UNIVERSITY OF LIVERPOOL

MSc

Advanced Computer Science with a Year in Industry

Study mode	Duration
Full-time	24 months
Part-time	36 months

Apply by: **11 September 2026**
Starts on: **28 September 2026**

About this course

Extend your knowledge of computer science on an MSc that will place you at the cutting edge of the discipline. The wide range of options on the programme will enable you to develop expertise in computer science research while tailoring your studies to your own interests, prior to an extended industrial placement in a real-world environment.

Introduction

Underpinning and enhancing your existing knowledge and understanding of computer science, this MSc will equip you with new skills and provide a strong basis for your future career in the IT industry.

Year one is highly flexible, with one compulsory module that will develop the skills needed to conduct computer science research.

You'll choose remaining topics from a variety of optional modules. You could opt to focus on practical algorithms and data mining techniques, discover biologically inspired optimisation, hone your expertise in advanced web technologies, or be introduced to neural networks for artificial intelligence.

Whether you're interested in technical and organisational discussions about cryptography and security or want to enhance your understanding of how maps can be visualised online, the number of options ensures you can tailor the programme to your individual needs.

You'll also have the chance to participate in a group project where you can work with your peers as part of a programming team to find a solution to a practical problem. In year two, you'll undertake an industrial project, that's research or application oriented, in a real-world environment as part of an extended placement opportunity.

Who is this course for?

The programme is suitable for graduates whose first degree is in computer science or a closely related subject.

What you'll learn

- Research skills in computer science
- Issues at the forefront of current computer science research
- How geographic information science and data science intersect
- Data mining techniques and challenges using real-world datasets
- How to design and analyse algorithms
- How images are generated, represented, compressed and processed
- Parallel programming for multi-core architectures
- Bio-inspired algorithms for optimisation and machine learning
- Neural networks for artificial intelligence
- Algorithmic aspects of game theory
- How to utilise advanced web technologies
- Key issues in privacy, security and cryptography

Accreditation

The programme is accredited by BCS, The Chartered Institute for IT, the leading professional body for those working in IT. It is continually updated to reflect new technologies and trends.

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

You'll study one compulsory module and choose 105 credits of optional modules. You'll normally study 60 credits in each semester, although this will vary slightly if you opt to select the two 7.5 credit modules which must be chosen in combination.

Modules

Compulsory modules	Credits
RESEARCH METHODS IN COMPUTER SCIENCE (COMP516)	15

Optional modules	Credits
KNOWLEDGE REPRESENTATION (COMP521)	15
PRIVACY AND SECURITY (COMP522)	15
EFFICIENT ALGORITHMS (COMP526)	15
MULTI-CORE AND MULTI-PROCESSOR PROGRAMMING (COMP528)	15
GEOGRAPHIC DATA SCIENCE (ENVS563)	15
ADVANCED ALGORITHMIC TECHNIQUES (COMP523)	15
IMAGE PROCESSING (ELEC319)	7.5

Optional modules	Credits
OPTIMISATION (COMP557)	15
ONTOLOGIES AND SEMANTIC WEB (COMP318)	15
ALGORITHMIC GAME THEORY (COMP559)	15
DATA MINING AND VISUALISATION (COMP527)	15
INFORMATION THEORY AND CODING (ELEC415)	7.5
MACHINE LEARNING AND BIOINSPIRED OPTIMISATION (COMP532)	15
MULTI-AGENT SYSTEMS (COMP310)	15
REASONING ABOUT ACTION AND CHANGE (COMP525)	15
SAFETY AND DEPENDABILITY (COMP524)	15
CLOUD COMPUTING FOR E-COMMERCE (COMP315)	15
ADVANCED GEOVISUALISATION (ENVS456)	15
COMPUTATIONAL INTELLIGENCE (COMP575)	15
MSC GROUP PROJECT (COMP530)	15

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

Year two

COMP599 MSc Industrial Project and COMP598 MSc Placement Experience are completed across the duration of year two.

Modules

Compulsory modules	Credits
MSC PLACEMENT EXPERIENCE (COMP598)	60
MSC INDUSTRIAL PROJECT (COMP599)	60

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

Teaching and assessment

How you'll learn

Teaching on the first year of this programme comprises formal lectures, small group tutorials and practical sessions in computer laboratories. You will also take part in one or more group projects. In your second year, you'll undertake an industrial project in a real-world environment.

How you're assessed

Modules in the first year of the course are assessed through a combination of examinations and coursework. The examinations take place at the end of each semester and typically take the form of an in-person written assignment, usually to be completed in a couple of hours. You'll be assigned coursework across the length of each semester. This typically takes the form of class tests, programming assignments or small projects.

The second year of the course is assessed through a portfolio of evidence from your industrial placement and a major project undertaken in your placement setting.

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

The programme is accredited by BCS, The Chartered Institute for IT, for the purposes of partially meeting the academic requirement for registration as a Chartered IT Professional.

Graduating in Advanced Computer Science will provide you with a basis for further career development towards senior technical and managerial positions in the IT industry, and towards specialisation in the field of Computer Science-related research and development. It also provides a strong foundation for potential PhD research.

Previous graduates are working network systems and data communications analysis, computer software engineering, network and computer systems administration, and database administration.

Potential roles you would be well placed to secure on completion of this MSc include:

- Database administrator
- Information systems manager
- Applications developer
- IT consultant
- Network engineer
- Systems designer.

Many of our graduates also choose to continue their studies and embark on PhD research.

Career support from day one to graduation and beyond

Career planning

From education to employment

Networking events

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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 - £14,000
Year in industry fee - £2,800
Part-time place, per year - £7,000

International fees

Full-time place, per year - £34,000
Year in industry fee - £6,800
Part-time place, per year - £17,000

Tuition fees are for the academic year 2026/27.

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

- You can pay your tuition fees in instalments.
- All or part of your tuition fees can be funded by external sponsorship.
- International applicants who accept an offer of a place will need to pay a tuition fee deposit.

If you're a UK national, or have settled status in the UK, you may be eligible to apply for a Postgraduate Loan worth up to £12,167 to help with course fees and living costs. **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.

Postgraduate entry requirements

We accept a 2:2 honours degree from a UK university, or an equivalent academic qualification from a similar non-UK institution. This degree should be in computer science or a closely related subject.

International qualifications

Select your country or region to view specific entry requirements.

Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.

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

6.5 overall, with no component below 5.5

TOEFL iBT

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

Duolingo English Test

125 overall, with speaking, reading and writing not less than 105, and listening not below 100. For academic year 2025/26 only, we will also accept the production, literacy, comprehension and conversation score set: 120 overall, with no component below 95.

Pearson PTE Academic

61 overall, with no component below 59

LanguageCert Academic

70 overall, with no skill below 60

PSI Skills for English

B2 Pass with Merit overall and no band below B2 Pass

INDIA Standard XII

National Curriculum (CBSE/ISC) - 75% and above in English. Accepted State Boards - 80% and above in English.

WAEC

C6 or above

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
6.0 overall, with no component below 5.5	6 weeks	On campus
5.5 overall, with no component below 5.5	10 weeks	On campus and online options available
5.5 overall, with no more than one component below 5.5, and no component below 5.0	12 weeks	On campus and online options available
5.5 overall, with no component below 4.5	20 weeks	On campus
5.0 overall, with no component below 4.5	30 weeks	On campus
4.5 overall, with no more than one component below 4.5, and 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 6.5 overall, with no component below 5.5, for further details.

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