UNIVERSITY OF LIVERPOOL

MMath (Hons)

Mathematics with a Year Abroad MMath

UCAS code G002

Entry requirements	Study mode	Duration	Apply by: **14 January 2026** Starts on: **28 September 2026**
A level: ABB	Full-time	5 years	

About this course

This course is ideal for ambitious students who want to study mathematics in depth. Graduates gain a master's qualification, which provides a competitive edge in the employment market and opens the door to careers in research.

Introduction

Mathematics is a beautiful and diverse subject. It underpins a wide range of disciplines, from physical sciences to social science, from biology to business and finance. The further your study of mathematics progresses, the more fascinating it becomes.

The University of Liverpool has a large Mathematical Sciences department with highly qualified staff, a first class reputation in teaching and research, and a friendly, supportive environment. We use mixed approaches to teaching and assessment, taking the best from traditional lectures, tutorials and assignments, and modern methods such as interactive learning sessions, video content and online assessment. Our programmes are designed with the needs of employers in mind, to give you a solid foundation from which you may take your career in whatever direction you choose.

The first two years of the MMath programme are the same as the Mathematics BSc. You will have the opportunity to learn about a range of fundamental topics, building on the mathematics you already know and providing the background for the more advanced modules in years three and four. No assumptions are made about whether

you have previously studied mechanics, statistics or computer programming. In years three and four, we offer a wide range of advanced modules in pure mathematics, applied mathematics and statistics, enabling you to specialise in the areas of mathematics that interest you most. In the final year, students on this programme complete a substantial project on a mathematical topic of their own choice, supervised by an expert in the relevant field. Graduates completing the programme have experience of mathematics research and independent working skills that are highly valued by employers.

This programme also has a year abroad option, an incredible opportunity to spend an academic year at one of our partner universities. On the four-year integrated master's programme, you can go abroad either between years two and three (apply in year two), or between years three and four (apply in year three).

What you'll learn

- Fundamentals of pure and applied mathematics, probability and statistics
- Advanced material from the branches of mathematics that interest you most
- Teamwork
- Digital fluency
- Sophisticated problem solving skills
- How to communicate complex ideas

Accreditation

Liverpool's MMath degree is accredited by the Institute of Mathematics and its Applications (IMA) and the Royal Statistical Society (RSS).

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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 1 you will study eight compulsory modules, to learn the fundamentals of a range of mathematical topics.

Modules

Compulsory modules	Credits
CALCULUS I (MATH101)	15
CALCULUS II (MATH102)	15
INTRODUCTION TO LINEAR ALGEBRA (MATH103)	15
INTRODUCTION TO STATISTICS USING R (MATH163)	15
MATHEMATICAL IT SKILLS (MATH111)	15
INTRODUCTION TO STUDY AND RESEARCH IN MATHEMATICS (MATH107)	15
NEWTONIAN MECHANICS (MATH122)	15
NUMBERS, GROUPS AND CODES (MATH142)	15

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

Year two

In year 2, you'll continue to study a range of important mathematical topics in more depth. You'll study some compulsory modules and choose some optional modules from the list below. Please note that we regularly review our teaching so the choice of modules may change.

- For students who didn't study at XJTLU, modules MATH244 and MATH221 are compulsory, module MATH242 is optional, module MATH241 is not available.
- For students who did study at XJTLU, module MATH241 is compulsory, modules MATH244, MATH221 and MATH242 are not available.

During Year 2, you'll be asked to choose one of the following 4 pathways:

- Applied Mathematics (AM)
- Pure Mathematics (PM)
- Stochastics, Probability and Operational Research (SPOR)
- Theoretical Physics (TP).

Each pathway is a coherent collection of modules which cover a particular area of mathematics.

It'll be important to consider which pathways you might be interested in following in years 3 and 4, when making your year 2 module choices. In particular, you should ensure that you have the necessary prerequisites:

- Applied Mathematics Pathway: MATH226 is recommended, and further suitable modules include MATH228
- Pure Mathematics Pathway: MATH247 is strongly recommended, MATH242 is recommended
- Statistics, Probability and Operational Research Pathway: MATH254 is compulsory, MATH269 is recommended, further suitable modules include MATH226, MATH242 and MATH260
- Theoretical Physics Pathway: MATH228 is compulsory.

Modules

Compulsory modules	Credits
DIFFERENTIAL EQUATIONS (MATH221)	15
VECTOR CALCULUS WITH APPLICATIONS IN FLUID MECHANICS (MATH225)	15

Compulsory modules	Credits
LINEAR ALGEBRA AND GEOMETRY (MATH244)	15
COMPLEX FUNCTIONS (MATH243)	15
STATISTICS AND PROBABILITY I (MATH253)	15

Optional modules	Credits
CLASSICAL MECHANICS (MATH228)	15
METRIC SPACES AND CALCULUS (MATH242)	15
COMMUTATIVE ALGEBRA (MATH247)	15
STATISTICS AND PROBABILITY II (MATH254)	15
FINANCIAL MATHEMATICS (MATH260)	15
OPERATIONAL RESEARCH: LINEAR AND CONVEX METHODS (MATH269)	15
STEM EDUCATION AND COMMUNICATION (MATH291)	15
NUMERICAL METHODS (MATH226)	15

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

Year abroad

Please check back soon for more information.

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

Year three

Across years 3 and 4, you'll choose some compulsory and some optional modules from the list below. The options available to individual students will vary depending on choices made in year 2. Please note that we regularly review our teaching so the choice of modules may change.

Depending on the chosen pathway, the following modules are compulsory:

- Applied Mathematics: MATH323, MATH324, MATH335
- Pure Mathematics: MATH342, MATH343, MATH349
- Statistics, Probability and Operational Research: MATH360, MATH362, MATH363
- Theoretical Physics: MATH323, MATH325, MATH326.

Modules with codes beginning MATH3 are honours level modules, which contain the most advanced material that is usually taught on the Mathematics BSc. Modules with codes beginning MATH4 are master's level modules, taught by experts in the relevant fields, with the most sophisticated content to be found anywhere on our mathematics degrees. Our programme structure offers the flexibility to begin taking master's level modules in year 3, with the remaining honours level modules completed in year 4.

Modules

Optional modules	Credits
FURTHER METHODS OF APPLIED MATHEMATICS (MATH323)	15
CARTESIAN TENSORS AND MATHEMATICAL MODELS OF SOLIDS AND VISCOUS FLUIDS (MATH324)	15
QUANTUM MECHANICS (MATH325)	15
RELATIVITY (MATH326)	15
NUMBER THEORY (MATH342)	15

Optional modules	Credits
GROUP THEORY (MATH343)	15
DIFFERENTIAL GEOMETRY (MATH349)	15
APPLIED PROBABILITY (MATH362)	15
LINEAR STATISTICAL MODELS (MATH363)	15
GAME THEORY (MATH331)	15
NUMERICAL METHODS FOR ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS (MATH336)	15
COMBINATORICS (MATH344)	15
THE MAGIC OF COMPLEX NUMBERS: COMPLEX DYNAMICS, CHAOS AND THE MANDELBROT SET (MATH345)	15
TOPOLOGY (MATH346)	15
THEORY OF STATISTICAL INFERENCE (MATH361)	15
MEDICAL STATISTICS (MATH364)	15
MEASURE THEORY AND PROBABILITY (MATH365)	15
MATHEMATICAL RISK THEORY (MATH366)	15
NETWORKS IN THEORY AND PRACTICE (MATH367)	15
STOCHASTIC THEORY AND METHODS IN DATA SCIENCE (MATH368)	15
APPLIED STOCHASTIC MODELS (MATH360)	15

Optional modules	Credits
PROFESSIONAL PROJECTS AND EMPLOYABILITY IN MATHEMATICS (MATH390)	15
MORE IS DIFFERENT: STATISTICAL MECHANICS, THERMODYNAMICS, AND ALL THAT (MATH327)	15
LINEAR DIFFERENTIAL OPERATORS IN MATHEMATICAL PHYSICS (MATH421)	15
QUANTUM FIELD THEORY (MATH425)	15
ADVANCED TOPICS IN MATHEMATICAL BIOLOGY (MATH426)	15
MATH499 - PROJECT FOR M.MATH. (MATH499)	15
WAVES, MATHEMATICAL MODELLING (MATH427)	15
ASYMPTOTIC METHODS FOR DIFFERENTIAL EQUATIONS (MATH433)	15
MATHEMATICAL BIOLOGY (MATH335)	15
MATHEMATICS OF NETWORKS AND EPIDEMICS (MATH338)	15
MANIFOLDS, HOMOLOGY AND MORSE THEORY (MATH410)	15
REPRESENTATION THEORY OF FINITE GROUPS (MATH442)	15
RIEMANN SURFACES (MATH445)	15
SINGULARITY THEORY OF DIFFERENTIABLE MAPPINGS (MATH455)	15
INTRODUCTION TO STRING THEORY (MATH423)	15
INTRODUCTION TO MODERN PARTICLE THEORY (MATH431)	15

Optional modules	Credits
ELLIPTIC CURVES (MATH444)	15
GEOMETRY OF CONTINUED FRACTIONS (MATH447)	15
ALGEBRAIC GEOMETRY (MATH448)	15
GALOIS THEORY (MATH449)	15
MATHEMATICS INTERNSHIP (MATH309)	15

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

Year four

Students in year 4 complete a project in an area of mathematics of their choice, supervised by one of our expert staff. This allows you to experience research in mathematics, and to develop your skills in independent working, technical writing, communicating complex ideas and presenting your work. Additional credits are earned through choosing optional modules not taken in year 3. The options available to individual students will vary depending on choices made in years 2 and 3.

Modules

Optional modules	Credits
LINEAR DIFFERENTIAL OPERATORS IN MATHEMATICAL PHYSICS (MATH421)	15
QUANTUM FIELD THEORY (MATH425)	15
ADVANCED TOPICS IN MATHEMATICAL BIOLOGY (MATH426)	15

Optional modules	Credits
WAVES, MATHEMATICAL MODELLING (MATH427)	15
ASYMPTOTIC METHODS FOR DIFFERENTIAL EQUATIONS (MATH433)	15
FURTHER METHODS OF APPLIED MATHEMATICS (MATH323)	15
CARTESIAN TENSORS AND MATHEMATICAL MODELS OF SOLIDS AND VISCOUS FLUIDS (MATH324)	15
QUANTUM MECHANICS (MATH325)	15
RELATIVITY (MATH326)	15
NUMBER THEORY (MATH342)	15
GROUP THEORY (MATH343)	15
DIFFERENTIAL GEOMETRY (MATH349)	15
APPLIED STOCHASTIC MODELS (MATH360)	15
APPLIED PROBABILITY (MATH362)	15
LINEAR STATISTICAL MODELS (MATH363)	15
GAME THEORY (MATH331)	15
NUMERICAL METHODS FOR ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS (MATH336)	15
COMBINATORICS (MATH344)	15
THE MAGIC OF COMPLEX NUMBERS: COMPLEX DYNAMICS, CHAOS AND THE MANDELBROT SET (MATH345)	15

Optional modules	Credits
TOPOLOGY (MATH346)	15
THEORY OF STATISTICAL INFERENCE (MATH361)	15
MEDICAL STATISTICS (MATH364)	15
MEASURE THEORY AND PROBABILITY (MATH365)	15
MATHEMATICAL RISK THEORY (MATH366)	15
NETWORKS IN THEORY AND PRACTICE (MATH367)	15
STOCHASTIC THEORY AND METHODS IN DATA SCIENCE (MATH368)	15
MORE IS DIFFERENT: STATISTICAL MECHANICS, THERMODYNAMICS, AND ALL THAT (MATH327)	15
PROFESSIONAL PROJECTS AND EMPLOYABILITY IN MATHEMATICS (MATH390)	15
MATHS SUMMER INDUSTRIAL RESEARCH PROJECT (MATH391)	15
MATHEMATICAL BIOLOGY (MATH335)	15
MATHEMATICS OF NETWORKS AND EPIDEMICS (MATH338)	15
MANIFOLDS, HOMOLOGY AND MORSE THEORY (MATH410)	15
REPRESENTATION THEORY OF FINITE GROUPS (MATH442)	15
RIEMANN SURFACES (MATH445)	15
SINGULARITY THEORY OF DIFFERENTIABLE MAPPINGS (MATH455)	15

Optional modules	Credits
INTRODUCTION TO STRING THEORY (MATH423)	15
INTRODUCTION TO MODERN PARTICLE THEORY (MATH431)	15
HIGHER ARITHMETIC (MATH441)	15
ELLIPTIC CURVES (MATH444)	15
GEOMETRY OF CONTINUED FRACTIONS (MATH447)	15
ALGEBRAIC GEOMETRY (MATH448)	15
GALOIS THEORY (MATH449)	15
DISSERTATION FOR MMATH (MATH495)	45
MATHEMATICS INTERNSHIP (MATH309)	15

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

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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 - £9,790
Year in industry fee - £1,955
Year abroad fee - £1,465 (applies to year in China)

International fees

Full-time place, per year - £29,500
Year in industry fee - £1,955
Year abroad fee - £13,300 (applies to year in China)

The fees shown are for the academic year 2026/27. Please be advised that tuition fees may increase each year for both UK and international students. For UK students, this will be subject to the government's regulated fee limits.

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

ABB
including Mathematics A level grade A.

Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is **ABC** from A levels, with **A** in the EPQ.

T levels

T levels are not currently accepted.

GCSE

4/C in English and 4/C in Mathematics

Subject requirements

Applicants must have studied Mathematics at Level 3 within 2 years of the start date of their course.

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

BTEC Level 3 National Extended Diploma

D*DD in relevant diploma, when combined with A Level Mathematics grade A.

Irish Leaving Certificate

H1, H2, H2, H2, H3, H3 including Mathematics at H1.

Scottish Higher/Advanced Higher

Advanced Highers accepted at grades ABB, including A in Mathematics.

Welsh Baccalaureate Advanced

Acceptable at grade B or above alongside AB at A level including grade A in Mathematics.

Access

Access - 45 Level 3 credits in graded units in a relevant Diploma, including 39 at Distinction and a further 6 with at least Merit. 15 Distinctions are required in Mathematics.

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.

Alternative entry requirements

- If your qualification isn't listed here, or you're taking a combination of qualifications, contact us for advice
- If you are returning to learning, have had a disrupted education or are switching career pathways, the one-year Go Higher diploma qualifies you to apply for University of Liverpool arts, humanities and social sciences programmes
- Applications from mature students are welcome.

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.

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.

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