

Mathematics MMath (Hons)

UCAS Code: G101 | Duration: 4 years | Full-time | Hope Park | 2024/2025

Placement year opportunities available



Course Overview

Mathematics is a fascinating and exciting subject. It is the language of modern business and commerce, engineering, science and technology and is as old as mankind. At Liverpool Hope, you will develop a passion and enthusiasm for mathematics and its applications. Mathematics encompasses many analytical and numerical methods that are used to solve scientific and industrial problems.

Mathematics at Liverpool Hope has been designed to help you develop strong analytical and numerical abilities and skills so that you learn how to look at problems, break them down into simpler questions and then solve them.

By the end of the degree, you will be confident in tackling real world problems mathematically. By studying with us, you can expect to be given not only first class tuition and teaching, but first class support. We pride ourselves on providing an excellent student experience, and the academics at Liverpool Hope work hard to ensure that you get the most from your degree. The degree will cover all areas of mathematics including pure mathematics, applied mathematics and statistics.

Entry Requirements

This course follows the standard University entry requirements. Please see the website for further information.

Fees and Additional Costs

The tuition fees for 2024/2025 are £9,250 for full-time undergraduate courses.

As well as your tuition fees, you need to consider the cost of books, software, and general computer consumables such as USB flash drives and printing. We estimate this to cost around £300.

You will also need to consider the cost of your accommodation each year whilst you study at university. Visit our accommodation webpages for further details about our Halls of Residence: www.hope.ac.uk/halls

Applicants will need access to a computer if course delivery is switched to online. The University has a laptop lending service if remote study is necessary.



LIVERPOOL
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Institute of
mathematics
& its applications

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Curriculum

Year One

Introduction to Mathematics (Core 1)

The purpose of this course is to cover the fundamentals of mathematics that a new undergraduate should know.

- Set theory, logic, numbers and proofs
- Calculus
- Complex numbers
- Linear algebra
- Statistics, probability and combinatorics
- MATLAB & programming

For those doing single honours, other mathematical topics are introduced:

- Mathematical modelling
- Application of mathematics
- Difference equations
- Ordinary differential equations
- Graph theory
- Financial Mathematics
- Mathematical communication

Year Two

Explorations in Mathematics (Core 1)

We introduce some new topics, and expand on topics that were covered at Year 1.

- Multivariable calculus
- Differential geometry
- Linear algebra
- Statistics & R programming
- Number theory & Abstract Algebra

For those doing single honours, other mathematical topics are introduced:

- Systems of ordinary differential equations
- Partial differential equations
- Laplace transformation
- Fourier analysis
- Numerical analysis
- Differential Equations

Year Three

Advanced Studies in Mathematics (Core 1)

In year 3, we study topics that are at the forefront of the research interests of the staff currently teaching on the programme:

- Statistics methods
- Mathematical Physics
- Group Theory
- Complex analysis

For those doing single honours, other mathematical topics are introduced:

- Symmetries of differential equations
- Hamiltonian systems
- Chaos theory
- Perturbation methods
- Research Projects and Dissertations

All students will undertake project work either as a research project (for combined students) or as a dissertation (for single honours students).

Year Four

The fourth year of MMath is split into four equal courses.

Integrable Systems

This course is an introduction to integrable systems and their applications.

- Fourier transformations and generalized functions
- Integrable systems and solitons
- Properties of integrable systems

Elements of Pure Mathematics

The overriding aim of this course is to expose students to areas of pure mathematics that students don't normally see at Undergraduate level.

- Riemann Surfaces
- Lie Groups
- Differential Geometry

Elements of Applied Mathematics

- Fractal Geometry
- Applied Dynamical Systems
- Bifurcation Theory and Finite Element Methods

Advanced Dissertation

The dissertation will enable students to commence work on a topic of interest to them but will be under the research topics of the school staff at the time.

COURSE STRUCTURE

Teaching on this degree is structured into lectures, seminars and tutorials.

In your first year of study there are approximately 12 teaching hours each week, which reduces to approximately 10 teaching hours in your second, third and fourth years.

On top of teaching hours, you are also expected to spend a number of hours studying independently each week, as well as studying in groups to prepare for any group assessments you may have.

ASSESSMENT AND FEEDBACK

There are a number of assessments across your four years of study, including written exams, portfolios and coursework.

You will be given feedback on your assessments, and you will have the opportunity to discuss this with your tutor in more detail.



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