

PROGRAMME SPECIFICATION

Name, title and level of final qualification(s)	BSc Computer Science with AI (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 Department/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) October
Professional, statutory or regulatory body	Not applicable
<u>QAA subject benchmark group(s)</u> <u>Higher Education Credit Framework for</u> <u>England</u>	Computing
UCAS code	I105; I106 (with FY)
Birkbeck Course Code	UUBSCMAI_C (full-time, 4 years) UBSCOMAI_C (part-time, 3 years) UUBFCMAI_C (full-time with FY, 4 years)
HECoS Code	100366 100359
Start date of programme	Autumn 2025
Date of programme approval	November 2024
Date of last programme amendment approval	November 2024
Valid for academic year	2026-27
Date of last revision to document	11/11/2024

Admissions requirements

BSc Computer Science with AI:

UCAS tariff: 112 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 Computer Science with AI with Foundation Year:

UCAS tariff: 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 Computer Science with AI

The BSc Computer Science with AI aims to develop knowledge, technical skills and self-directed learning skills in computing science with especial focus in areas affected by rapidly changing innovations in AI. Final year students carry out a complex real-world system development project.

Modern computing and information systems skills including AI often become obsolete as new technology is developed. Therefore, the programme strikes a balance between learning current skills, which are important in the marketplace, and emphasising the underlying theories, which last longer and which provide a sound basis for developing new skills, techniques and technologies, and even new theories. The social and organisational impacts of information technology are also included.

Students with a Foundation Degree in IT or an equivalent qualification such as an HND in Computing may register for year 3 of the four-year part-time programme and if successful, graduate with a BSc in Computer Science with Artificial Intelligence after two further years of part-time study.

BSc Computer Science with AI with Foundation Year

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

The foundation year element of the Programme provides the core knowledge and skills required for the successful study of Computing at undergraduate level. It includes modules covering

introductory, subject-specific areas such as Programming and Mathematics. It also includes more transferable skills modules, covering approaches to study, academic writing and working in teams. Successful completion of the foundation year enables students to progress to the BSc element of the Programme.

The BSc element of the Programme aims to develop the knowledge, technical skills, and self-directed learning skills required by employers in the fast-evolving world of computer science and AI. The primary focus is on developing strong programming and software engineering skills. Emphasis is also placed on exploring the socio, ethical and legal aspects of these technologies. At the end of the BSc element of the Programme, students carry out a complex, real-world project.

Course structure

The programme consists of modules. The syllabus for each module consists of a closely related set of topics, as indicated by the title of the module. Each module has a level, which indicates the academic level of the module, and a value in credits. Most modules are taught over one term and have a value of 15 or 30 credits. Some modules may be taught over two terms and have a value of 30 credits. The final year project has a value of 60 credits. In order to graduate, it is necessary to accumulate 360 credits. Under normal circumstances, the maximum number of credits that can be accumulated in an academic year is 90 credits for the four-year part-time programme and 120 credits for the three-year full-time programme.

Four-year part-time programme: all of the modules in years 1, 2 and 3 are compulsory. There is a mix of compulsory and optional modules in years 4. Modules in year 1 have level 4. Modules in year 2 are level 4 or 5, while modules in years 3 and 4 are either level 5 or level 6. In order to graduate, it is necessary to accumulate at least 120 credits at level 6.

An optional module can be chosen only if its prerequisites are satisfied.

Three-year full-time programme: all of the modules in years 1 and 2 are compulsory. There is a mix of compulsory and optional modules in year 3. Modules in year 1 are level 4. Modules in years 2 are level 5 and those in year 3 are level 6. In order to graduate, it is necessary to accumulate at least 120 credits at level 6.

An optional module can be taken only if its prerequisites are satisfied.

BSc Computer Science with AI with Foundation Year:

The BSc Computer Science with AI with Foundation Year provides a perfect route to study for those who do not meet the entry requirements for direct entry to an undergraduate computer science degree, who do not feel they are quite ready for an undergraduate degree, or who are returning to study after a significant break and need extra help and support.

The foundation year helps build confidence and provide skills to study successfully at undergraduate level. It also provides students with a strong foundation in the main subject area of Computing. Upon successful completion of the Foundation Year, students automatically progress to our three-year, full-time evening study BSc Computer Science with AI. The BSc focuses on key software development skills, including algorithms and data structures, systems analysis and design, programming, software testing and project management.

Level	Module Code	Module Title	Credit	Comp Core/ Option	Likely teaching term(s)
Full-time – 3 years or 4 years with Foundation Year					
Foundation Year					
3	CASE002S3	Fundamentals of Study	30	Core	1
3	BUCI075H3	Teamwork	15	Core	1
3	SC10001S3	Foundation Year Mathematics	30	Core	2
3	BUCI085H3	Programming Logic	15	Core	2
3	SC10002H3	Foundation Year Programming	15	Core	3
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	1
4	BUEM132H4	Data Skills	15	Compulsory	1
4	BUCI069H4	Data Modelling and Analysis	15	Compulsory	2
4	BUCI008H4	Introduction to Computer Systems	15	Compulsory	2
4	COIY016H4	Systems Analysis and Design	15	Optional	2
4	COIY068H4	Introduction to Database Technology	15	Compulsory	3
4	SC10007H4	Object Oriented Programming	15	Compulsory	3
Year 2					
5	SC10004H5	Database Management	15	Compulsory	1
5	BUCI030H5	Data Structures and Algorithms	15	Compulsory	1
5	BUCI066H5	Software Engineering	15	Compulsory	1
5	BUCI070H5	Advanced Data Modelling and Analysis	15	Compulsory	2
5	BUCI036H5	Computer Networking	15	Compulsory	2
5	SC10008H5	Information Security (Level 5)	15	Compulsory	3
5	SC10006H5	Introduction to Machine Learning	15	Compulsory	3
and one of the following two options					
5	CASC002H5	Micro-placement	15	Option	3
5	BUEM131H5	Statistical Inference	15	Option	3
Year 3					
6	SC10013D6	BSc Artificial Intelligence Project	60	Compulsory	1-3
and two of the following three options					
6	SC10011S6	Natural Language Processing Applications	30	Optional	2
6	SC10014S6	Engineering MLOps	30	Optional	2
6	SC10012S6	Deep learning and Generative AI	30	Optional	3
Part-time – 4 years					
Year 1					
4	COIY040H4	Mathematics for Computing	15	Compulsory	1
4	BUCI007H4	Introduction to Programming	15	Compulsory	1
4	COIY016H4	Systems Analysis and Design	15	Compulsory	2
4	BUCI069H4	Data Modelling and Analysis	15	Compulsory	2
4	COIY068H4	Introduction to Database Technology	15	Compulsory	3
4	SC10007H4	Object Oriented Programming	15	Compulsory	3

Year 2					
4	BUEM132H4	Data Skills	15	Compulsory	1
5	BUCI030H5	Data Structures and Algorithms	15	Compulsory	1
4	BUCI008H4	Introduction to Computer Systems	15	Compulsory	2
5	BUCI070H5	Advanced Data Modelling and Analysis	15	Compulsory	2
5	SC10006H5	Introduction to Machine Learning	15	Compulsory	3
and one of the following two options					
5	BUEM131H5	Statistical Inference	15	Option	3
5	CASC002H5	Micro-placement	15	Option	3
Year 3					
5	SC10004H5	Database Management (Level 5)	15	Compulsory	1
5	BUCI066H5	Software Engineering	15	Compulsory	1
5	BUCI036H5	Computer Networking	15	Compulsory	2
5	SC10008H5	Information Security (Level 5)	15	Compulsory	3
6		Optional module (see below)	30	Optional	1, 2, 3
Year 4					
6	SC10013D6	BSc Artificial Intelligence Project	60	Compulsory	1, 2, 3
6		Optional Module (see below)	30	Optional	1-3
Options					
All students must select two of the following three options					
6	SC10011S6	Natural Language Processing Applications	30	Optional	2
6	SC10014S6	Engineering MLOps	30	Optional	2
6	SC10012S6	Deep learning and Generative AI	30	Optional	3

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

Foundation Year:

Instruction will be predominantly via lectures. Lectures will be augmented with group and individual tutorial work and practical lab work. Instructional material will also be made available online. Assessment will be through a mix of exam, coursework (test, essay, practical task, presentation) and project work.

BSc Degree Lecturing:

Lecturing is a major method for knowledge transfer. However, most modules mix other activities with lectures on any particular evening. Mature students can be highly interactive and staff are encouraged to obtain student feedback about areas that may need deeper attention.

Group Tutorials:

Several modules mix lectures with work in small groups, in which higher levels of student interaction are possible. This works particularly well with complicated topics.

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. We use a variety of assessment methods. For most of the

modules associated with this course, your assessment will be through the following types of assessment.

Written Exercises (Essays):

Feedback from written essays encourages students to develop appropriate formal and precise writing habits. It leads students to express themselves in a structured manner in writing.

Laboratory Based Exercises

Computing laboratory exercises are used to give the students hands-on experience in developing information systems artifacts such as systems analysis and design models and computer programs. Some of these exercises are assessed.

Group Exercises

Group exercises are used in certain modules to improve students' social interactions and their ability to work in teams.

Presentations

Presentations are a powerful learning experience. Students giving presentations develop their powers of information discovery, equip themselves with a deep understanding of the topics to be presented and transfer some of their knowledge to their peers who at the same time acquire skills in verbal academic discourse.

Final Year Project

Projects require the students to take an integrative approach to a major piece of work. They are required to set a boundary for the work, formulate their aims and objectives, gather information, analyse information, reflect on their work and produce a substantial 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. demonstrate subject specific skills and knowledge required to study computer science at undergraduate level.
2. develop academic and study skills and knowledge required to study computer science at undergraduate level.

BSc Programme as a whole:

Subject Specific:

1. demonstrate and utilise a range of computer science methods and techniques
2. analyse various forms and levels of information
3. analyse, criticise and utilise a range of AI systems and methods
4. propose structured techniques for information systems analysis and design
5. evaluate number systems, computer architectures, data structures, algorithms, and software engineering fundamentals
6. apply professional software development methodologies
7. appraise current social and organisational issues surrounding the deployment of information technology.
8. analyse database concepts and in particular relational database technologies

9. design complete systems in the context of information technology
10. use knowledge of computer networking
11. utilise knowledge of information security

Intellectual

1. critically evaluate arguments and evidence
2. contrast, create and present theoretical and empirical arguments
3. develop and present substantial reports arguing a case
4. formulate solutions employing AI as a key element of a computing system

Practical

1. formulate informed decisions
2. develop abstract models within which problems can be solved
3. plan, implement and test solutions incorporating AI
4. design and develop software implementing algorithms using a programming language
5. design, test and evaluate software
6. discuss and explain software options and present them in a substantial report.
7. identify and appraise documentary information relating to systems and algorithms
8. utilise coherent arguments in support of a specific software solution

Personal and Social

1. analyse, appraise and present work under pressure
2. communicate using appropriate interpersonal skills
3. collaborate with others as a member of a teams
4. plan and manage your personal time and learning development

Careers and further study

You will find computer science and AI graduates in the following types of professional roles: programmer, software engineer, database administrator, systems administrator, testing and software quality engineer.

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](#).

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