UNIVERSITY OF LIVERPOOL

MSc

Data Science and Analytics for Health

Study mode	Duration	
Full-time	12 months	Apply by: **29 August 2025**
Part-time	24 months	Starts on: **22 September 2025**

About this course

Discover how to collect, analyse, interpret and present health data on this MSc. You'll combine this knowledge with the fundamentals of computer science. Using statistical analysis, data visualisation and digital technology, you'll learn how to identify data-driven enhancements to health care interventions and produce a significant piece of health data science research.

Introduction

Offering specialist training for current and aspiring health data scientists, this MSc combines research-focused teaching, training and development in an emerging discipline.

Whether you're an experienced professional, recent graduate or intercalating medical student, you'll benefit from our collaborative team-based approach. We'll tackle important health research questions and work with new forms of health data, you'll discover how health data science can enhance our understanding of disease and health care.

You'll receive a comprehensive overview of statistical concepts and explore the role of databases in modern information systems. A combination of theory and practice will prepare you for analysing, manipulating and interpreting the vast amounts of data generated in health care settings.

We'll also reveal the exciting potential of digital technology for enhancing health care interventions. This includes focusing on actionable analytics, thinking about how to transform data from information into actions that drive real-world improvements in health care settings. Further specialisation in advanced biostatistics, artificial intelligence and data mining is possible.

The culmination of the MSc is a significant research project that enables you to make an original contribution to knowledge in health data science.

This programme is supported by Health Data Research UK – the national institute for health data science.

This MSc has strong links to Civic Health Innovation Labs (CHIL), which has built an internationally recognised, multi and trans-disciplinary research centre tackling global health challenges with civic data and technology. CHIL provides dissertation research projects for students, focusing on areas such as healthcare data analytics, digital health solutions, public health informatics, and the application of technology in community health initiatives. These projects offer students the opportunity to work on cutting-edge research, contributing to meaningful advancements in global health.

The programme opens up a multitude of career opportunities globally, including in the health sector, industry, and academia. In the UK alone, demand for data scientists and data engineers has more than tripled over the past years, increasing by 231%, which translates to approximately 52,000 new jobs.

Who is this course for?

This master's is suitable for you if you have a quantitative background (for example, a background in mathematics, statistics, computer science, physical science, biomedical science including epidemiology, biological sciences, or medicine*) and want to analyse and address health care problems using data.

Plus, if it suits you better, you can study some of the course modules as standalone CPD (Continuing Professional Development) modules. For more information contact: hdsseo@liverpool.ac.uk

*Please note these are examples only and are not the exhaustive list of backgrounds we accept. Please see our entry requirements for full details.

What you'll learn

- How to use health data to better understand disease and improve care.
- The benefits and challenges of applying data science to real-world health problems.
- Key statistical concepts, including variability, sampling and statistical inference.
- How to collect, analyse, interpret and present data.
- How to manipulate and evaluate health data sources.
- The use of databases in modern information systems.
- Fundamental concepts of computer science.
- Effective communication and teamwork skills.
- The role of digital technology in improving health care interventions.
- How to produce a significant piece of health data science research.

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Course content

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

Semester one

Please note, work towards the Dissertation module runs across the length of the programme. The dissertation itself is completed in semester three.

Modules

Compulsory modules	Credits
INTRODUCTION TO HEALTH DATA SCIENCE (DASC501)	15
STATISTICS FOR HEALTH RESEARCH (DASC502)	15
USING ROUTINE DATA FOR PUBLIC HEALTH (DASC503)	15
DATA AND ENGINEERING FOR HEALTH RESEARCH (DASC509)	15
DISSERTATION (DASC500)	60

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

Semester two

Please note, work towards the Dissertation module runs across the length of the programme. The dissertation itself is completed in semester three.

Modules

Compulsory modules	Credits
ACTIONABLE HEALTHCARE DATA ANALYTICS (DASC505)	15
DISSERTATION (DASC500)	60

Optional modules	Credits
PREDICTION MODELLING & JOINT LONGITUDINAL AND SURVIVAL DATA ANALYSIS (DASC506)	15
HIGH-DIMENSIONAL DATA STRUCTURES AND LEARNING ALGORITHMS (DASC507)	15
STATISTICAL GENETICS AND PHARMACOGENOMICS (DASC508)	15
COMPUTATIONAL INTELLIGENCE (COMP575)	15
DATA MINING AND VISUALISATION (COMP527)	15
MACHINE LEARNING AND BIOINSPIRED OPTIMISATION (COMP532)	15
EVALUATION OF HEALTHCARE INTERVENTIONS (DASC504)	15

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

Final project

Please note, work towards the Dissertation module runs across the length of the programme. The dissertation itself is completed in semester three.

Modules

Compulsory modules	Credits
DISSERTATION (DASC500)	60

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

Teaching and assessment

How you'll learn

Each 15-credit module involves around 150 hours of study.

You can expect to spend 2-3 hours a week per module in taught study and 3-5 hours a week per module in self-managed independent study. The programme has a blended format with a mix of face-to-face and online lectures, workshops and practical sessions.

Full-time students will complete the programme in three semesters and part-time students will complete the programme in six semesters.

How you're assessed

You'll be assessed through a variety of written critiques and reports, software practical exercises and written exams. You'll also be asked to present your work in a variety of formats, from oral presentations to a conference poster. All modules have active learning embedded within them.

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

Developing transferable skills to enhance your employability is a key theme of the programme.

Potential employers are involved in the delivery of the course and you will be able to attend careers events with representation from higher education institutions, the NHS, industry and government agencies. This will ensure you have a variety of opportunities to network and build useful contacts.

Whenever possible, your dissertation project will be linked with external partner organisations, connecting you to potential employment and career progression opportunities.

The health sector is a fast-growing employment sector around the world. There is an increasing need for professionals with strong quantitative skills to evaluate health care interventions and information systems.

The MSc Health Data Science is tailored to develop the statistical and computational skills needed to pursue a successful career as a data scientist working in academia, healthcare or biopharmaceutical sectors.

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 - £12,500
Part-time place, per year - £6,250

International fees

Full-time place, per year - £29,100
Part-time place, per year - £14,550

Fees stated are for the 2025-26 academic year.

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 include substantial quantitative methods content in statistics and/or computer science.

As part of your application, you will be required to provide a personal statement outlining your learning ambitions, past achievements in academic or professional activities relevant to the programme and data science experience to date.

Please note, some of the optional modules on the course require programming skills of a standard equivalent to a first degree in computer science.

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 6.0

TOEFL iBT

88 overall, with minimum scores of listening 19, writing 19, reading 19 and speaking 20. TOEFL Home Edition not accepted.

Duolingo English Test

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

Pearson PTE Academic

61 overall, with no component below 59

LanguageCert Academic

70 overall, with no skill below 65

PSI Skills for English

B2 Pass with Merit in all bands

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 6.0	6 weeks	On campus
6.0 overall, with no component below 5.5	10 weeks	On campus and online options available
6.0 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 more than one component below 5.5, and no component below 5.0	20 weeks	On campus
5.0 overall, with no more than one component below 5.0, and no component below 4.5	30 weeks	On campus
4.5 overall, with no more than one component below 4.5, and no	40 weeks	On campus

Your most recent IELTS score	Pre-sessional English course length	On campus or online
component below 4.0		

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 6.0, for further details.

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