UNIVERSITY OF LIVERPOOL

BSc (Hons)

Computer Science with Software Development with a Year in Industry

UCAS code G611

Entry requirements	Study mode	Duration
A level: AAA	Full-time	4 years

Apply by: **29 January 2025**
Starts on: **22 September 2025**

About this course

From the underlying principles to the very edge of modern technology, this programme will cover all aspects of Computer Science and ensure that when you graduate you will know exactly what is and isn't possible with computers.

Introduction

Computer Science is a broad area which includes designing and building hardware and software systems for a wide range of purposes and processing, structuring and managing various kinds of information.

Covering all aspects of computer science, including the underlying principles and theory, this programme will ensure that when you graduate you will know what is and isn’t possible with computers and be able to find solutions to the problems you will encounter in your professional life. You will also spend a year on industrial placement acquiring experience and awareness of practical business and industrial environments.

You can choose to maintain a mixture of modules throughout your degree or follow a specialist’s pathway in artificial intelligence, algorithms and optimisation or

data science.

Computer Science with Software Development (G610) is a pathway for those wanting to specialise in development, updating and widespread application of complex software.

What you'll learn

- Programming in Java
- Understanding different computer systems
- Building and structuring databases
- Fundamentals of software engineering
- Algorithmic foundations
- Complexity of algorithms and decision
- Computation and language
- Uses and possibilities of biocomputation
- Introduction of Computation Game Theory
- Complex social networks

Accreditation

Accredited by BCS, so opens up a wide variety of career opportunities with excellent employment prospects.

Accreditation in detail

BCS

The Chartered Institute for IT for the purposes of fully meeting the academic requirement for registration as a Chartered IT Professional.

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Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

Year one

In year one you will learn the fundamentals of Computer Science. Starting with an introduction to procedural programming using commonly found language platforms, you'll move on to learn about the importance of hardware and software components within the operation of computer systems, formal analytic techniques and the development of artificial intelligence.

In year one students will typically undertake either COMP101 (Introduction to Programming) or COMP105 (Programming Language Paradigms) based on prior exposure to programming (eg Computer Science A level). Students without a computer science background will normally study COMP101, however in some instances may be permitted to enrol on COMP105 instead.

All other year one modules are required.

Modules

Compulsory modules	Credits
ANALYTIC TECHNIQUES FOR COMPUTER SCIENCE (COMP116)	15
COMPUTER SYSTEMS (COMP124)	15
DATA STRUCTURES AND ALGORITHMS (COMP108)	15
DESIGNING SYSTEMS FOR THE DIGITAL SOCIETY (COMP107)	15
FOUNDATIONS OF COMPUTER SCIENCE (COMP109)	15
INTRODUCTION TO ARTIFICIAL INTELLIGENCE (COMP111)	15

Compulsory modules	Credits
OBJECT-ORIENTED PROGRAMMING (COMP122)	15

Optional modules	Credits
INTRODUCTION TO PROGRAMMING (COMP101)	15
PROGRAMMING LANGUAGE PARADIGMS (COMP105)	15

Programme details and modules listed are illustrative only and subject to change.

Year two

In year two you continue to expand your knowledge of concepts and skills related to the core areas of software development and database development.

You will take all the compulsory modules listed below, as well as selected optional modules.

Modules

Compulsory modules	Credits
DATABASE DEVELOPMENT (COMP207)	15
GROUP SOFTWARE PROJECT (COMP208)	15
SOFTWARE ENGINEERING I (COMP201)	15
SOFTWARE DEVELOPMENT TOOLS (COMP220)	15
PLANNING YOUR CAREER (COMP221)	7.5

Optional modules	Credits
THE C++ PROGRAMMING LANGUAGE (COMP282)	7.5
ADVANCED ARTIFICIAL INTELLIGENCE (COMP219)	15
COMPUTER-BASED TRADING IN FINANCIAL MARKETS (COMP226)	15
COMPUTER NETWORKS (COMP211)	15
INTRODUCTION TO THEORY OF COMPUTATION (COMP218)	15
DISTRIBUTED SYSTEMS (COMP212)	15
PRINCIPLES OF C AND MEMORY MANAGEMENT (COMP281)	7.5
PRINCIPLES OF COMPUTER GAMES DESIGN AND IMPLEMENTATION (COMP222)	15
SCRIPTING LANGUAGES (COMP284)	7.5
APP DEVELOPMENT (COMP228)	15
INTRODUCTION TO DATA SCIENCE (COMP229)	15
COMPLEXITY OF ALGORITHMS (COMP202)	15
CYBER SECURITY (COMP232)	15
PROGRAMMING LANGUAGE PARADIGMS (COMP105)	15

Programme details and modules listed are illustrative only and subject to change.

Year in Industry (Year three)

Year three of the programme is taken up with a placement in a professional software industry environment.

Modules

Compulsory modules	Credits
INDUSTRIAL PLACEMENT Y3 (COMP299)	120

Programme details and modules listed are illustrative only and subject to change.

Year four

A major part of your studies in year four will be an individual project in software development. The project will provide you with an opportunity to work in a guided but independent fashion to explore a substantial Software Development problem in depth, making practical use of principles, techniques and methodologies acquired elsewhere in the programme.

In addition you will take selected modules from the optional modules list.

Modules

Compulsory modules	Credits
HONOURS YEAR COMPUTER SCIENCE PROJECT (COMP390)	30

Optional modules	Credits
BIOCOMPUTATION (COMP305)	15
COMMUNICATING COMPUTER SCIENCE (COMP335)	15
COMPLEX INFORMATION NETWORKS (COMP324)	15

Optional modules	Credits
COMPUTATIONAL GAME THEORY AND MECHANISM DESIGN (COMP326)	15
EFFICIENT SEQUENTIAL ALGORITHMS (COMP309)	15
FORMAL METHODS (COMP313)	15
IMAGE PROCESSING (ELEC319)	7.5
INTRODUCTION TO COMPUTATIONAL GAME THEORY (COMP323)	15
KNOWLEDGE REPRESENTATION AND REASONING (COMP304)	15
MULTI-AGENT SYSTEMS (COMP310)	15
NEURAL NETWORKS (ELEC320)	7.5
ONTOLOGIES AND SEMANTIC WEB (COMP318)	15
OPTIMISATION (COMP331)	15
AUTONOMOUS MOBILE ROBOTICS (COMP329)	15
SOFTWARE ENGINEERING II (COMP319)	15
BIG DATA ANALYTICS (COMP336)	15
COMPUTER VISION (COMP338)	15
DATA MINING AND VISUALISATION (COMP337)	15
HIGH PERFORMANCE COMPUTING (COMP328)	15
COMPUTER FORENSICS (COMP343)	15

Optional modules	Credits
ADVANCED TOPICS IN COMPUTER GAME DEVELOPMENT (COMP342)	15
ROBOT PERCEPTION AND MANIPULATION (COMP341)	15

Programme details and modules listed are illustrative only and subject to change.

Teaching and assessment

How you'll learn

Teaching is a mix of formal lectures, small group tutorials and supervised laboratory-based practical sessions. Students also undertake individual and group projects. Key problem solving skills and employability skills, like presentation and teamwork skills, are developed throughout the programme.

How you're assessed

The main modes of assessment are through a combination of coursework and examination, but depending on the modules taken you may encounter project work, presentations (individual or group), and specific tests/tasks focused on solidifying learning outcomes.

Liverpool Hallmarks

We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.

The Liverpool Curriculum framework sets out our distinctive approach to education. Our teaching staff support our students to develop academic knowledge, skills, and understanding alongside our **graduate attributes**:

- Digital fluency
- Confidence
- Global citizenship

Our curriculum is characterised by the three **Liverpool Hallmarks**:

- Research-connected teaching

- Active learning
- Authentic assessment

All this is underpinned by our core value of **inclusivity** and commitment to providing a curriculum that is accessible to all students.

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Careers and employability

Liverpool's computer science graduates go onto well-paid graduate jobs and careers such as: computer programmer; software developer; systems analyst; software engineer; technical consultant; web designer.

Computer science graduates will enter a high-in-demand pool in the field with possible roles in:

- computer programmers, web developers, or software engineers
- data scientists
- artificial intelligence researchers
- systems analysts
- technical consultants.

Recent employers include:

- BAE Systems
- BT
- Guardian Media Group
- Royal Bank of Scotland
- Siemens
- Unilever

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Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

Tuition fees

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)

Full-time place, per year - £9,535
Year in industry fee - £1,905

International fees

Full-time place, per year - £29,900
Year in industry fee - £1,905

The tuition fees shown are correct for 2025/26 entry. Please note that the year abroad fee also applies to the year in China.

Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support. Learn more about paying for your studies.

Additional costs

We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This could include buying a laptop, books, or stationery.

Find out more about the additional study costs that may apply to this course.

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Entry requirements

The qualifications and exam results you'll need to apply for this course.

A levels

AAA Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is AAB with A in the EPQ including A level Maths or Computer Science.

Narrowly missed the entry requirements on results day? If you've studied these subjects, we may take them into account:

A level Mathematics or Computer Science required. If A level Maths is not taken, GCSE Maths Grade B (6) or above is required AND the Applicant will be required to take the Indicative Maths test and pass, before receiving an offer.

Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is **AAB** with **A** in the EPQ including EPQ level is AAB with an A in the EPQ.

You may automatically qualify for reduced entry requirements through our contextual offers scheme. Based on your personal circumstances, you may automatically qualify for up to a two-grade reduction in the entry requirements needed for this course. When you apply, we consider a range of factors – such as where you live – to assess if you're eligible for a grade reduction. You don't have to make an application for a grade reduction – we'll do all the work.

Find out more about how we make reduced grade offers.

If you don't meet the entry requirements, you may be able to complete a foundation year which would allow you to progress to this course.

Available foundation years:

- Computer Science (Foundation) (4 year route with Carmel College) BSc (Hons)

T levels

T levels are not currently accepted.

GCSE

GCSE: 4/C in English and 4/C in Mathematics

Subject requirements

For applicants from England: For science A levels that include the separately graded practical endorsement, a "Pass" is required.

BTEC Level 3 National Extended Certificate

Acceptable at grade Distinction* (any subject) alongside AA at A level. A Levels must include Mathematics or Computer Science.

BTEC Level 3 Diploma

Distinction* Distinction in BTEC considered alongside A Level grade B in either Mathematics or Computer Science.

BTEC Level 3 National Extended Diploma

D*D*D*. If no mathematical subject is taken at A level, require GCSE Maths Grade B (6) or above, AND the Applicant will be required to take the Indicative Maths test and pass, before receiving an offer.

International Baccalaureate

36 overall including 5 in Higher Level Mathematics or Computer Science. Alternatively, 36 overall including 5 in Standard Level Mathematics if not taken at a Higher Level plus Pass in Mathematics test.

Irish Leaving Certificate

H1,H1,H2,H2,H2, H2 including H2 in Higher Maths or Computer Science. We also require a minimum of H6 in Higher English, or O3 in Ordinary English and Ordinary Maths (plus indicative Maths test).

Scottish Higher/Advanced Higher

AAA including Maths or Computer Science

Welsh Baccalaureate Advanced

Acceptable at grade A alongside AA at A level including Maths or Computer Science.

Cambridge Pre-U Diploma

Principal subjects acceptable in lieu of A levels. D3 in Cambridge Pre U Principal Subject is accepted as equivalent to A-Level grade A M2 in Cambridge Pre U Principal Subject is accepted as equivalent to A-Level grade B Global Perspectives and Short Courses are not accepted.

Access

Pass Access with 45 Level 3 credits at Distinction, including 15 Level 3 credits in Mathematical or Computer Science subjects.

International qualifications

Select your country or region to view specific entry requirements.

If you hold a bachelor's degree or equivalent, but don't meet our entry requirements, you could be eligible for a Pre-Master's course. This is offered on campus at the University of Liverpool International College, in partnership with Kaplan International Pathways. It's a specialist preparation course for postgraduate study, and when you pass the Pre-Master's at the required level with good attendance, you're guaranteed entry to a University of Liverpool master's degree.

English language requirements

You'll need to demonstrate competence in the use of English language, unless you're from a majority English speaking country.

We accept a variety of international language tests and country-specific qualifications.

International applicants who do not meet the minimum required standard of English language can complete one of our Pre-Sessional English courses to achieve the required level.

IELTS

6.0 overall, with no component below 5.5

TOEFL iBT

78 overall, with minimum scores of listening 17, writing 17, reading 17 and speaking 19. TOEFL Home Edition not accepted.

TOEFL Paper

Grade 6 at Standard Level or grade 5 at Higher Level

Duolingo English Test

115 overall, with speaking, reading and writing not less than 105, and listening not below 100

Pearson PTE Academic

59 overall, with no component below 59

LanguageCert Academic

65 overall, with no skill below 60

Cambridge IGCSE First Language English 0500

Grade C overall, with a minimum of grade 2 in speaking and listening. Speaking and listening must be separately endorsed on the certificate.

Cambridge IGCSE First Language English 0990

Grade 4 overall, with Merit in speaking and listening

Cambridge IGCSE Second Language English 0510/0511

0510: Grade C overall, with a minimum of grade 2 in speaking. Speaking must be separately endorsed on the certificate. 0511: Grade C overall.

Cambridge IGCSE Second Language English 0993/0991

0993: Grade 5 overall, with a minimum of grade 2 in speaking. Speaking must be separately endorsed on the certificate. 0991: Grade 5 overall.

Cambridge ESOL Level 2/3 Advanced

169 overall, with no paper below 162

LanguageCert

Grade 4 at Standard Level or grade 4 at Higher Level

Pre-sessional English

Do you need to complete a Pre-sessional English course to meet the English language requirements for this course?

The length of Pre-sessional English course you'll need to take depends on your current level of English language ability.

Pre-sessional English in detail

If you don't meet our English language requirements, we can use your most recent IELTS score, or the equivalent score in selected other English language tests, to determine the length of Pre-sessional English course you require.

Use the table below to check the course length you're likely to require for your current English language ability and see whether the course is available on campus or online.

Your most recent IELTS score	Pre-sessional English course length	On campus or online
5.5 overall, with no component below 5.5	6 weeks	On campus
5.5 overall, with no component below 5.0	10 weeks	On campus and online options available

Your most recent IELTS score	Pre-sessional English course length	On campus or online
5.0 overall, with no component below 5.0	12 weeks	On campus and online options available
5.0 overall, with no component below 4.5	20 weeks	On campus
4.5 overall, with no component below 4.5	30 weeks	On campus
4.0 overall, with no component below 4.0	40 weeks	On campus

If you've completed an alternative English language test to IELTS, we may be able to use this to assess your English language ability and determine the Pre-sessional English course length you require.

Please see our guide to Pre-sessional English entry requirements for IELTS 6.0 overall, with no component below 5.5, for further details.

Alternative entry requirements

- If your qualification isn't listed here, or you're taking a combination of qualifications, contact us for advice
- Applications from mature students are welcome.

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