UNIVERSITY OF LIVERPOOL

MSc

Data Science and Artificial Intelligence

Study mode	Duration	
Full-time	12 months	Apply by: **15 January 2027** Starts on: **25 January 2027**

About this course

This conversion MSc introduces graduates without a computer science related degree to Data Science and AI principles, with a thorough grounding in mathematics and statistics, data mining, artificial intelligence and the fundamentals of programming, to enable you to develop a toolkit of skills in data science and emerging technologies.

Introduction

Please note, if you're applying for January 2027 entry, your course welcome starts on 25 January 2027. Teaching starts on the 1 February 2027.

With organisations increasingly reliant on data science and artificial intelligence (AI), understanding how to analyse, validate and interpret data can significantly enhance your employability.

If you're a graduate in a subject that's not related to computer science, this conversion MSc will complement your first degree and prepare you to meet the high demand for professionals in data science and AI technologies.

With the roots of data science embedded in mathematics, we'll start by introducing you to linear algebra, differential calculus, probability theory and statistics. This will prepare you for working with data mining algorithms and experimenting using real-world data.

You'll receive an overview of how to design and create software, including an intensive introduction to programming, and explore key topics in AI. We'll also provide a thorough grounding in how to plan and conduct research in preparation for your dissertation.

Further opportunities to specialise and enhance your knowledge of big data, web programming, bio-inspired algorithms and modern information systems are available through a range of optional modules.

Who is this course for?

This is a conversion MSc, designed for those without a computer science related degree, who are seeking to develop their maths skills and their knowledge and technical expertise in the areas of Data Science and AI. If you do have a Computer Science related degree, you may want to consider applying for the Advanced Data Science and Artificial Intelligence MSc.

Which postgraduate degree is right for you?

The Department of Computer Science offers master's programmes for students with undergraduate degrees in Computer Science and other disciplines.

If you have a Computer Science related degree, you could be eligible for the following master's courses:

- Advanced Computer Science MSc
- Advanced Computer Science with a Year in Industry MSc
- Advanced Data Science and Artificial Intelligence MSc
- Advanced Data Science and Artificial Intelligence with a Year in Industry MSc
- Theoretical Computer Science MSc
- Theoretical Computer Science with a Year in Industry MSc
- Cyber Security MSc.

Computer Science related degrees may include degree titles such as: Computer Applications, Computer Science, Computer Engineering, Computer Applications and Engineering, and Software Engineering. Please note that this list is not exhaustive.
Any Computer Science related degree should contain a significant amount of computer science related modules to be relevant (as assessed by the Department of Computer Science).

If you don’t have a Computer Science related degree and you are interested in learning more about the field, you may be eligible to study:

- Data Science and Artificial Intelligence MSc
- Data Science and Artificial Intelligence with a Year in Industry MSc
- Computer Science MSc
- Computer Science with a Year in Industry MSc
- Cyber Security MSc.

Please check individual course pages for detailed entry requirements.

What you'll learn

- How to design and create software using a modern programming language
- Essential mathematical concepts and techniques in linear algebra, differential calculus, probability theory and statistics
- Key topics in artificial intelligence, including machine learning, deep learning, natural language processing (NLP) and computer vision
- How to develop web applications
- The role of artificial intelligence in communication
- Data mining techniques and challenges using real-world datasets
- Application of visualisation methods to data mining
- Research skills in computer science
- Bio-inspired algorithms for optimisation and machine learning
- How big data is collected and used in modern society
- The role of structured query language, SQL, in information systems.

Accreditation

This course is pending accreditation by BCS, The Chartered Institute for IT.

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Course content

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

September start

The course is available to start in September or January. If you choose to start in September, you'll undertake taught modules from September to May. This will be followed by your MSc project over the summer.

You study four compulsory taught modules and four optional taught modules.

Modules

Compulsory modules	Credits
PROGRAMMING FUNDAMENTALS (COMP517)	15
RESEARCH METHODS IN COMPUTER SCIENCE (COMP516)	15
MATHS AND STATISTICS FOR AI AND DATA SCIENCE (COMP533)	15
APPLIED ARTIFICIAL INTELLIGENCE (COMP534)	15

Optional modules	Credits
DATABASE AND INFORMATION SYSTEMS (COMP518)	15
BIG DATA AND SOCIETY: FOUNDATIONS, POLITICS, AND POLICY B (COMM752)	15
DATA MINING AND VISUALISATION (COMP527)	15
WEB PROGRAMMING (COMP519)	15

Optional modules	Credits
MSC GROUP PROJECT (COMP530)	15
MACHINE LEARNING AND BIOINSPIRED OPTIMISATION (COMP532)	15
COMPUTATIONAL INTELLIGENCE (COMP575)	15
ARTIFICIAL INTELLIGENCE AND COMMUNICATION B (COMM718)	15
BIG DATA AND SOCIETY: ALGORITHMS AND PLATFORMS B (COMM754)	15

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

January start

The course is available to start in September or January. If you choose to start in January, you'll undertake taught modules from January to May. This will be followed by your MSc project over the summer and then your final set of modules from September to January. On successful completion of the course, following a January start, you can expect to graduate at our summer graduation ceremonies.

You study four compulsory taught modules and four optional taught modules.

Modules

Compulsory modules	Credits
PROGRAMMING FUNDAMENTALS (COMP617)	15
RESEARCH METHODS IN COMPUTER SCIENCE (COMP616)	15
MATHS AND STATISTICS FOR AI AND DATA SCIENCE (COMP633)	15

Compulsory modules	Credits
APPLIED ARTIFICIAL INTELLIGENCE (COMP634)	15

Optional modules	Credits
DATABASE AND INFORMATION SYSTEMS (COMP518)	15
BIG DATA AND SOCIETY: FOUNDATIONS, POLITICS, AND POLICY B (COMM752)	15
BIOCOMPUTATION (COMP305)	15
GEOGRAPHIC DATA SCIENCE (ENVS563)	15
MSC GROUP PROJECT (COMP530)	15
ARTIFICIAL INTELLIGENCE AND COMMUNICATION B (COMM718)	15
ADVANCED GEOVISUALISATION (ENVS456)	15

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

Final project

Your final project, undertaken over the summer, will give you the opportunity to work independently to explore a substantial problem in depth, making practical use of principles, techniques and methodologies you have acquired during the programme.

You'll create a proposal, deliver a presentation with a Q&A, and submit a final dissertation.

Modules

Compulsory modules	Credits
MSC PROJECT (COMP702)	60

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

Teaching and assessment

How you'll learn

Teaching comprises formal lectures, small group tutorials and practical sessions in computer laboratories. You may also take part in one or more group projects. In addition, you complete an individual project under academic supervision.

How you're assessed

Taught modules are assessed through a combination of examinations and coursework. You'll sit examinations at the end of each semester, which are typically in-person written assessments, usually completed over 2 or 2.5 hours. You will complete coursework throughout the semester, typically class tests, programming assignments or small projects.

For your final project, you will create a proposal, deliver a presentation with a Q&A, and submit a final dissertation, all of which will be assessed.

Liverpool Learning Framework

At Liverpool, we take a distinctive approach to education through the Liverpool Learning Framework. This means teaching that is engaging, inclusive and designed to help you succeed during your studies and beyond.

You'll develop specialist subject knowledge alongside the skills employers value most, including:

- Digital fluency
- Confidence
- Global citizenship

Our curriculum is characterised by the three Liverpool Hallmarks:

- Research-connected teaching - learning informed by the latest ideas and discoveries

- Active learning - taking part, applying knowledge and learning by doing
- Authentic assessment - assessments designed around real-world tasks and challenges

We also embed key priorities across our curriculum, including AI literacy, employability, and sustainability, helping you prepare for the future and make a positive impact in the world.

We're committed to creating a supportive and inclusive learning environment where every student can thrive.

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Careers and employability

Data science and artificial intelligence driven technologies are becoming integral parts of our lives and changing the ways people do business.

Nearly every organisation uses data science and artificial intelligence to refine and streamline their business practices. The significant opportunities afforded by the application of data science and artificial intelligence across so many different sectors, from IT and healthcare to government agencies, mean that professionals in this area are in high demand, with job opportunities far outstripping supply.

This MSc addresses this skills gap by preparing you for an exciting career in data science and artificial intelligence. This includes interdisciplinary opportunities tailored to your individual expertise, achieved by coupling knowledge of data science and artificial intelligence with the knowledge that you acquired from your first degree.

You'll be well placed on graduation to secure a variety of roles, including:

- Data analyst
- Data scientist
- Data engineer
- Database manager or administrator
- Machine learning practitioner
- Data architect
- Statistician
- Business analyst
- IT consultant.

Your expertise working with data will also provide ideal preparation for potential PhD study.

In the UK, graduate schemes in data analysis and business intelligence at larger companies tend to offer a starting salary of around £30,000.

Salaries for data analysts are typically between £30,000 and £40,000.

Experienced, high-level and consulting jobs can attract salaries of £60,000 or more.

source: Prospects, Sept 2024

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

International fees

Full-time place, per year - £34,000

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 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 £12,858 to help with course fees and living costs. **Learn more about paying for your studies**.

Additional costs

We don't anticipate additional compulsory costs to students outside of general study costs.

You can find information on the general and subject-specific costs you could expect to incur on our study costs webpage.

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Entry requirements

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

Postgraduate entry requirements

You will normally need a high 2:1 honours degree (65%), or above, or equivalent. This degree should be in a subject that's not related to computer science.

We are able to offer a level of flexibility for applicants. Those with a 2:2 honours degree will be considered on an individual basis.

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

If you took a TOEFL test on or before 20 January 2026, you'll need 88 overall, with minimum scores of listening 17, writing 17, reading 17 and speaking 19. If you took a TOEFL test from 21 January 2026 onwards, when a new scoring system was introduced, you'll need 4.5 overall, with 4 or above in all components. 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 or online
5.5 overall, with no more than one component at 5.0	10 weeks	On campus or online
5.5 overall, with no component below 5.0	12 weeks	Online
5.0 overall, with no component below 5.0	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 at 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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