Course Summary: March 27, 2026

Mathematics MMath Honours

- UCAS code: **G103**
- Full time
- 4 years

Study pure mathematics, applied mathematics, and statistics with an extra year for an integrated Master's.

You are currently viewing course information for entry year: **2026**

Next start date:

- September 2026

Tuition fees (Year 1)

- Home: **£9,790**
- International: **£26,400**

Entry requirements and offers

- A-Level: **AAB**

- IB: **34 points**

UCAS Institution name and code:

- NEWC / N21

Undergraduate Open Day

Start your university journey. Find where you belong. Friday, June 26 (9:00-16:00) Saturday, June 27 (9:00-16:00)

Book your place now

Course overview

Mathematics is at the heart of many modern scientific advancements, from artificial intelligence to climate modelling. If you like solving problems, learning new things, and being creative, this could be the degree for you.

With our accredited degree, you'll develop a versatile skillset that employers value. Use your logical, strategic and analytical skills to solve complex problems.

Our accredited Mathematics MMath degree includes an extra year for your integrated Master's.

In Stage 4 you'll work on a research project in applied mathematics or pure mathematics. During this stage, you'll also study more advanced modules and draw on the research expertise of our staff.

All our mathematics and statistics degrees focus on three core areas:

- pure mathematics
- applied mathematics
- statistics

You'll have the flexibility to choose the area you'd like to focus on, or even transfer between our mathematics and statistics degrees.

BSc or MMath?

Our Mathematics degrees are offered at two levels:

- three-year Bachelor of Science (BSc)
- four-year Master of Mathematics (MMath)

This four-year MMath degree is more in-depth and includes:

- advanced topics and a wider choice of modules
- specialist study, tailored to your own interests, that develops your skills in research and communication
- more technical skills, for those who want to increase their employability or continue on to postgraduate study

Your course and study experience - disclaimers and terms and conditions
Please rest assured we make all reasonable efforts to provide you with the programmes, services and facilities described. However, it may be necessary to make changes due to significant disruption, for example in response to Covid-19.

View our Academic experience page, which gives information about your Newcastle University study experience for the academic year 2025-26.

See our terms and conditions and student complaints information, which gives details of circumstances that may lead to changes to programmes, modules or University services.

Additional information

Flexible degree structure

You'll study a common set of core modules for the first two years on these degrees:

- Mathematics BSc
- Mathematics MMath
- Mathematics and Statistics BSc

This means you'll have the flexibility to transfer between these degrees until the end of your second year. To qualify for Stages 3 and 4 of the MMath degree, you should have an upper-second-class average mark in Stages 2 and 3.

Quality and ranking

Professional accreditation and recognition

All professional accreditations are reviewed regularly by their professional body.

Modules and learning

Modules

The information below is intended to provide an example of what you will study.

Most degrees are divided into stages. Each stage lasts for one academic year, and you'll complete modules totalling 120 credits by the end of each stage.

Our teaching is informed by research. Course content may change periodically to reflect developments in the discipline, the requirements of external bodies and partners, and student feedback.

Optional module availability
Student demand for optional modules may affect availability.

Full details of the modules on offer will be published through the Programme Regulations and Specifications ahead of each academic year. This usually happens in May.

To find out more please see our terms and conditions

You'll take a set of core modules that are common across our mathematics and statistics degrees. Learn about the key skills and knowledge that all mathematicians and statisticians need. We'll also cover the main areas of pure mathematics, applied mathematics, algebra, probability and statistics.

Modules

Compulsory Modules	Credits
Introductory Algebra	20
Real Analysis	10
Introduction to Probability and Statistics	20
Logic, Sets and Counting	10
Number Systems	10
Problem Solving with Python	10
Introductory Calculus and Differential Equations	20
Multivariable Calculus	10
Dynamics	10

You'll study a core set of modules in pure mathematics, applied mathematics, and statistics. You'll have some flexibility in your module choices. You'll learn advanced techniques and build upon what you learned in Stage 1.

Modules

Compulsory Modules	Credits
Linear Algebra	10
Complex Analysis	10
Groups and Rings	10
Statistical Inference	10
Probability	10
Regression	10
Vector Calculus	10
Differential Equations, Transforms and Waves	10
Fluid Dynamics I	10
Optional Modules	**Credits**
Frontiers in Data Science A	10
Curves and Surfaces	10
Coding Theory	10
Numerical Methods with Python	10
Stochastic Processes	10
Data Visualisation	10
Principles of Quantum Mechanics	10
Mathematical Biology	10

In this year, you can choose from a wide range of optional modules. These are closely linked to the research expertise of our staff.

You'll also work on a group project in applied mathematics, pure mathematics, statistics or education.

Modules

Compulsory Modules	Credits
Mathematical & Skills Group Project	20

Optional Modules	Credits
Clinical Trials	10
Decision Modelling for Health Data Science	10
Topics in Medical Statistics and Health Data Science	10
Curves and Surfaces	10
Coding Theory	10
Global Education in Mathematics and Statistics	10
Group Theory	10
Linear Analysis	10
Matrix Analysis	10
Metric Spaces and Topology	10
Number Theory and Cryptography	20
Measure Theory	10
Stochastic Financial Modelling	10
Experimental Design	10
Foundations of Machine Learning	10
Extreme Value Theory	10
Time Series	10
Survival Analysis	10
Statistical Genetics	10
Mathematical Statistics	10
Statistical Modelling	10
Bayesian Statistics and Decision Theory	10
Principles of Quantum Mechanics	10
Mathematical Biology	10
Quantum Information	10

Methods for Differential Equations	10
Fluid Dynamics II	10
Relativity and Fundamental Particles	10
Hydrodynamic and Climate Instabilities	10
Variational Methods and Lagrangian Dynamics	10
Career Development for final year students	20
Classical Fields	10

This is your integrated Master's year.

During this year, your MMath project will take up a third of your time. This will be an in-depth study in an area of applied mathematics or pure mathematics.

Modules

Compulsory Modules	**Credits**
MMath Project	40
Optional Modules	**Credits**
Clinical Trials with Advanced Topics	10
Decision Modelling for Health Data Science with Advanced Topics	10
Advanced Topics in Medical Statistics and Health Data Science	10
Foundations of Machine Learning with Advanced Topics	10
Experimental Design with Advanced Topics	10
Extreme Value Theory with Advanced Topics	10

Survival Analysis with Advanced Topics	10
Time Series with Advanced Topics	10
Stochastic Financial Modelling with Advanced Topics	10
Statistical Genetics with Advanced Topics	10
Foundations of group theory	10
Linear analysis	10
Matrix analysis	10
Measure Theory	10
Lie Groups and Lie Algebras	20
Functional Analysis	10
Relativity and Fundamental Particles	10
Hydrodynamic and Climate Instabilities	10
Variational Methods and Lagrangian Dynamics	10
Geophysical & Astrophysical Fluids	20
General Relativity	20
Quantum Fluids	20

Teaching and assessment

Teaching methods

You'll be taught through:

- lectures
- problem classes
- tutorials and drop-in sessions
- practical computer classes and computer-based assessments
- data analysis

Assessment methods

You'll be assessed through a combination of:

- Assignments – written or fieldwork
- Dissertation or research project
- Examinations – practical or online
- Group work
- Presentations

Skills and experience

Practical skills

Gain hands-on experience in our computer teaching lab and develop essential computational skills. In Stage 1, you'll be introduced to Python and R, with further advancement in Stage 2.

Learn programming languages and tackle a wide range of mathematical and statistical problems.

Business skills

Throughout your degree, you'll develop a range of transferable skills, such as:

- analytical writing
- report writing
- presentation skills
- analysing data trends
- manipulating big data
- coding

You can also work on an optional industry project or take a work placement. These opportunities are very flexible. They're arranged throughout the academic year, during the summer period or with students taking a break from academic studies.

Join the Data Innovation Bootcamp, hosted by the National Innovation Centre for Data. Network with businesses and apply data science methodologies to solve a real business challenge.

Research skills

In Stage 4, you'll study advanced modules which will take you closer to the frontiers of research.

You'll also work on a substantial extended research project in a subject area of your choice. This will help you develop your skills of independent study and how to present a set of results orally and in writing.

Student stories

Newcastle University provided support and resources for refugees like myself and was committed to creating a safe and supportive environment for me.

Read more about Daryna's experience studying a Mathematics MMath

Opportunities

Study abroad year

Experience life in another country by choosing to study abroad as part of your degree. You'll be encouraged to embrace fun and challenging experiences, make connections with new communities and graduate as a globally aware professional, ready for your future.

You can choose to spend up to a year studying at a partner institution overseas. Our overseas partner institutions include:

- Universiteit Leiden, Leiden, Netherlands
- Technisches Universitat Munchen, Munich, Germany
- Institut National Des Sciences Appliques De Rennes, Rennes, France

- Lappeenranta University of Technology, Lappeenranta, Finland
- Humboldt-Universität zu Berlin, Berlin, Germany

There are also lots of options in North America, Australia and Asia, including:

- State University of New York (SUNY) Buffalo, Buffalo, USA
- University of New South Wales, Sydney, Australia
- Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong
- National University of Singapore, Singapore
- University of Florida, Florida, USA
- San Jose State University, California, USA
- Korea University, Seoul, South Korea
- National Taiwan Normal University, Taipei, Taiwan

During your time studying abroad, you will select from a range of modules offered by your host university. Alongside taking some subject-relevant modules, you will be given greater flexibility to choose modules from different disciplines (eg Languages, Business)

If you choose to study abroad, it will extend your degree by a year.

Find out more about study abroad

Short-term global opportunities

During your degree, you can take part in short-term global opportunities in locations such as:

- USA
- Cyprus
- Hong Kong
- Singapore
- Sri Lanka

The activities range from four days to eight+ weeks, and include:

- summer schools
- internships
- volunteering
- experiential learning

Funding is available to support students who want to participate.

Work placement

Get career-ready with a work placement and leave as a confident professional in your field. You can choose to spend 9 to 12 months working in any organisation in the world, and receive University support from our dedicated team to secure your dream placement. Work placements take place between stages 3 and 4.

You'll gain first-hand experience of working in the sector, putting your learning into practice and developing your professional expertise.

If you choose to take a work placement, it will extend your degree by a year. Work placement is not available if you're spending a year abroad. Placements are subject to availability.

Find out more about work placements

Facilities and environment

Facilities

You'll join the School of Mathematics, Statistics and Physics based in the Herschel Building.

A state-of-the-art learning environment will support your studies and you'll have access to extensive IT facilities for teaching and self-study, including:

- computer-based exercises with instant review of model solutions
- problem-solving video tutorials
- recording system for video capture of lectures, which you can download and watch again to help with your revision

The Herschel Building also has dedicated study and social spaces, and a computing area.

Support

We take your health and wellbeing seriously and are committed to supporting you throughout your studies so you can fulfil your potential at university. This support includes:

- a personal tutor who is an academic member of staff who can help you with academic and personal issues throughout your degree
- a peer mentor scheme which pairs you with a current student from your course to help you navigate your first year at university
- a student-staff committee, to give you an opportunity to have a say in how your degree works
- Student Wellbeing Advisors who can offer comprehensive listening and support and signpost you to other University support services or external support agencies

Transition Officer

A dedicated staff member is here to support you in transitioning from school to university study.

The Transition Officer works with Stage 1 undergraduates to provide:

- Stage 1 pastoral and academic support
- attendance and academic performance monitoring
- Stage 1 induction
- weekly drop-ins

You'll also benefit from our:

- induction programme, including social events, to help you settle in quickly
- activities and events run by our student-run society, MathSoc
- homework classes to help with assignments

Your future

Join a network of successful graduates

This Mathematics MMath can provide a route into various careers across a broad range of industries. Previous graduates have gone into roles within 15 months of

graduating:

- Associate Automated Software Tester at Sky
- Graduate Developer at Scott Logic
- CRM Data Analyst at Greggs PLC
- Data Analyst at AXA UK
- Graduate Data Engineering Consultant at Serios Group
- IT Engineer at DXC Technology
- App Developer at KPMG
- Maths Teacher at Sacred Heart Catholic High School
- Trainee Accountant at EY
- Data Engineer at Optimised

Further study

This degree provides a pathway to PhD-level study in a variety of fields. This depends on the optional modules you choose.

As a Mathematics graduate, you can pursue advanced research in:

- pure mathematics
- applied mathematics
- data science and machine learning
- mathematical finance and actuarial science
- cryptography and information security
- computational mathematics and algorithms
- statistics and probability theory
- mathematical biology and epidemiology
- operations research and systems engineering

Careers for mathematicians and statisticians

Mathematicians and statisticians have always been highly valued by employers for their analytical and problem-solving skills, and their ability to think logically and quantitatively.

These skills are in increasing demand beyond the traditional sectors of finance, with industries such as technology, healthcare, artificial intelligence, cybersecurity, data science, and engineering actively seeking mathematical expertise to drive innovation and decision-making.

Businesses have ever increasing volumes of data available and this data needs to be analysed and modelled. Our recent graduates are putting their mathematical skills into practice in sectors such as:

- utilities
- defence
- advanced manufacturing
- transportation
- energy
- sports analytics
- health economics

Maths graduates are also highly sought-after for roles in teaching.

You'll also develop key skills which are essential for the employment market such as communication, teamwork, planning, and organisation.

Benefit from strong industry links

You'll also benefit from our well-established links. Our industrial advisory board members and research colleagues influence and inform our curriculum and include representatives from businesses such as:

- Advanced Engineering Solutions
- Atkins Realis
- Azets
- Arup
- Big Spark
- Centre for Process Innovation
- Department for Environment, Food & Rural Affairs (DEFRA)
- Draeger
- National Audit Office

- National Nuclear Laboratory
- Nissan
- North Star Ventures
- Northern Gas Networks
- Northumbria Healthcare
- Roche
- Rosen Group
- Royal Meteorological Society
- Sage plc
- York & North Yorkshire Office for Policing, Fire, Crime and Commissioning

Make a difference

Follow in their footsteps

- Name: Emma
- Graduated: 2016
- Now working as: Hiscox Insurance

"It is great to be able to take the skills and knowledge I learnt at university and apply it to real-world applications."

We asked Emma to take a look back at her time at Newcastle and tell us how it has impacted her career as a catastrophe modeller.

Find out about Emma's journey

Careers support

The School of Mathematics, Statistics and Physics is supported by Careers Service and the Learning Partnerships team to support your career readiness from the moment you arrive.

You'll benefit from:

- guest lectures from alumni and industry built into the modules
- career-planning sessions from award-winning Careers service team employers regularly visiting campus and the School

There is also a Maths, Stats and Physics Employability resource which brings you the latest opportunities, adverts and news.

There is also the popular optional Stage 3 module in Career Development if you wish to further enhance your employability.

Our Careers Service is one of the largest and best in the country, and we have strong links with employers. We provide an extensive range of opportunities to all students through our ncl+ initiative.

Visit our Careers Service website

Recognition of professional qualifications outside of the UK

If you're studying an **accredited degree** and thinking about working in Europe after you graduate, the best place to find current information is the UK Government's guidance on recognition of UK professional qualifications in EU member states. This official resource explains whether your profession is regulated in another country, what steps you need to take, and which organisation you should contact.

Find out more...

- Go online for information about our full range of degrees: **www.ncl.ac.uk/undergraduate**
- Watch videos about student life in Newcastle by visiting our YouTube channel at **www.youtube.com/@newcastleuni**
- Watch a virtual tour of our campus at **https://youtu.be/vJUfHcqB7l8?si=8IUrf7kTxXbgdfr1**
- Book for an Open Day to come and see us in person **www.ncl.ac.uk/openday**
- Contact us online at **www.ncl.ac.uk/enquiries** or phone +44 (0)191 208 3333

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