PROGRAMME SPECIFICATION

Name, title and level of final qualification(s)	**BSc Data Science and Computing** (Level 6)
Name and title of any exit qualification(s)	Diploma Higher Education Certificate of Higher Education Certificate of Continuing Education
Is the programme offered with a Foundation Year?	Yes
Awarding Body	University of London
Teaching Institution(s)	Birkbeck, University of London
Home School/other teaching departments	School of Computing and Mathematical Sciences
Location of delivery	Central London
Language of delivery and assessment	English
Mode of study, length of study and normal start month	Full-time (3 years); Part-time (4 years); Full-time with Foundation Year (4 years) September
Professional, statutory or regulatory body	Not applicable
QAA subject benchmark group(s) Higher Education Credit Framework for England	Computing
UCAS code	I265, I266
Birkbeck Course Code	UUBSDCOM_C (3-year full-time) UUBFDCOM_C (4-year full-time with Foundation Year) UBSDCOMP_C (4-year part-time)
HECoS Code	100366
Start date of programme	Autumn 2018
Date of programme approval	Summer 2018
Date of last programme amendment approval	March 2024
Valid for academic entry year	2023/4
Date of last revision to document	22/03/2024

Admissions requirements

BSc Data Science and Computing

UCAS tariff score: 96-128 points. The UCAS tariff score is applicable to students who have recently studied a qualification that has a UCAS tariff equivalence.

GCSES: Applicants are expected to have GCSE grade C or 4, or equivalent, in English and mathematics.

BSc Data Science and Computing with Foundation Year

UCAS tariff score: 48 points. The UCAS tariff score is applicable to students who have recently studied a qualification that has a UCAS tariff equivalence.

GCSES: Applicants are expected to have GCSE grade C or 4, or equivalent, in English and mathematics.

We welcome applicants without traditional entry qualifications as we base decisions on our own assessment of qualifications, knowledge and previous work experience. We may waive formal entry requirements based on judgement of academic potential.

Applicants without traditional entry qualification who wish to enter year 1 are required to sit an admissions test that is composed of two elements: (i) a mathematics test and (ii) a test of English comprehension. A pass in the mathematics test ensures that the applicant has the required quantitative skill base to progress through the programme. A pass in the English comprehension test indicates that the applicant is competent to begin the programme.

Course aims

BSc Data Science and Computing

The BSc Data Science and Computing is motivated by the growing demand for graduates with data analytics skills in industry. This BSc will cover the relevant foundations of mathematics, statistics and probability together with Data Science techniques and applications (60 credits). Programming (30 credits) and software engineering (30 credits) modules will conform to Institute of Coding standards as they are developed. Remaining modules will cover other technical and professional issues in computing and information systems of importance to Data Science.

BSc Data Science and Computing with Foundation Year

The BSc Data Science and Computing with Foundation Year is designed for applicants who do not meet the entry requirements for direct entry to our BSc Data Science and Computing, who do not feel they are quite ready for an undergraduate level study, or who are returning to study after a significant break and need extra help and support.

The foundation year element of the Programme provides the core knowledge and skills required for the successful study of data science and computing at undergraduate level. It includes modules covering introductory, subject-specific areas such as mathematics, computing and programming. It also includes more general skills modules, including approaches to study, academic writing and teamwork. Successful completion of the foundation year enables students to progress to the BSc element of the Programme.

The BSc stage of the programme equips students with a strong theoretical and technical grounding for working as a data scientist or analyst in industry. Apart from gaining a broad knowledge of computing and mathematics, students will acquire strong programming and data analysis skills using Java, Python, and R.

Course structure

BSc Data Science and Computing:

This degree in data science and computing provides an excellent grounding for working as a data scientist or analyst in industry. As well as gaining a broad knowledge of areas of computing relevant to data science, you will acquire programming and data analysis skills and have the opportunity to investigate certain areas of data science more deeply.

BSc Data Science and Computing with Foundation Year:

The BSc Data Science and Computing with Foundation Year provides a perfect route to study for those who:

- Do not meet the entry requirements for direct entry to an undergraduate data science and computing degree.
- Do not feel they are quite ready for undergraduate level study.
- Are returning to study after a significant break and need extra help and support.

The foundation year helps build confidence and provide the skills to study successfully at undergraduate level.

Upon successful completion of the foundation year, students automatically progress to the BSc part of the Degree. The BSc part focuses on developing key data and software development skills and knowledge, including data analytics, mathematics, computer programming, data security and database development and management.

The Foundation Year programme is studied full time over four years.

Level	Module Code	Module Title	Credit	Comp Core/ Option	Likely teaching term(s)
Full-time – 3 years					
Year 1					
4	COIY040H4	Mathematics for Computing	15	Compulsory	1
4	BUCI007H4	Introduction to Programming	15	Compulsory	2
4	COIY016H4	Systems Analysis and Design I	15	Compulsory	2
4	BUCI069H4	Foundations of Data Science I	15	Compulsory	2
4	BUCI008H4	Introduction to Computer Systems	15	Compulsory	2
4	COIY068H4	Introduction to Database Technology	15	Compulsory	3
4	SSCS004H4	Introduction to Web Authoring	15	Compulsory	3
4	BUCI087H4	Software and Programming I	15	Compulsory	3
Year 2					
5	BUCI088H5	Software and Programming II	15	Compulsory	1
5	BUCI030H5	Data Structures and Algorithms	15	Compulsory	1
5	BUCI066H5	Software Engineering I	15	Compulsory	1
5	BUCI070H5	Foundations of Data Science II	15	Compulsory	2
5	COIY019H5	Systems Analysis and Design II	15	Compulsory	2
5	BUCI036H5	Computer Networking	15	Compulsory	2
5	BUCI086H5	Professional Issues in Computing	15	Compulsory	3
5	COIY042H5 CASC002H5	Option – either: E-Business Or Micro-placement	15	Option	3

Year 3					
6	BUCI071H6	Data Science Applications and Techniques	15	Compulsory	1
6	COIY045H6	Information Security	15	Compulsory	1
6	BUCI067H6	Software Engineering II	15	Compulsory	2
6	COIY028H6	Database Management	15	Compulsory	2
6	BUCI072S6	BSc Data Science Project	30	Compulsory	1-3
6		Option 1	15	Optional	
6		Option 2	15	Optional	
Part-time – 4 years					
Year 1					
4	COIY040H4	Mathematics for Computing	15	Compulsory	1
4	BUCI007H4	Introduction to Programming	15	Compulsory	2
4	COIY016H4	Systems Analysis and Design I	15	Compulsory	2
4	BUCI069H4	Foundations of Data Science I	15	Compulsory	2
4	COIY068H4	Introduction to Database Technology	15	Compulsory	3
4	BUCI087H4	Software and Programming I	15	Compulsory	3
Year 2					
6	BUCI088H5	Software and Programming II	15	Compulsory	1
5	BUCI066H5	Software Engineering I	15	Compulsory	1
5	BUCI070H5	Foundations of Data Science II	15	Compulsory	2
5	COIY019H5	Systems Analysis and Design II	15	Compulsory	2
4	BUCI008H4	Introduction to Computer Systems	15	Compulsory	2
4	SSCS004H4	Introduction to Web Authoring	15	Compulsory	3
Year 3					
5	BUCI030H5	Data Structures and Algorithms	15	Compulsory	1
6	COIY045H6	Information Security	15	Compulsory	1
6	BUCI067H6	Software Engineering II	15	Compulsory	2
5	BUCI036H5	Computer Networking	15	Compulsory	2
5	BUCI086H5	Professional Issues in Computing	15	Compulsory	3
5	COIY042H5 CASC002H5	Option – either: E-Business Or Micro-placement	15	Option	3
Year 4					
6	BUCI071H6	Data Science Applications and Techniques	15	Compulsory	1
6	COIY028H6	Database Management	15	Compulsory	2
6	BUCI072S6	BSc Data Science Project	30	Compulsory	1-3
		Option 1	15	Optional	
		Option 2	15	Optional	
Options					
6	BUCI056H6	Software and Programming III	15	Optional	1
6	BUCI028H6	Cloud Computing Concepts	15	Optional	1
6	BUCI045H6	Introduction to Data Analytics using R	15	Optional	2
6	BUCI046H6	Mobile Computing	15	Optional	3

6	BUCI034H6	Artificial Intelligence and Machine Learning	15	Optional	3
Full-time with Foundation Year – 4 years					
Foundation Year					
3	CASE002S3	Fundamentals of Study: Learning through the Global City	30	Core	1
3	BUCI075H3	Teamwork	15	Core	1
3	BUMN166H3	Mathematics for Business	15	Core	2
3	BUCI089H3	Introduction to Information Technology	15	Core	2
3	BUCI084H3	IT Tools and Techniques	15	Core	3
3	BUCI085H3	Programming Logic	15	Core	2
3	BUCI076H3	Computing Foundation Year Project	15	Core	3
Year 1					
4	COIY040H4	Mathematics for Computing	15	Compulsory	1
4	BUCI007H4	Introduction to Programming	15	Compulsory	2
4	COIY016H4	Systems Analysis and Design I	15	Compulsory	2
4	BUCI069H4	Foundations of Data Science I	15	Compulsory	2
4	BUCI008H4	Introduction to Computer Systems	15	Compulsory	2
4	COIY068H4	Introduction to Database Technology	15	Compulsory	3
4	SSCS004H4	Introduction to Web Authoring	15	Compulsory	3
4	BUCI087H4	Software and Programming I	15	Compulsory	3
Year 2					
5	BUCI088H5	Software and Programming II	15	Compulsory	1
5	BUCI030H5	Data Structures and Algorithms	15	Compulsory	1
5	BUCI066H5	Software Engineering I	15	Compulsory	1
5	BUCI070H5	Foundations of Data Science II	15	Compulsory	2
5	COIY019H5	Systems Analysis and Design II	15	Compulsory	2
5	BUCI036H5	Computer Networking	15	Compulsory	2
5	BUCI086H5	Professional Issues in Computing	15	Compulsory	3
5	COIY042H5 CASC002H5	Option – either: E-Business Or Micro-placement	15	Option	3
Year 3					
6	BUCI071H6	Data Science Applications and Techniques	15	Compulsory	1
6	COIY045H6	Information Security	15	Compulsory	1
6	BUCI067H6	Software Engineering II	15	Compulsory	2
6	COIY028H6	Database Management	15	Compulsory	2
6	BUCI072S6	BSc Data Science Project	30	Compulsory	1-3
6		Option 1	15	Optional	
6		Option 2	15	Optional	

Core: *Module must be taken and passed by student*

Compulsory: *Module must be taken but can be considered for compensated credit (see CAS regulations paragraph 24)*
Option: *Student can choose to take this module*

How you will learn

Formal lectures are the principal teaching method, but these frequently incorporate practical sessions, for example in programming, and also group exercises carried out in class.

There is a large element of practical coursework which students carry out in their own time; some of these coursework assignments are carried out in groups.

Each student also undertakes an individual project in data science (including background research) which is supervised by a member of staff. The project provides an opportunity for students to investigate in depth an aspect of data science that particularly interests them.

How we will assess you

The course will use a variety of assessment methods. Assessment is used to enhance your learning rather than simply to test it. For most of the modules associated with this course, your assessment will be through the following types of assessment.

Assessment is by the coursework assignments, written examinations and the project proposal and final report.

Learning outcomes (what you can expect to achieve)

'Learning outcomes' indicate what you should be able to know or do at the end of your course. Providing them helps you to understand what your teachers will expect and also the learning requirements upon which you will be assessed.

At the end of this course, you should be able to:

Foundation year specific:

1. Write effectively in an academic context. (FY1)
2. Research and read effectively in an academic context. (FY2)
3. Demonstrate understanding of a range of core concepts in the area of computing and information systems. (FY3)
4. Work effectively in teams. (FY4)
5. Work independently to complete a small-scale research project. (FY5)

BSc Programme as a whole:

Subject Specific

1. Mathematics, probability and statistics foundations of data science (S1),
2. A knowledge of programming (S2),
3. Information systems design and social, legal and professional implications (S3),
4. Data and software engineering (S4),
5. Knowledge of data science tools, techniques and applications (S5).

Intellectual

6. The ability to develop an algorithm to carry out a specified data science task and to convert this into an executable program (I1),
7. To successfully debug a program (I2),
8. An appreciation of the social and legal implications of the use of computers (I3),
9. The ability to analyse data using appropriate methods (I4),
10. To plan and carry out a project with a focus on data science spanning several months (I5),
11. To perform abstract thinking and to exhibit abstraction skills (I6).

Practical

12. the ability to write programs in appropriate programming languages (P1),
13. to create and document a design using an appropriate modelling language (P2),
14. to use tools to analyse data (P3).

Personal and Social

15. the ability to work under pressure (PS1),
16. communicate using appropriate interpersonal skills (PS2),
17. display competence when working in teams (PS3),
18. take responsibility for own learning and time management (PS4).

Careers and further study

You will find Data Science and Computing graduates in the following kinds of roles: programmer, software engineer, data scientist.

Birkbeck offers a range of careers support to its students. You can find out more on the careers pages of our website.

Academic regulations and course management

Birkbeck's academic regulations are contained in its Common Award Scheme Regulations and Policies published by year of application on the Birkbeck website.

You will have access to a course handbook on Moodle and this will outline how your course is managed, including who to contact if you have any questions about your module or course.

Support for your study

Your learning at Birkbeck is supported by your teaching team and other resources and people in the College there to help you with your study. Birkbeck uses a virtual learning environment called Moodle and each course has a dedicated Moodle page and there are further Moodle sites for each of your modules. This will include your course handbook.

Birkbeck will introduce you to the Library and IT support, how to access materials online, including using Moodle, and provide you with an orientation which includes an online Moodle module to guide you through all of the support available. You will also be allocated a personal tutor and provided with information about learning support offered within your School and by the College.

Please check our website for more information about student support services. This covers the whole of your time as a student with us including learning support and support for your wellbeing.

Quality and standards at Birkbeck

Birkbeck's courses are subject to our quality assurance procedures. This means that new courses must follow our design principles and meet the requirements of our academic regulations. Each new course or module is subject to a course approval process where the proposal is scrutinised by subject specialists, quality professionals and external representatives to ensure that it will offer an excellent student experience and meet the expectation of regulatory and other professional bodies.

You will be invited to participate in an online survey for each module you take. We take these surveys seriously and they are considered by the course team to develop both modules and the overall courses. Please take the time to complete any surveys you are sent as a student.

We conduct an annual process of reviewing our portfolio of courses which analyses student achievement, equality data and includes an action plan for each department to identify ongoing enhancements to our education, including changes made as a result of student feedback.

Our periodic review process is a regular check (usually every four years) on the courses by department with a specialist team including students.

Each course will have an external examiner associated with it who produces an annual report and any recommendations. Students can read the most recent external examiner reports on the course Moodle pages. Our courses are all subject to Birkbeck Baseline Standards for our Moodle module information. This supports the accessibility of our education including expectations of what information is provided online for students.

The information in this programme specification has been approved by the College's Academic Board and every effort has been made to ensure the accuracy of the information it contains.

Programme specifications are reviewed periodically. If any changes are made to courses, including core and/or compulsory modules, the relevant department is required to provide a revised programme specification. Students will be notified of any changes via Moodle.

Further information about specifications and an archive of programme specifications for the College's courses is available online.