

Course Specification

Course Summary Information			
1	Course Title		BSc (Hons) Computer and Data Science
2	BCU Course Code	UCAS Code	US0922 I10C
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>Data Science is an exciting new discipline that integrates computer science and statistics, which helps enable us to gain valuable insights that are needed in modern organisations. The Computer and Data Science degree course is designed to equip you with the cutting-edge skills required to satisfy the global demand for Data Scientist roles and thus build a rewarding career.</p> <p>You'll gain a well-rounded education in Computer and Data Science, whilst developing your teamwork and software development skills. When you graduate you'll be able to design software by applying mathematical and scientific principles, enabling you to thrive in the IT industry.</p> <p>You'll cover all aspects of data science, ranging from data acquisition, integration, storage, analysis and visualization of data. You'll also learn about data mining, statistical analysis, and machine learning by working collaboratively with academics and businesses, applying practice-based skills to real-life case studies and projects.</p> <p>BSc Computer and Data Science shares a common first year with the BSc Computer Science course. The first year covers fundamental concepts, such as algorithms and data structures, while also nurturing your creativity.</p> <p>In your second year, you will study four Computer Science modules and two Data Science specific modules, namely Introduction to Data Science and Data Visualisation. In the third year, with the exception of one Computer Science module, the remaining modules are Data Science specific.</p> <p>You will broaden your understanding of data science by studying specialised subjects like artificial intelligence and machine learning, modern data stores, data mining and data warehousing.</p> <p>In addition, you will complete an individual project in order to demonstrate your technical skills and general employability in preparation for your career. The individual project simulates typical workplace tasks that require knowledge in a specific area of data science.</p> <p>With emphasis on computer lab-based practical work and project delivery, this course will provide you with ample opportunity to acquire both the technical and transferable skills desired by industry. Extra support sessions in mathematics will be offered to students which will be led by a specialist mathematics tutor.</p>

	<p>Underpinned by an extensive range of staff knowledge and skills, the course seeks to develop you into a confident independent and team problem solver who is willing to take on new challenges and experiences. You will be able to build an online portfolio for personal and professional development using software such as Mahara or GitHub.</p> <p>We focus on employability so our course encourages and enables collaborative activity, engagement with work placements, projects and international exchanges. Various activities have been built into the course to promote employability such as innovation fest, mid-semester employability week and the mini project during level 4 induction week. You will have the opportunity to take a sandwich placement year between your second and third year. This is something that is highly recommended, as it will give you an invaluable opportunity to put your skills into practice, try out a potential career path and get relevant workplace experience that is valued by so many employers. The course is also part of the Erasmus scheme, which allows you to study abroad within the EU for a semester, normally during the second year of the course.</p>
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7	Course Awards		
7a	Name of Final Award	Level	Credits Awarded
	Bachelor of Science with Honours Computer and Data Science	6	360
	Bachelor of Science with Honours Computer and Data Science with Sandwich Year	6	360
7b	Exit Awards and Credits Awarded		
	Certificate of Higher Education Computer Science	4	120
	Diploma of Higher Education Computer and Data Science	5	240
	Bachelor of Science Computer and Data Science	6	300

8	Derogation from the University Regulations
	Not applicable

9	Delivery Patterns		
	Mode(s) of Study	Location(s) of Study	Duration of Study
	Full Time	City Centre	3 years
	Sandwich	City Centre	4 years
			Code(s)
			US0922
			US0922S

10	Entry Requirements
<p>The admission requirements for this course are stated on the course page of the BCU website at https://www.bcu.ac.uk/ or may be found by searching for the course entry profile located on the UCAS website.</p>	

11	Course Learning Outcomes
	Knowledge
1	Demonstrate knowledge and understanding of essential facts, concepts, theories and principles of computer/data science technology.
2	Knowledge and understanding of contemporary tools and technologies to produce solutions relevant to the domain of computer science/data science to meet a set of agreed requirements.
3	Understand the roles and responsibilities of a professional working within the computing profession.
4	Appreciate the social, environmental, ethical, economic and commercial considerations that impact on the computer/data science solutions.
	Skills and Other Attributes
5	Critically appraise and deploy effectively a range of theories, techniques and tools for the modelling, design and implementation of computer-based systems for the purposes of comprehension, communication, prediction and the understanding of trade-offs.
6	Specify the requirements and practical constraints of computer/data science solutions considering a wide range of aspects including legal, ethical and social issues.
7	Recognise and analyse criteria and specifications appropriate to specific problems, and plan strategies for their solution and future development
8	Work effectively as a member of a team, and undertake management and planning activities, recognising the different roles within a team and different ways of organising teams.

12	Course Requirements																																																												
12a	<p>Level 4:</p> <p><i>In order to complete this course a student must successfully complete all the following CORE modules (totalling 120 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>CMP4267</td> <td>Computer Systems</td> <td>20</td> </tr> <tr> <td>DIG4166</td> <td>Website Design & Development</td> <td>20</td> </tr> <tr> <td>CMP4272</td> <td>Data Structures & Algorithms</td> <td>20</td> </tr> <tr> <td>CMP4285</td> <td>Innovation Project</td> <td>20</td> </tr> <tr> <td>CMP4266</td> <td>Computer Programming</td> <td>20</td> </tr> <tr> <td>CMP4269</td> <td>Network Fundamentals</td> <td>20</td> </tr> </tbody> </table> <p>Level 5:</p> <p><i>In order to complete this course a student must successfully complete all the following CORE modules (totalling 120 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>CMP5332</td> <td>Object Oriented Programming</td> <td>20</td> </tr> <tr> <td>DIG5127</td> <td>Database & Web Application Development</td> <td>20</td> </tr> <tr> <td>CMP5353</td> <td>Introduction to Data Science</td> <td>20</td> </tr> <tr> <td>CMP5344</td> <td>Discrete Maths & Declarative Programming</td> <td>20</td> </tr> <tr> <td>CMP5354</td> <td>Software Design</td> <td>20</td> </tr> <tr> <td>CMP5352</td> <td>Data Visualisation</td> <td>20</td> </tr> </tbody> </table> <p>Level 6:</p> <p><i>In order to complete this course a student must successfully complete all the following CORE modules (totalling 120 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>CMP6202</td> <td>Artificial Intelligence & Machine Learning</td> <td>20</td> </tr> <tr> <td>CMP6209</td> <td>Data Warehousing</td> <td>20</td> </tr> <tr> <td>CMP6208</td> <td>Data Mining</td> <td>20</td> </tr> <tr> <td>CMP6207</td> <td>Modern Data Stores</td> <td>20</td> </tr> <tr> <td>CMP6200</td> <td>Individual Honours Project</td> <td>40</td> </tr> </tbody> </table>	Module Code	Module Name	Credit Value	CMP4267	Computer Systems	20	DIG4166	Website Design & Development	20	CMP4272	Data Structures & Algorithms	20	CMP4285	Innovation Project	20	CMP4266	Computer Programming	20	CMP4269	Network Fundamentals	20	Module Code	Module Name	Credit Value	CMP5332	Object Oriented Programming	20	DIG5127	Database & Web Application Development	20	CMP5353	Introduction to Data Science	20	CMP5344	Discrete Maths & Declarative Programming	20	CMP5354	Software Design	20	CMP5352	Data Visualisation	20	Module Code	Module Name	Credit Value	CMP6202	Artificial Intelligence & Machine Learning	20	CMP6209	Data Warehousing	20	CMP6208	Data Mining	20	CMP6207	Modern Data Stores	20	CMP6200	Individual Honours Project	40
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12b Structure Diagram
Level 4

SEMESTER ONE	SEMESTER TWO
Core Computer Programming (20 Credits) Computer Systems (20 Credits) Website Design and Development (20 Credits)	Core Data Structure and Algorithms (20 Credits) Network Fundamentals (20 Credits) Innovation Projects (20 Credits)

Level 5

Core Object Oriented Programming (20 Credits) Database and Web Application Development (20 Credits) Introduction to Data Science (20 Credits)	Core Discrete Mathematics and Declarative Programming (20 Credits) Software Engineering Methodology & Project (20 Credits) Data Visualisation (20 Credits)
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Level 6

Core Artificial Intelligence & Machine Learning (20 Credits) Data Mining (20 Credits)	Core Modern Data Stores (20 Credits) Data Warehousing (20 Credits)
Individual Honours Project (40 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, written examination and practical examination) depends to some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, written examination and practical examination is shown below.

Level 4

Workload

24% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	288
Directed Learning	498
Private Study	414
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	93%
Exam	0
In-person	7%

Level 5

Workload

24% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	288
Directed Learning	429
Private Study	483
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	95%
Exam	5%
In-Person	0

Level 6**Workload****20% time spent in timetabled teaching and learning activity**

Activity	Number of Hours
Scheduled Learning	240
Directed Learning	388
Private Study	372
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	90%
Exam	0
In-Person	10%