



The University of
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA

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Mathematical Sciences Undergraduate study 2015

www.nottingham.ac.uk/mathematics



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Front cover image:
An undergraduate student doing some independent reading in the atrium of the Mathematical Sciences Building.

Welcome to the School of Mathematical Sciences

Choosing a university and course that match your aspirations is always a challenge. We feel confident, however, that you will find The University of Nottingham a stimulating and enjoyable place in which to study mathematics. We have a strong commitment to teaching and research of the highest quality and have an excellent record in independent reviews.

A number of factors have helped us build this outstanding reputation. These include: offering a wide variety of modules across applied mathematics, pure mathematics and probability and statistics; flexible structures that offer opportunities to study exciting modern topics such as financial mathematics, mathematical medicine, cryptography and quantum information, as well as a diverse range of complementary subjects; a beautiful campus with excellent facilities; a huge variety of student clubs and societies and easy access to the local attractions in the city centre; courses that develop the intellectual and personal skills that employers actively seek; and above all, a caring environment in which all students can develop and prosper.

Our curriculum is dynamic: our Undergraduate Ambassador Scheme provides opportunities to hone skills in communicating mathematics; project-based modules, such as our Professional Skills module, encourage the development of teamworking and presentation skills; and our highest-level modules provide an insight into cutting-edge mathematics, reflecting the richness and variety of staff research interests.

We hope you will find this brochure helpful. Thank you for taking the time to consider us; we are confident that you will find studying at Nottingham rewarding and enjoyable and we look forward to welcoming you to the school soon.

Professor Ian Dryden
Head of the School of Mathematical Sciences



University of Nottingham: School of Mathematical Sciences



@UoNMaths

Catching up between lectures in the Mathematical Sciences Building on University Park Campus.

Why study mathematics at Nottingham?

Teaching quality

The School of Mathematical Sciences has a record to be proud of in terms of reviews of its teaching and research. We were rated 'excellent' in the most recent independent assessment of teaching and our lecturers have been recognised with honours such as the Lord Dearing Award, which recognises outstanding achievements of University of Nottingham staff in enhancing the student learning experience, and in the University's 'Staff Oscars' which are voted for by students. Our most recent Staff Oscar was achieved by Dr Matt Scase who won the Best Use of Technology category.

In the most recent Research Assessment Exercise, over 60% of our research in pure mathematics, applied mathematics and statistics was judged to be 'world-leading' or 'internationally excellent'. This allows us to offer a wide range of specialised modules taught by academic staff who are world authorities in many areas of mathematics.

The school was also ranked 13th in *The Complete University Guide 2015* and the University recently came 10th in the *Times Higher Education Student Experience Survey*.

Research

In applied mathematics, our areas of research expertise include quantum gravity, wave chaos and disordered systems, quantum information theory and technologies, mathematical medicine and biology (eg for cancer, neuroscience, plant biology), industrial mathematics, fluid mechanics, scientific computation and solid mechanics.

In statistics we specialise in stochastic modelling of epidemics, statistical shape and image analysis, Bayesian multi-level modelling, probability theory and uncertainty quantification.

Our research interests in pure mathematics include number theory, arithmetic, geometry, algebra, calculus of variations and complex analysis.

Although these may mean nothing to you at the moment, when you come to study with us you will have the opportunity to understand and develop an interest in one or more of these areas, since our research interests inform and shape the third and fourth years of our courses. These advanced modules allow you to come close to the frontiers of mathematical research.

State-of-the-art building

The school sits in a dedicated facility that was opened in autumn 2011. The building has been designed to contribute positively to the educational process by carefully integrating academics and students throughout all levels of the building, providing greater opportunities for social and academic interaction. Undergraduate facilities include a silent study workroom, a group workroom, a common room, breakout pods and a computer workroom.

Summer internships

Some of our students take advantage of the research expertise available in the school to do summer internships. These paid positions give students a chance to gain experience of hands-on mathematical research by working on a project with an academic member of staff and frequently result in publication of work in leading journals.

Student contribution

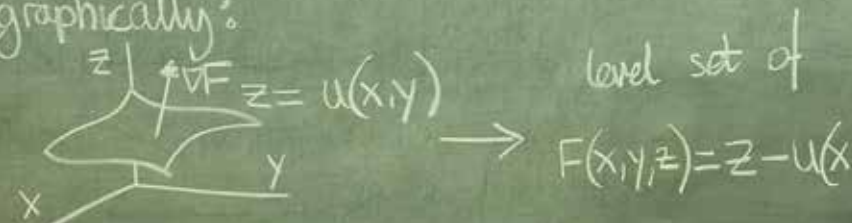
Students can also actively contribute to the school by participating in the Learning Community Forum, through which they can influence the running and development of our modules and courses, and by joining the Mathematics Society, which offers activities such as public lectures as well as organising social events for mathematical sciences students.

Characteristics of nonlinear equations

The solution of the equation

$$P(x,y,u)\frac{\partial u}{\partial x} + Q(x,y,u)\frac{\partial u}{\partial y} = R(x,y,u)$$

represented graphically:



Because the vector

$$\nabla F = \begin{pmatrix} -\partial u / \partial x \\ -\partial u / \partial y \\ 1 \end{pmatrix}$$

$$F(x,y,z) = 0$$

is normal to the solution surface, the equation

$$P\frac{\partial u}{\partial x} + Q\frac{\partial u}{\partial y} + R = 0$$

$$0 = R \quad P\frac{\partial u}{\partial x} - Q\frac{\partial u}{\partial y} = \begin{pmatrix} P \\ Q \\ R \end{pmatrix} \cdot \nabla F$$

means

$$\begin{pmatrix} P \\ Q \\ R \end{pmatrix}$$

so it

characteristics are solution curves

$$\Rightarrow \frac{dx}{dt} = P, \quad \frac{dy}{dt} = Q, \quad \frac{dz}{dt} = R$$

lying on the solution surface

A student working on maths equations.

Degree courses

| Mathematical Sciences | UCAS code | Duration | A levels | IB | Places |
|--|-----------|----------|--------------------------------|-------|--------|
| Single honours | | | | | |
| BSc Mathematics | G100 | 3 years | A*AA/AAA/ A*AB | 38-36 | 110 |
| MMath Mathematics | G103 | 4 years | A*AA/AAA/ A*AB | 38-36 | 80 |
| BSc Mathematics (International Study) | G104 | 4 years | A*AA/AAA/ A*AB | 38-36 | 10 |
| Single honours with a minor subject | | | | | |
| BSc Financial Mathematics | G120 | 3 years | A*AA/AAA/ A*AB [†] | 38-36 | 15 |
| Joint honours | | | | | |
| BSc Mathematics and Economics | GL11 | 3 years | A*AA/AAA [†] | 38-36 | 12 |
| BSc Mathematics and Management Studies | GN12 | 3 years | A*AA/AAA/ A*AB [†] | 38-36 | 10 |

[†]Including three A levels, or equivalent, including mathematics at grade A. Evidence of additional achievement in mathematics such as grade A* in mathematics, grade A in A or AS level further mathematics or grade 2/merit in STEP/AEA may also be required.

We expect typical offers to lie within the range indicated in the table. For the most up-to-date typical offer, please see www.nottingham.ac.uk/ugstudy

Related courses

BSc Data Science
BSc/MSci Mathematical Physics
BSc/MSci Natural Sciences
Science with Foundation Year

For more information on these courses,
please see www.nottingham.ac.uk/ugstudy

Qualifying year

In all our courses, year one is a qualifying year. This means that although the work is crucial as a foundation for succeeding years, your marks will not count towards your final degree classification. You must, however, be successful in year one in order to progress to year two. Marks that you then obtain in years two and three (and four, if applicable) will count towards your degree.

Course structure

We offer a range of courses in which mathematics can be studied on its own or in combination with other subjects. Courses offering mathematics as a single subject include the four-year BSc Mathematics (International Study) in which you can spend a year studying at one of our overseas partner universities, while our other courses allow you to spend a semester abroad.

Please note that the single honours courses also allow you to take modules in other subject areas.

Our BSc Financial Mathematics course combines mathematics as a major subject, accounting for about 70% of your studies, with finance as a minor subject. Our other combined courses offer an equal split with the second subject.

Three or four years?

Transfer between the three-year BSc and four-year MMath is straightforward in the first two years. We treat applicants to both versions in the same way during the admissions process if you are unsure at this stage which option is best for you.

The BSc courses provide you with a broad background in your chosen subjects, with the opportunity to specialise. The MMath/MSci courses allow you to study particular areas to a deeper level, enabling you to complete a substantial dissertation in the final year on a subject close to the frontiers of research.

A level preparation

Our courses are designed so that they can be taken by a good student with a minimum of grade A in A level mathematics (or equivalent). We will not assume that you have taken further mathematics or indeed any particular mathematics modules that are optional at A level.

If you have not taken further mathematics at A level you may find that you have to work harder in the first year than some of your fellow students, as more of the topics you encounter may be new to you. You can be assured, however, that you will not be disadvantaged in the long term. Students entering without further mathematics are on an equal footing by the end of the first year and do just as well in subsequent years.

If you have taken further mathematics at A level then you will still find plenty to challenge you. The first-year syllabus contains material that is new to all students and even topics that you have already encountered will be given a new slant.

Getting the foundations right

A key element in all our courses is the year-one mathematics core. This is an integrated set of modules designed to provide you with a solid foundation for study in later years, and to help you with the transition to university-style learning. You will find that the core allows you to consolidate and extend your knowledge of A level mathematics. It will also introduce you to new topics that will be important later on in your studies with us.

On most courses, besides the mathematics core you will take some additional mathematics modules in year one, in at least one subject area from pure mathematics, applied mathematics and probability and statistics. You need not have studied optional modules in any of these three subject areas at A level in order to take corresponding year-one modules.

What's in the maths core teaching syllabus?

The core contains some material that will be familiar from school and some that will be new. Of course, familiar topics may be given a new slant here at the University.

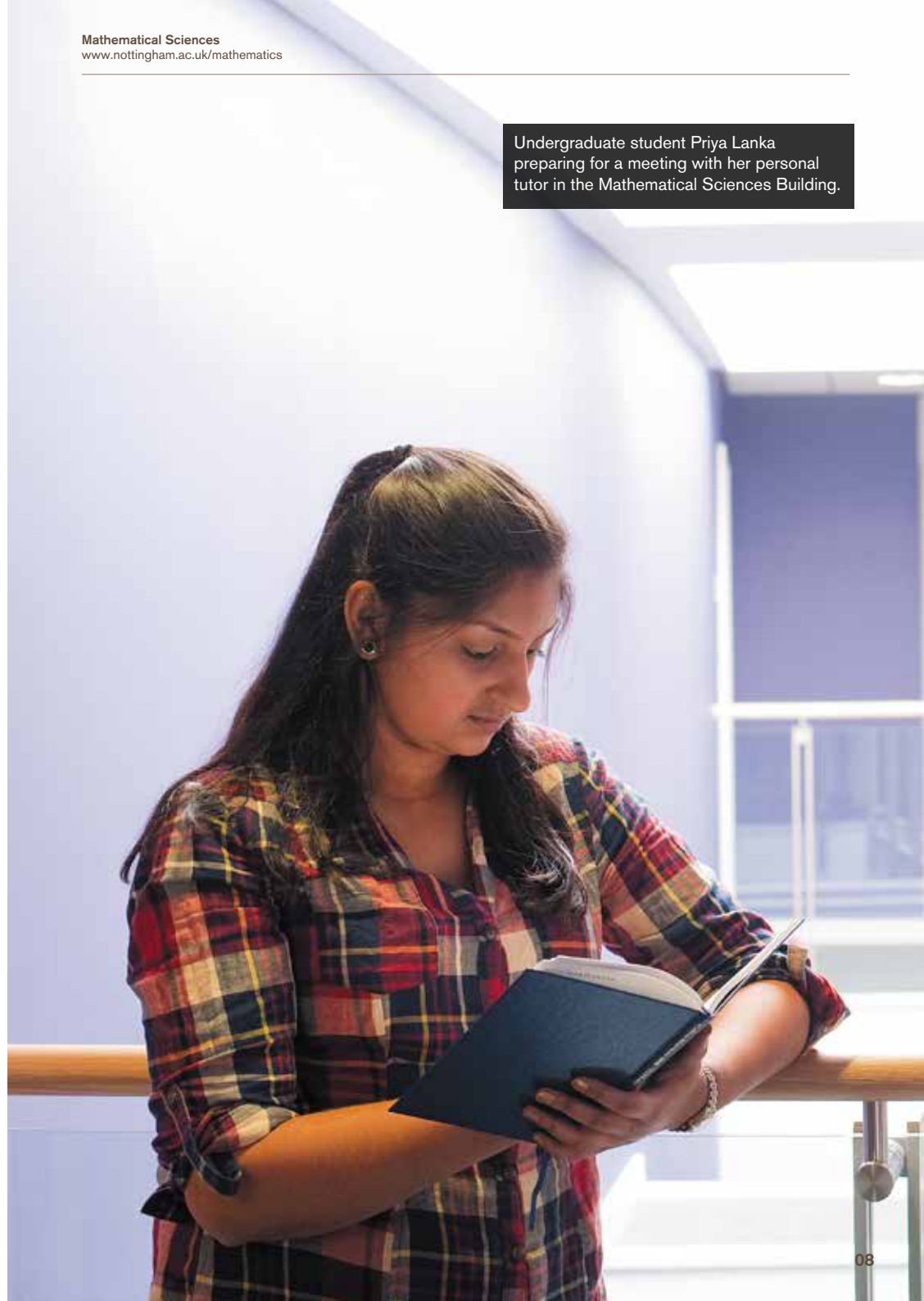
The core includes such topics as:

- foundations (eg language of mathematics, analysis, computer algebra)
- calculus (eg functions of several variables)
- linear mathematics (eg vectors, matrices, systems of linear equations, complex numbers)

“I enjoy the variety of subjects taught on this course. It takes maths to a completely new level and it is interesting to learn the applicability of maths in everyday life.”

Priya Lanka (pictured right)
MMath Mathematics

Undergraduate student Priya Lanka preparing for a meeting with her personal tutor in the Mathematical Sciences Building.



Single honours

BSc/MMath Mathematics

Mathematics degrees at Nottingham encompass an enormous variety of topics, ranging from the abstract ideas of algebra and number theory to financial applications of statistics and the mathematical modelling of biological phenomena. While no student is expected to study all the topics available, the wide variety of modules on offer means that you will find plenty to keep you interested, whether your particular preferences lie in probability and statistics or in pure or applied mathematics.

Furthermore, a mathematics degree is highly valued by employers and leads to a wide variety of stimulating and financially rewarding careers, so you can look forward to a bright future while studying something that you enjoy.

We offer three courses in which mathematics is taken as a single subject: a three-year BSc offering a broad education in mathematics with the ability to specialise; a four-year MMath including a substantial dissertation and more advanced study in a specialisation of your choice; and a four-year BSc which adds a year of study abroad to the standard BSc.

In the first year of these courses, you will study core material common to all our degrees and also take foundation modules in the specialisations of probability and statistics and of pure and applied mathematics. In the second year, you will be able to begin specialising in one or more of these areas and in subsequent years you will choose from a wide range of options across mathematics.

Key features of the courses include:

- flexibility in choice of modules across a wide range of topics
- the possibility to opt for a named degree such as Mathematics with Statistics (which is accredited by the Royal Statistical Society), obtained by applying for either the G100 or G103 course and then choosing specified modules during your degree

International study

The programme for the four-year BSc with an international study year (G104) is the same as for the three-year BSc (G100) but includes an additional year of study at an overseas university between the second and final years. Students on other mathematics courses may apply to spend a semester abroad.

Placement on the year abroad, which must be passed but does not contribute directly to degree classification, may be competitive and dependent upon having a sufficiently strong academic record in years one and two. Students on the BSc Mathematics (International Study) who are not accepted for overseas study will be offered a transfer onto the three-year BSc, subject to normal progression rules.

Typical modules for G100/G103/G104

| Year one | Year two | Year three (year four for G104) | Year four (MMath only) |
|--|--|---|---|
| <p>Core mathematics modules (60 credits):</p> <ul style="list-style-type: none"> ▪ Analytical and Computational Foundations ▪ Calculus ▪ Linear Mathematics <p>Other modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Foundation modules in pure mathematics, applied mathematics and probability and statistics | <p>Optional modules (100-120 credits mathematics; 0-20 credits other) include:</p> <ul style="list-style-type: none"> ▪ Algebra and Number Theory ▪ Complex Functions ▪ Introduction to Mathematical Physics ▪ Introduction to Numerical Methods ▪ Mathematical Analysis ▪ Modelling with Differential Equations ▪ Probability Models and Methods ▪ Professional Skills for Mathematicians ▪ Statistical Models and Methods ▪ Vector Calculus | <p>Optional modules (100-120 credits mathematics; 0-20 credits other) include:</p> <ul style="list-style-type: none"> ▪ Advanced Quantum Theory ▪ Coding and Cryptography ▪ Communicating Mathematics ▪ Differential Equations ▪ Fluid Dynamics ▪ Game Theory ▪ Mathematical Finance ▪ Mathematical Medicine and Biology ▪ Medical Statistics ▪ Number Fields and Galois Theory ▪ Quantum Chaos and Disorder ▪ Rings and Modules ▪ Topics in Scientific Computation | <p>Core module (40 credits):</p> <ul style="list-style-type: none"> ▪ Dissertation project <p>Optional modules (60-80 credits mathematics; 0-20 credits other) include:</p> <ul style="list-style-type: none"> ▪ Advanced Fluid Mechanics ▪ Algebraic Geometry ▪ Applied Nonlinear Dynamics ▪ Biomedical Statistics ▪ Black Holes ▪ Complex Analysis ▪ Computational Linear Algebra ▪ Elasticity ▪ Time Series and Forecasting ▪ Quantum Information Science |

Mathematical sciences students sitting outside the Mathematical Sciences Building.

Single honours with a minor subject

BSc Financial Mathematics

The financial world is heavily reliant on mathematics and on the skills of analytical reasoning and problem solving that a mathematical education offers. This course is designed to enable you to develop a thorough grounding in mathematics, with emphasis on aspects that are of particular relevance to finance, while at the same time enabling you to study a broad range of topics within finance itself.

Key features of the course include:

- having around 70% of the modules dedicated to mathematics, with the remaining 30% being spread across a range of financial and economics topics

- having a mathematics side of the course that is oriented towards financial mathematics as well as probability and statistics – modules can also be taken in other areas of mathematics
- no requirement to have previously studied finance or related subjects
- being designed to provide you with specific knowledge but also mathematical techniques and skills suitable for entry to a wide range of careers in the financial world and elsewhere
- students on this course can apply to spend a semester studying abroad

Typical modules for G120

| Year one | Year two | Year three |
|---|--|---|
| <p>Core mathematics modules (60 credits):</p> <ul style="list-style-type: none"> ▪ Analytical and Computational Foundations ▪ Calculus ▪ Linear Mathematics <p>Probability and statistics modules (20 credits):</p> <ul style="list-style-type: none"> ▪ Probability ▪ Statistics <p>Finance modules (40 credits):</p> <ul style="list-style-type: none"> ▪ Business Finance ▪ Financial Accounting ▪ Management Accounting and Decisions ▪ Microeconomics for Business | <p>Mathematics modules (90 credits):</p> <ul style="list-style-type: none"> ▪ Introduction to Numerical Methods ▪ Differential Equations and Fourier Analysis ▪ Mathematical Analysis ▪ Probability Models and Methods ▪ Professional Skills for Mathematicians ▪ Statistical Models and Methods <p>Finance modules (30 credits):</p> <ul style="list-style-type: none"> ▪ Computational Finance ▪ Financial Management ▪ Financial Reporting | <p>Mathematics modules (60 credits):</p> <ul style="list-style-type: none"> ▪ Mathematical Finance ▪ Optimization ▪ Vocational Financial Mathematics <p>Optional mathematics modules (20-40 credits) include:</p> <ul style="list-style-type: none"> ▪ Coding and Cryptography ▪ Game Theory ▪ Statistical Inference ▪ Stochastic Models ▪ Time Series Analysis <p>Optional finance modules (20-40 credits) include:</p> <ul style="list-style-type: none"> ▪ Corporate Finance ▪ Financial Analysis ▪ Financial Economics ▪ Financial Markets |

Joint honours

BSc Mathematics and Economics

The Mathematics and Economics course provides a broad education in mathematics, and substantial degree-level studies in economics. The course combines the flexible skills of mathematics, such as problem solving and numeracy, with valuable subject knowledge in economics. This combination is attractive to employers and the course leads to excellent career prospects.

In the first year, you will take the core mathematics modules common to all of our courses along with foundation modules in probability and statistics; the economics side includes macroeconomics and microeconomics.

In subsequent years, you will choose modules equally split between the two subjects.

Key features of the course include:

- being aimed at mathematically minded students seeking to enter the business or financial sector
- no requirement to have previously studied economics
- a wide range of options in mathematics and economics
- students on this course can apply to spend a semester studying abroad

| Typical modules for GL11 | | |
|---|--|--|
| Year one | Year two | Year three |
| <p>Core mathematics modules (60 credits):</p> <ul style="list-style-type: none"> ▪ Analytical and Computational Foundations ▪ Calculus ▪ Linear Mathematics <p>Probability and statistics modules (20 credits):</p> <ul style="list-style-type: none"> ▪ Probability ▪ Statistics <p>Economics modules (40 credits):</p> <ul style="list-style-type: none"> ▪ Introduction to Microeconomics ▪ Introduction to Macroeconomics | <p>Optional mathematics modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Complex Functions ▪ Introduction to Numerical Methods ▪ Mathematical Analysis ▪ Mathematical Structures ▪ Probability Models and Methods ▪ Statistical Models and Methods <p>Optional economics modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Econometrics I and II ▪ Financial Economics ▪ Macroeconomic Theory ▪ Microeconomic Theory ▪ Monetary Economics ▪ Public Sector Economics | <p>Optional mathematics modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Coding and Cryptography ▪ Game Theory ▪ Mathematical Finance ▪ Mathematics for Engineering ▪ Medical Statistics ▪ Statistical Inference ▪ Stochastic Models ▪ Topics in Statistics <p>Optional economics modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Advanced Financial Economics ▪ Advanced International Trade Theory ▪ Advanced Public Economics ▪ Health Economics ▪ International Trade Policy ▪ Numerical Methods in Economics |

BSc Mathematics and Management Studies

The ability to reason quantitatively and logically is at the heart of many management decisions. This course is designed to equip you with the skills needed to succeed in a wide range of business and management careers. You will receive a broad education in mathematics, which will be integrated with the study of the theory and practice of business management and entrepreneurship.

In the first year, you will take the core mathematics modules along with modules in probability and statistics; management topics include entrepreneurship and business.

In subsequent years, you will choose modules in a roughly equal split between the two subjects.

Key features of the course include:

- being suited to careers in management consultancy, accountancy or as a city analyst
- the opportunity to study a wide range of topics in mathematics and management
- no requirement to have previously studied management or business studies
- students on this course can apply to spend a semester studying abroad

| Typical modules for GN12 | | |
|--|---|---|
| Year one | Year two | Year three |
| <p>Core mathematics modules (60 credits):</p> <ul style="list-style-type: none"> ▪ Analytical and Computational Foundations ▪ Calculus ▪ Linear Mathematics <p>Probability and statistics modules (20 credits):</p> <ul style="list-style-type: none"> ▪ Probability ▪ Statistics <p>Management modules (40 credits):</p> <ul style="list-style-type: none"> ▪ Business Economics ▪ Consumers and Markets ▪ Entrepreneurship and Business ▪ Organisational Behaviour | <p>Optional mathematics modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Introduction to Numerical Methods ▪ Probability Models and Methods ▪ Statistical Models and Methods <p>Management modules (40 credits):</p> <ul style="list-style-type: none"> ▪ Contemporary Economic Policy ▪ Designing and Managing Organisations ▪ Economics of Business Decisions ▪ Organising and Managing in Practice <p>Optional management modules (20 credits) include:</p> <ul style="list-style-type: none"> ▪ Corporate Entrepreneurship and Innovation Management ▪ Economics of Innovation ▪ Introduction to Business Operations ▪ Introduction to Finance ▪ Marketing Strategy ▪ Technology and Organisation | <p>Optional mathematics modules (60 credits) include:</p> <ul style="list-style-type: none"> ▪ Coding and Cryptography ▪ Game Theory ▪ Mathematical Finance ▪ Statistical Inference ▪ Stochastic Models ▪ Topics in Statistics <p>Management modules (40 credits):</p> <ul style="list-style-type: none"> ▪ Human Resource Management ▪ Strategic Management <p>Optional management modules (20 credits) include:</p> <ul style="list-style-type: none"> ▪ Business Ethics ▪ Corporate Finance ▪ Economics of Regulation ▪ Managing Information Technologies and Systems ▪ Logistics and Supply Chain Management ▪ Risk Management Processes ▪ Experiencing Perspective in Entrepreneurship |

How will I study?

Teaching and learning

You will learn through a wide variety of activities, including formal lectures, but also small-group tutorials, problem classes and, increasingly important at university, self-directed study.

Some optional modules may not involve lectures at all and might instead be centred, for example, on working in groups or individually on projects, supported by regular meetings with a member of staff, or even on time spent teaching mathematics under supervision in a local school.

Lecture-based modules

These modules will form the backbone of your studies in the first year, when you will be taking six modules at any given time. Each module will typically involve two hours of formal lectures per week with another hour devoted to supporting activities such as tutorials, problems classes or computer labs, adding to about 18 hours of timetabled activity per week. In later years, you may take fewer, larger modules and you will also have the opportunity to take modules based on activities such as project work.

Some of our lectures are recorded and the resulting audio-visual materials placed on iTunesU, YouTube and The University of Nottingham U-Now facility, allowing you to go back and revisit topics in your own time. See www.nottingham.ac.uk/podcasts and unow.nottingham.ac.uk

Self-directed study

Throughout your degree, self-directed study will play a central role in your learning. Timetabled activities, such as lectures, are very important and will introduce you to the key new ideas, but in order to fully understand any mathematical topic, it is important that you spend time thinking about the underlying ideas and trying problems for yourself.

Sometimes it will be most appropriate to do this individually, but it can also be very helpful to work with groups of friends. The recently-built Mathematical Sciences Building is ideal for this purpose, offering a number of breakout rooms and common areas in which students can meet and discuss their work.

Pastoral support

The culture of studying you encounter at university, with its greater emphasis on autonomy, and taking advantage of the maturity of its students, is a much more effective (and enjoyable!) way of learning in the long term. It can seem daunting, however, having to adjust to this new freedom from the more structured environment of school. For that reason, we have a number of measures in place to help our students make the transition successfully.

Personal tutor

Throughout your degree you will have a tutor on hand to offer support on matters such as module choice and career direction. Your tutor will meet you in small groups of four to six students in the first year to work through the material covered in core modules and will generally be available to help you with any questions you have about your modules or other issues.

Teaching officer

The school also employs a Teaching Officer who has experience of teaching mathematics at school and university and is therefore ideally qualified to help students adapt to the style and content of university mathematics. The Teaching Officer runs drop-in sessions where students can get additional help for their first-year modules if they think they need it and can, for example, help you catch up if illness or other problems have prevented you from attending lectures.

Library and computing services

At Nottingham, you will benefit from access to an extensive collection of printed and online library resources.

In addition, you will have both on- and off-campus access to a very wide range of databases, ejournals and ebooks, relevant both to your subject and any modules in other subjects.

Key Information Sets

Key Information Sets (KIS) are comparable sets of information about full or part time undergraduate courses and are designed to meet the information needs of prospective students. All KIS data is published on the Unistats website: www.unistats.co.uk

For Nottingham's KIS data, please see individual course entries at: www.nottingham.ac.uk/ugstudy



The school's teaching officer, Chris Robson, runs drop-in sessions for students.

How will I be assessed?

All undergraduate degree programmes in the University are modular, which means you undertake modules of study with assessment at the end of each semester.

Assessment methods

Lecture-based modules will typically be assessed primarily by an exam at the end of the semester in which they finish. The final mark for these modules may also have a smaller component arising from interim tests or coursework. Some of our optional modules are continuously assessed, typically those based on project work, learning professional skills or gaining teaching experience.

Modules and credits

Modules are self-contained units of study which may run either for a semester or a year. The majority of modules are worth 10 or 20 credits each and you will study modules totalling 120 credits in each year. This system gives you some flexibility in the way you construct your course.

Some modules are compulsory; others are optional. Some modules are prerequisites for others. Your personal tutor will be available throughout your time at Nottingham to advise and guide you through the academic pathways available.

The teaching year

The year is divided into two semesters. The first semester lasts for 13 weeks, with 11 weeks for teaching and revision and two weeks for assessment. The second semester follows the same pattern, but there is an additional period at the end to complete the assessment process and to enable returning students to discuss their results with tutors and begin to plan the next session's work.

Although the teaching year is divided into two semesters for organisational purposes, this is fitted into the traditional pattern of three terms: one before Christmas; one between Christmas and Easter; and one after Easter.

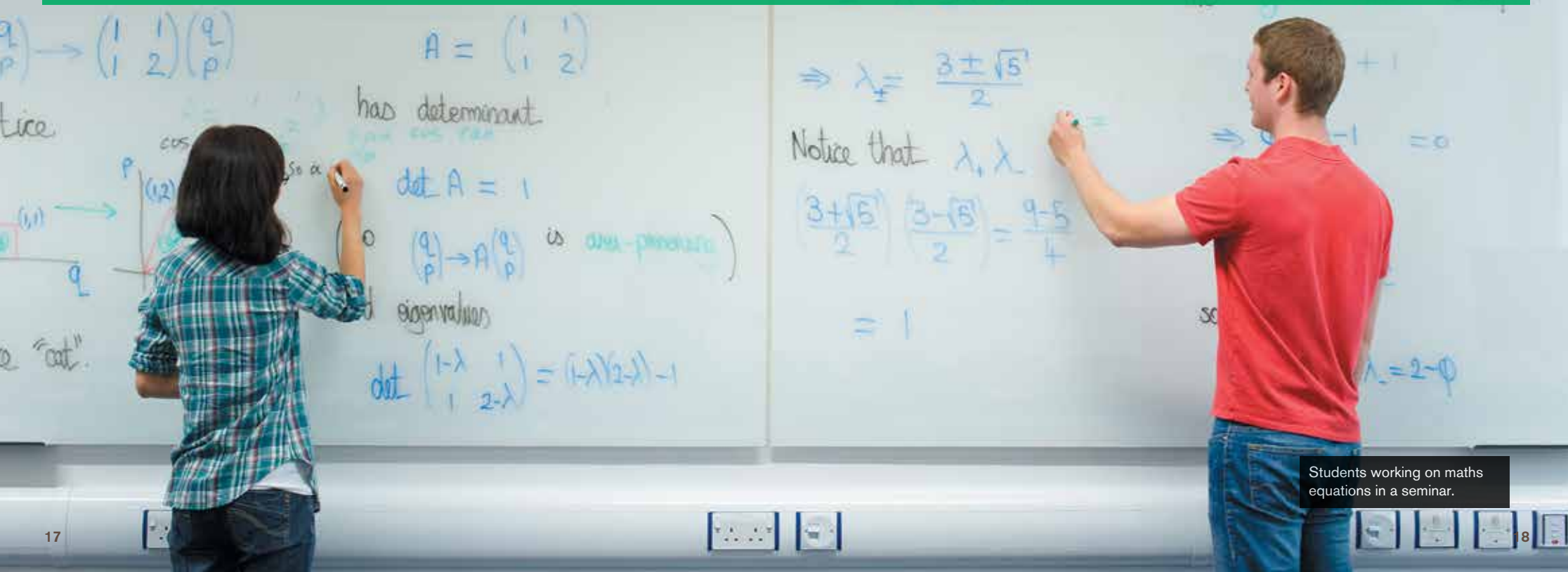
Your final degree classification

The emphasis in the first year is on helping you to adjust to university study and on giving you a strong mathematical grounding for the more specialised material you will encounter later in your degree.

The marks you get in first year do not count towards your final degree classification: you simply need to do well enough to demonstrate that you are sufficiently prepared for further study.

On most BSc courses your second year counts half as much as the third year (so the marks are used in the ratio 1:2). The exception to this is the four-year BSc Mathematics (International Study), in which the third year, spent abroad, must be passed but does not count towards your final degree. For this degree, the second and fourth years are weighted in the ratio 1:2.

For students on the MMath course, marks gained in the second, third and fourth years are used in the ratio 1:2:2.



Students working on maths equations in a seminar.

Career and employment prospects

The University of Nottingham is the most targeted university by Britain's leading graduate employers.*

Our Careers and Employability Service (see page 20) can help you find employment through invitations to recruitment sessions by employers, individual careers advice and a vacancy information service.

A faculty careers consultant who is an expert in the career paths taken by our graduates comes to the school each week and holds drop-in sessions for all students who would like careers advice and information.

In addition, the school has a specialised careers programme to help you develop your CV and start planning early for your future career.

Mathematics is a wide-ranging and versatile subject and the list of careers open to you as a mathematics graduate is extensive. Some graduates make specific use of mathematics while others use the more general skills they have gained, such as analysis and problem solving, high-level numeracy and a capacity to learn independently.

Working in the foyer of the
Mathematical Sciences Building.

Graduate career destinations

Our graduates are in high demand from prospective employers and have been well received into a broad range of careers in commerce, industry, the professions and government.

The University of Nottingham is one of a small number of leading universities whose graduates are targeted for recruitment by various top companies. Of our graduates entering the employment market directly after graduation, typical recent destinations are:

- financial services (eg accountancy, actuarial work, banking)
- IT (eg programming, systems analysis, software engineering)
- industrial (eg management, research and development, retail)
- government (eg civil service, taxation)

Average starting salary

In 2013, 91% of first-degree graduates in the school who were available for employment had secured work or further study within six months of graduation. The average starting salary was £23,181 with the highest being £35,000.**

Recent graduates

Recent graduates include Jennifer Carter – secondary school teacher; Priya Lanka – Credit Risk Analyst, Bank of Ireland; Peter Underdown – Financial Management Trainee, Nottinghamshire County Council; Stephanie Hind – Auditor, Cooper Parry; Sarah Abid – Accountant, Deloitte.

Postgraduate research

You might decide to continue your studies at postgraduate level, either here at Nottingham or elsewhere. In previous years, our students have achieved higher degrees in subjects such as mathematics, computing, education and

engineering. Each year some of our best students choose to stay at Nottingham and join our lively group of postgraduate research students in the School of Mathematical Sciences.

Our seven research groups – Algebra and Analysis; Industrial and Applied Mathematics; Mathematical Medicine and Biology; Mathematical Physics; Number Theory and Geometry; Scientific Computation; and Statistics and Probability – each offer a large number of diverse and interesting research projects. Please see our website for further details:

www.nottingham.ac.uk/mathematics/research

Careers and Employability Service

Our Careers and Employability Service, which is based on University Park Campus, offers an extensive range of careers-oriented services, including CV-writing sessions, interview advice, presentations by major employers and general career advice.

As a University of Nottingham graduate, you will receive lifelong support from the service. This means that you can ask a careers adviser to look over your job application by email or Skype, or in person, and you can also access a database of graduate vacancies. For more information see www.nottingham.ac.uk/careers

The Nottingham Advantage Award

The University's Advantage Award is a programme of activities developed to recognise and reward extracurricular responsibilities. It allows you to gain recognition for participating in a wide range of activities accredited by the University and shows employers that you have gained valuable skills. For further information, please visit www.nottingham.ac.uk/advantageaward

* The Graduate Market in 2014 – High Fliers Research.

** Known destinations of full-time home and EU first-degree graduates, 2012/13.

Student profile

“I chose to study maths at Nottingham because of the great level of support that the academic staff provide in your first year. Knowing the fact that the school had a dedicated teaching support officer made it easier for me to make my choice of studying at Nottingham.”

Sanaa Chaudhry / BSc Mathematics

Find out more about Sanaa's experience at
www.nottingham.ac.uk/mathematics/profiles



Scan the code to see more student profiles on your smartphone.

Sanaa is preparing for a tutorial in the atrium of the Mathematical Sciences Building.



Staff profile

"I did my undergraduate degree in statistics at Athens University of Economics and Business, before coming to England to do an MSc in Medical Statistics at Lancaster University. Following the completion of my MSc I started a PhD in Statistics, also at Lancaster University. In 2006, I started working at The University of Nottingham as a research fellow, before becoming a lecturer in statistics.

I have very broad research interests which range all the way from modelling, parameter estimation and model assessment to the analysis of high-dimensional complex real data.

I have always been fascinated by numbers and in particular randomness and uncertainty. I honestly believe that probability and statistics are not only fascinating subjects to study, but also fun! What I like more about statistics is its wide applicability.

My primary research area is infectious disease modelling and in particular the last five years or so I have been working on identifying the routes of transmission of healthcare associated infections, such as MRSA and Gram negatives in hospital wards.

More recently, I have also been working on modelling brain connectivity using real data from Diffusion-Weighted (DW-) and resting-state functional (f-) Magnetic Resonance Imaging (MRI). Our aim is to offer considerable potential to enhance our understanding of the underlying mechanisms of pathology, to discover earlier and more accurate diagnosis of various diseases and to identify potential treatment strategies.

Apart from continuing to work on infectious disease modelling and neuroimaging, I am also planning to further develop my collaboration with mathematical physicists in quantum statistics.

We are currently entering a new technological era where quantum mechanics is used not only to predict physical behaviour but increasingly to exploit quantum resources in applications such as quantum communication, cryptography, computation and metrology.

I really enjoy working in Nottingham – it is a very stimulating environment. The facilities that are on offer for our students, such as break-out areas and computer labs are just fantastic."

Theo Kyraios

Lecturer in Statistics, Director of International Affairs and Course Director for BSc Mathematics (International Study)

Your student experience – everything you need to know



Catching up outside the Trent Building on University Park Campus.

You've read everything there is to know about the degree programme you are interested in, now it is time to explore life outside of the lecture theatre. Read on to discover why being a student at The University of Nottingham is a truly exciting experience.

There really is something for everyone to get involved in, and you may be surprised by the sheer volume of activities and opportunities on offer; all designed to make your time at university as memorable as possible.

Your University of Nottingham – at home and around the world

We are proud of our stunning campuses and are continually investing in our grounds, buildings and facilities to ensure that you have only the best surroundings in which to live and study. Our main UK campuses have all gained external recognition, in the form of numerous awards over the years, and it's not hard to see why. A free bus ride can transport you from the striking architecture and innovative technology of Jubilee Campus, to rolling parkland and period buildings at University Park, through to the beautiful setting of Sutton Bonington. Combine this with features including sports centres, cafes, art galleries, shops, woodland, contemporary gardens and extensive wildlife, and you have an outstanding environment that inspires and excites students and visitors alike.

With campuses in China and Malaysia, as well as links with more than 220 partner institutions in over 40 countries, studying at The University of Nottingham will also give your degree a truly global perspective and the chance to explore the world around you. Find out more: www.nottingham.ac.uk/about/campuses

Discover our worldwide connections through our global map: globalmap.nottingham.ac.uk

Your opportunity to study abroad

Students on our courses can apply to spend time in the third or fourth year studying abroad, either in another European country or further afield with one of our partners in the Universitas 21 group. We currently have links with universities in Australia, Canada, France, Germany, Singapore, Spain and the USA.

If you are interested, it is something you will be able to consider, with guidance from our Director of International Affairs, in the second year of your course. However, if you are particularly keen on overseas study you might find you want to consider the BSc Mathematics (International Study), which allows you to spend the entire third year abroad.

If you do decide to apply to study abroad, the University's International Office will offer support from the application stage right through to your return to the UK, with advice on everything from immigration regulations to possible sources of financial support. Find out more: www.nottingham.ac.uk/studyabroad

Your support network

Throughout your University journey there will be numerous people on hand to support you, including tutors and dedicated staff who will be able to advise you on various aspects of life as a student.

In addition, our Student Services Centres, found on all three UK campuses, provide a range of support, information and specialist services to enhance your student experience. They form part of a comprehensive network of services at the University, designed to support you through your studies.

Academic Support provides a personal and practical approach to academic study – the service also provides specialist academic support for students with dyslexia, dyspraxia and other specific learning difficulties; Disability Support coordinates support and access arrangements for students with a disability or long-term medical condition; Financial Support provides information on the sources of finance available from government agencies and the University itself, and gives advice about financial matters.

Student Services also advises on issues ranging from childcare, counselling and health to international student support, chaplaincy and faith support, as well as offering advice on paying your tuition and accommodation fees. Whatever you may need support with, they will either be able to help or point you in the direction of someone who can. Find out more www.nottingham.ac.uk/studentsservices

Your new home from home

The University of Nottingham offers a guarantee of University accommodation for one year to all new full-time undergraduate students, subject to the following conditions: you make Nottingham your firm choice, return your accommodation application by the set deadline*, accept your offer of accommodation by the deadline given, and have an unconditional status no later than August 2015. If you are an international student, this guarantee applies for three years. Rooms are available as single or shared, en suite or shared bathroom, all the way through to studio flats, and vary from self-catered, partially catered (five evening meals per week) to fully catered (19 meals per week). We have halls of residence on campus or off-campus if you'd prefer. Prices reflect the room and facilities chosen. For more information, including a breakdown of the pricing, see www.nottingham.ac.uk/accommodation

* For details of the deadline, please check www.nottingham.ac.uk/accommodation

Getting involved in your Students' Union

As soon as you start at The University of Nottingham, you are automatically a member of our Students' Union, considered one of the best in the country. There are literally hundreds of activities that you could be part of, providing you with the perfect opportunity to take up a new hobby or pursue existing interests. Choose from over 200 student-run societies, covering all interests and abilities, more than 70 sports clubs, as well as local and national volunteering projects, to which you can commit as much or as little time as you wish.

Our Students' Union is also home to a number of award-winning student-run media groups, which enable you to gain practical work experience both behind the scenes or centre stage as a presenter, actor or journalist. The Nottingham New Theatre, Impact magazine, Nottingham University Television Station (NUTS) and University Radio Nottingham (URN) have all been recognised as the best in their field, winning a clutch of awards for outstanding achievements. Here at Nottingham we have the Best Broadcaster, the Guardian Student Publication of the Year, the Best Student Station

in the country and a student theatre company that won no less than seven awards at the National Student Drama Festival.

However you decide to become involved in the Union, you can be sure you will make new friends and learn new skills, all while having a lot of fun! Find out more: www.su.nottingham.ac.uk

Exploring your new city

A short 10-minute bus ride from University Park Campus, Nottingham city centre has plenty to offer, whatever you like to get up to in your spare time.

For music lovers, you can take your pick from the world-famous Rock City, Capital FM Arena or one of the smaller gig venues for a more intimate musical experience. Nottingham is rich in performance venues, with comedy clubs and theatres catering for lovers of drama, musicals, ballet and panto. We are very proud of our sporting heritage, and with football clubs Nottingham Forest and Notts County in the city, as well as Trent Bridge and the National Ice Centre on your doorstep, you might just become a sports fan if you're not one already.

History and culture can be found in all corners of the city, with Nottingham Castle, the Galleries of Justice Museum, Nottingham Contemporary – one of the largest contemporary art spaces in the UK, art house cinemas and three of the world's oldest pubs all providing points of interest. If you enjoy shopping, Nottingham is perfect for you; independent boutiques and vintage shops in the bohemian area of Hockley mix with high street names in our large shopping centres to make Nottingham a veritable shopping haven.

Find out more: www.nottingham.ac.uk/nottinghamlife

Download our city guide: www.nottingham.ac.uk/ugstudy/downloads

Explore the world of Nottingham through our GlobalNotts web app: www.nottingham.ac.uk/globalnotts

Nottingham city centre is always buzzing with people and interesting sights.



Applying for a place

We are looking for students who have the ability and motivation to benefit from our courses, and who will make a valued contribution to the school and the University. Candidates for full-time admission are considered on the basis of their Universities and Colleges Admissions Service (UCAS) form. For more information on how to make your application stand out, have a look at our online prospectus: www.nottingham.ac.uk/ugstudy/applying

Application process

All applications for an undergraduate place to study at The University of Nottingham (including applications by overseas students) must be made through UCAS. Applications should be made online at www.ucas.com. Candidates will be notified of decisions through UCAS Track at track.ucas.com

Entry numbers

For information on how many students the school plans to admit on each course, please see the table on page 5.

Your personal statement

This is the section of your UCAS form that tells us most about you, and you should make the best use of it. Be as specific and detailed as you can – we would like to see that you are a student who can work hard, be self-motivating and make the best possible use of the opportunities this course might have to offer you.

Required subjects

Most applicants will have studied three or more A levels and will be expected to achieve a minimum of grade A in A level mathematics. Our offers are generally based on grades achieved in three A levels, and all subjects are accepted with a small number of exceptions which currently include general studies, critical thinking and citizenship studies.

We normally also ask for evidence of additional achievement in mathematics, such as grade A* in mathematics, grade A in AS or A level further mathematics or grade 2/merit in STEP/AEA.

For our joint honours courses, it is not always necessary to have studied the non-mathematics component at A level. Other qualifications (International Baccalaureate, BTEC and others) are considered on an individual basis, with offers equivalent in standard to the A level package.

We do not require you to have studied further mathematics and we recognise that some schools and colleges offer limited support for this subject. While the extra mathematical experience gained by taking further mathematics at A level or AS level may be helpful to you in your first year, you should not be disadvantaged in subsequent years of study if you have not taken these.

STEP/Advanced Extension Award

We recognise that many schools cannot provide the support required for students to take the STEP or Advanced Extension Award in mathematics. Therefore we do not require this qualification, although when offered we may accept it as evidence of further achievement in mathematics.

Alternative qualifications

In this brochure you will find our A level entry requirements but we accept a much broader range of qualifications. These include:

- Access to HE Diploma
- Advanced Diploma
- BTEC HND/HNC
- BTEC Extended Diploma
- Cambridge Pre-U
- International Baccalaureate
- Irish Leaving Certificate
- Scottish Advanced Highers
- Welsh Baccalaureate Advanced Diploma

The list is not exhaustive; we will consider applicants with other qualifications on an individual basis. The entry requirements for alternative qualifications can be quite specific; for example you may need to take certain modules and achieve a specified grade in those modules. Please contact us to discuss the transferability of your qualification.

Flexible admissions policy

We recognise that some educational and personal circumstances affect achievement. If we judge that you have exceptional circumstances that have adversely affected your achievement, we will consider them when assessing your academic potential. Some courses may vary the offer as a result. For the most up-to-date information about our offers, please see the course fact files in our online prospectus and for more information about this policy, please see www.nottingham.ac.uk/ugstudy/applying

Mature applicants

We encourage applications from mature students (which means all those aged 21 or over when the course begins) and you should apply in the normal way through UCAS. While we accept a range of qualifications, you should check our specific requirements on UCAS course entry profiles. If in doubt, please contact the admissions tutor, who will be happy to answer any specific queries you have about applying as a mature student. Please email your questions to the Director of Undergraduate Admissions: e: maths-ug-admissions@nottingham.ac.uk t: +44 (0)115 951 3853

For more information about being a mature student, please see

www.nottingham.ac.uk/mature

Part-time study

The school does not currently offer any part-time degree courses.

International applicants

We welcome applications from international students and have students from many parts of the world studying with us at undergraduate and postgraduate level. All international candidates for undergraduate courses should apply through UCAS. The University's International Office offers guidance and advice on matters such as visa and immigration regulations, working and living in the UK, entry requirements and preparing for coming to Nottingham – and arranges a Welcome Programme for new international students each September. If you would like to visit the University and are unable to attend an open day, the International Office will be happy to arrange a tailor-made visit for you. For further information please visit www.nottingham.ac.uk/international

English language requirements

IELTS 6.5 (no less than 6.0 in any element)
TOEFL iBT 87 (minimum 20 in speaking and 19 in all other elements)

Deferred entry

Applicants who wish to defer their entry by a year will not be at a disadvantage. Please tell us something about your plans for your gap year in your UCAS personal statement.

Equal opportunities policy

The University aims to create the conditions whereby students and staff are treated solely on the basis of their merits, abilities and potential, regardless of gender, race, colour, nationality, ethnic or national origin, age, socio-economic background, disability, religious or political beliefs, trade union membership, family circumstances, sexual orientation or other irrelevant distinction.

There are plenty of study spaces across campus with computer access.



Frequently asked questions

How much are the fees?

Like many universities in England, Nottingham charges full-time UK and EU students an annual tuition fee of £9,000. However, you will not have to pay your fees while studying – the government will lend eligible students the money, which you will start to pay back once you have left university and are earning at least £21,000. For more information, please see

www.nottingham.ac.uk/fees

Fees for students from outside the EU vary from subject to subject. For more information, please see the 'New international students' section on www.nottingham.ac.uk/fees

What bursaries and scholarships are available?

Around a third of students at Nottingham are likely to be eligible for a non-repayable University of Nottingham Core Bursary. Some students will also be eligible for support through Nottingham Potential Bursaries and the National Scholarship Programme. These are in addition to any support you may receive from the government. For more information please see

www.nottingham.ac.uk/financialsupport

Each year we offer scholarships to a number of our best international applicants. The details vary from year to year, but are typically worth £2,000 for single honours and financial mathematics students in each year of study, subject to academic performance. Joint honours students are awarded a scholarship of £1,000. To find out more, please contact us or visit the school's website: www.nottingham.ac.uk/mathematics/feesfunding

What support do you offer for students with disabilities?

The School of Mathematical Sciences, like the University, is committed to promoting access for students who have a disability, dyslexia or a long-term medical condition. Services provided by the University aim to enable students to fulfil the inherent requirements of the course as independently as possible. The University's Disability Statement, which lists services, facilities and opportunities available throughout the University can be viewed at

www.nottingham.ac.uk/disability

What support is available for students with children?

There is a range of services provided to support students with children, including a University day nursery, a playscheme and playcentre day care. There is also a scheme to help students fund childcare. For more information, see

www.nottingham.ac.uk/child-care

Visiting and contacting us

Open days

If you're considering applying to The University of Nottingham you should try to attend one of the University-wide open days, which are held in June and September each year. Find out more:
www.nottingham.ac.uk/opendays

Mini open days

The University runs tours of University Park Campus on some Wednesdays throughout the year. For further information or to book a place on a mini open day, please contact the Enquiry Centre on +44 (0)115 951 5559 or email undergraduate-enquiries@nottingham.ac.uk

UCAS visit days

All candidates who receive an offer are invited to a UCAS visit day, which is an opportunity for you to see the school and the University for yourself. You will hear about the school and its courses from members of academic staff and they will answer any questions you might have. You will also be given a short tour of the campus by current students.

Other visits

If you wish to make an informal visit to the University prior to applying here, you are welcome to do so, but you should contact us in advance if you wish to visit the school or speak to an admissions tutor and we will do our best to oblige.

This publication is available
in alternative formats:

t: +44 (0)115 951 4591

The University of Nottingham has made every effort to ensure that the information in this brochure was accurate when published. Please note, however, that the nature of the content means that it is subject to change from time to time, and you should therefore consider the information to be guiding rather than definitive.

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e: maths-ug-admissions@nottingham.ac.uk
w: www.nottingham.ac.uk/mathematics

For international student enquiries, please contact:

The International Office
t: +44 (0)115 951 5247
f: +44 (0)115 951 5155
e: international-office@nottingham.ac.uk
w: www.nottingham.ac.uk/international

You can also connect with fellow applicants and current students on our applicants' Facebook and Twitter pages:



UoNApplicants



@UoNApplicants

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Engineering

Your passion can
be your success.
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The world needs scientists and engineers. But not just any scientists or engineers. It needs people who will transform their love of the subject into life-changing inventions and discoveries. If you have the enthusiasm, we have the lecturers to fire it.

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www.nottingham.ac.uk/studywhatyoulove