence and Data Science professions.
	Skills and Other Attributes
6	Design and create interactive solutions to real-world problems through applying industry standard principles across a range of platforms and technologies.
7	Critically assess the effectiveness of development libraries, platforms, and frameworks commonly used for building data-driven models.
8	Process, interpret, and analyse complex data (utilising multiple techniques) to evaluate the effectiveness of machine learning models and to construct data-driven decisions for future iterative work.
9	Work across disciplines to create data-driven intelligent solutions to real-world problems both individually and as part of a group; managing project activities under time pressure.
10	Communicate complex concepts effectively in oral presentations, interactive demonstrations, and written reports through appropriately tailoring descriptions for different target audiences.

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12a	<p>Level 7</p> <p><i>In order to complete this course a student must successfully complete all the following CORE modules (totalling 180 credits):</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffffcc;">Module Code</th> <th style="background-color: #ffffcc;">Module Name</th> <th style="background-color: #ffffcc;">Credit Value</th> </tr> </thead> <tbody> <tr><td></td><td>Computing for AI</td><td>20</td></tr> <tr><td></td><td>Data Visualisation</td><td>20</td></tr> <tr><td></td><td>Machine Learning</td><td>20</td></tr> <tr><td></td><td>Applied AI</td><td>20</td></tr> <tr><td></td><td>Deep Learning</td><td>20</td></tr> <tr><td></td><td>Impact of AI</td><td>20</td></tr> <tr><td>DIG7200</td><td>Individual Master's Project</td><td>60</td></tr> </tbody> </table> <p><i>In order to complete the course Master of Science Artificial Intelligence with Professional Placement, a student must successfully complete all the following CORE modules (totalling 240 credits):</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffffcc;">Module Code</th> <th style="background-color: #ffffcc;">Module Name</th> <th style="background-color: #ffffcc;">Credit Value</th> </tr> </thead> <tbody> <tr><td></td><td>Computing for AI</td><td>20</td></tr> <tr><td></td><td>Data Visualisation</td><td>20</td></tr> <tr><td></td><td>Machine Learning</td><td>20</td></tr> <tr><td></td><td>Applied AI</td><td>20</td></tr> <tr><td></td><td>Deep Learning</td><td>20</td></tr> <tr><td></td><td>Impact of AI</td><td>20</td></tr> <tr><td>DIG7200</td><td>Individual Master's Project</td><td>60</td></tr> <tr><td>PLA6004</td><td>Professional Placement</td><td>60</td></tr> </tbody> </table>		Module Code	Module Name	Credit Value		Computing for AI	20		Data Visualisation	20		Machine Learning	20		Applied AI	20		Deep Learning	20		Impact of AI	20	DIG7200	Individual Master's Project	60	Module Code	Module Name	Credit Value		Computing for AI	20		Data Visualisation	20		Machine Learning	20		Applied AI	20		Deep Learning	20		Impact of AI	20	DIG7200	Individual Master's Project	60	PLA6004	Professional Placement	60
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12b Structure Diagram
Level 7 – Full Time

SEMESTER 1	SEMESTER 2	SEMESTER 3
Computing for AI (20 credits)	Applied AI (20 credits)	Individual Master's Project (60 credits)
Data Visualisation (20 credits)	Deep Learning (20 credits)	
Machine Learning (20 credits)	Impact of AI (20 credits)	

Level 7 – Full Time with Professional Placement

Year 1 - SEMESTER 1	Year 1 - SEMESTER 2	Year 1 – SEMESTER 3
Computing for AI (20 credits)	Applied AI (20 credits)	Individual Master's Project (60 credits)
Data Visualisation (20 credits)	Deep Learning (20 credits)	
Machine Learning (20 credits)	Impact of AI (20 credits)	
Year 2 - SEMESTER 1	Year 2 - SEMESTER 2	Year 2 – SEMESTER 3
Professional Placement (60 credits)		

Level 7 – Part Time

Year 1 - SEMESTER 1	Year 1 - SEMESTER 2	Year 1 – SEMESTER 3
Computing for AI (20 credits)	Machine Learning (20 credits)	
Data Visualisation (20 credits)	Applied AI (20 credits)	
Year 2 - SEMESTER 1	Year 2 - SEMESTER 2	Year 2 – SEMESTER 3
Deep Learning (20 credits)	Impact of AI (20 credits)	Individual Master's Project (60 credits)

13 Overall Student Workload and Balance of Assessment

Overall student *workload* consists of class contact hours, independent learning and assessment activity, with each credit taken equating to a total study time of around 10 hours. While actual contact hours may depend on the optional modules selected, the following information gives an indication of how much time students will need to allocate to different activities at each level of the course.

- *Scheduled Learning* includes lectures, practical classes and workshops, contact time specified in timetable
- *Directed Learning* includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning
- *Private Study* includes preparation for exams

The *balance of assessment* by mode of assessment (e.g. coursework, exam and in-person) depends to some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

Level 7

Workload

26% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	306
Directed Learning	372
Private Study	1,122
Total Hours	1800

Balance of Assessment

Assessment Mode	Percentage
Coursework	81%
Exam	0
In-Person	19%