



# School of Mathematics

**Undergraduate** Degree Programmes

[www.cardiff.ac.uk/mathematics](http://www.cardiff.ac.uk/mathematics)

# Welcome

One of the **strongest** professional development programmes for undergraduates in the UK.

“The courses are flexible; it’s easy to switch and choose your modules and options.”

Austin Pearce

**92%** of graduates are in employment or further study within six months.

Source:  
HESA Destination of Leavers Survey 2016/17

“Outstanding opportunities to study and work abroad.”

Rhys Ward

## Our teaching

is centred on pioneering research and the needs of modern technology.

## Accredited

by the Institute of Mathematics and its Applications (IMA).

“The staff are friendly, approachable and always willing to help.”

Beth Thomas

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# Choose Cardiff

We are proud of our reputation as a small, friendly and inclusive School, with an active student community and supportive staff.





Choosing the right course and university are important decisions, so I am delighted that you are considering Cardiff for your next step.

With access to some of the best mathematicians in the country, a cutting-edge research community, and wide-ranging courses and modules to choose from, there has never been a better time to join the School of Mathematics.

We are committed to providing outstanding education and careers support. Our students consistently provide positive feedback about the learning experience they receive at Cardiff, and our School has the highest overall satisfaction score among all of the Russell Group Universities.

Led by passionate academics at the forefront of their fields, our teaching centres on pioneering research and the needs of modern technology, to ensure your education is at the forefront of the discipline.

Our professional development programme for mathematics undergraduates, is one of the strongest in the UK. Our students can choose to complete twelve months of training in a paid mathematician or statistician role or study at one of our partner institutions

abroad.

In this brochure, you will find specific information on your specialist subject, our School and services. You will read about the range of careers and opportunities your education will open up for you, supported by testimonials from our current students. I'm sure you'll find this information useful, but the best way to find out what it's like to study at Cardiff is to visit us at one of our open days.

I hope you decide to join our thriving mathematical community, where you can enjoy excellent facilities, tuition of the highest quality, and a friendly and supportive environment. On behalf of all of the staff here at the School of Mathematics, I wish you every success with your studies.

If you have any questions, please get in touch, we will do everything we can to help.



# Why mathematics at Cardiff?



From a first-class student experience to flexible courses, there are plenty of reasons to study maths at Cardiff. Here are our top five:

## Great student experience

The School of Mathematics topped a list of leading UK universities for student satisfaction with 95% of our current students agreeing that they were satisfied with their experience at Cardiff.

Our small and friendly School is well-equipped, with plenty of support facilities available to you. Our personal tutor and student mentor schemes are there to help you settle into life at university. If you ever get stuck on a maths problem, you can turn to the Maths Support Service run by our academic staff.

## Placement opportunities

The majority of our degree programmes provide the opportunity to complete a Professional Placement Year during year three.

Placements are a great way to gain valuable work experience with a company like Barclays, Lloyds Banking Group, PwC, BAE Systems and GSK.

On placement, you will gain a clearer understanding of what it's really like to work in your chosen field, as well as developing key skills such as communication, teamwork, leadership and self-management. Many placements are paid so you'll also have the opportunity to earn a wage to support your studies.

## Flexible courses

We offer a flexible range of undergraduate degree programmes, including Financial Mathematics, Operational Research and Statistics and the MMath and MMORS undergraduate master's degree programmes.

Many of our courses have a common first year, so in most cases you're free to switch between degree programmes at the end of year one if your interests change.

Alongside learning core topics, you can also specialise your degree through a range of optional modules. There is also the opportunity of taking a year abroad on all of our degree schemes.

## Teaching and research excellence

As a Russell Group University, we're committed to maintaining the very best research, an outstanding teaching and learning experience and strong links with industry.

In the 2014 Research Excellence Framework (REF) all of the research submitted to REF 2014, was rated at least 'internationally recognised' with 90% rated as either 'world-leading' or 'internationally excellent'. A distinctive feature of our submission was that 100% of our research was rated as 'outstanding' or 'very considerable' for its economic and health impact in terms of its reach and significance.

## Excellent job prospects

Our graduates go on to work in a wide variety of careers, including many in academic research. Their career paths range from IT, finance and banking, insurance, to teaching, cryptography, medical applications, telecommunications, and many more.

Recent figures show that more than 92% of the School's graduates were in employment or further study within six months.

# Our facilities



We've made sure our environment meets all of your needs to help you achieve your potential.

## School facilities

You will study in the Senghennydd Building at our Cathays Park campus. Situated close to Cardiff's Sherman Theatre and the Students' Union, we're just a short walk from libraries, support services and the city centre. We have a selection of lecture theatres, computer suites, break-out seating space and a library.

## Library services

Senghennydd Library is on the ground floor and the first floor of our building. You can borrow up to thirty-five items at any one time for up to three weeks. Many books and journals can also be accessed electronically.

Subject librarians are there to help with all of your study and research needs. They also host workshops on information searching and literature research.

Access to the library and computer facilities is available throughout the day and early evening during term times. There are free printing facilities available.

## Computing facilities

The School has two undergraduate computing labs containing the latest mathematical software on networked stations. A separate

project lab is available for final year students enrolled on a Project module.

Our Financial Trading Room provides students with a view of the global financial data, news and information.

Additional computing facilities are available in Senghennydd Library, which provides information services for the School.

We deliver a range of materials and learning resources via Learning Central, an internet-based e-learning system which can be accessed by students anywhere, anytime.

Wi-Fi is available throughout the whole Maths School.

## Maths support

The Maths support service is freely available to you. It offers relaxed and informal sessions, where you can bring along all your mathematical and statistical problems, no matter how small, and discuss them with a tutor.

The service offers flexible daily sessions and pre-arranged appointments. There are also some additional help classes and drop-in sessions available to students throughout the teaching weeks.

## Personal tutor and student mentor scheme

You will be allocated a personal tutor to help and advise you during your time at Cardiff. Your tutor is one of your first ports of call in the school if you have any problems or questions. They can offer help, encouragement and feedback on your performance on the course.

We also run a student mentoring scheme where first years can get pastoral advice and support from established students.

Your lecturers are always on hand to help with subject-specific queries and will support your learning through example classes, tutorials and help sessions.

## Maths society

MathSoc, our student-led society, is a great way to meet new people and have some fun. It can also help you break out of your comfort zone, and in some cases, even improve your future career prospects through involvement in their charitable, academic and industry-led events.

MathSoc host regular socials and events; this year they organised a Christmas Dinner and Spring Ball, a charity bake sale for BBC Children In Need, a range of academic talks and lent a helping hand with the Science Bar Crawl.

# Professional placements



I honestly couldn't recommend doing a placement highly enough. In addition to getting an **insight** into the world of retail and data analytics, I was able to improve my **professional skills** which have helped me study more effectively since returning for my final year. **Daniel Edwards**

## Develop your employability skills by completing a year working in industry.

### Great student experience

We offer the opportunity to undertake one year in salaried employment in a post related to mathematics, statistics or operational research at an organisation of your choice.

### Why a professional placement year?

In a competitive graduate job market, a placement can help you gain extra skills and experience to make you stand out from the crowd. It could help you to secure a permanent role after you graduate, as well as providing real-world context to support your studies. Most placements have competitive salaries, providing an excellent opportunity to earn an income to help supplement your studies.

If you're not sure what career path to follow, a placement year can help you to figure out what you want to do, which might help you make those all-important decisions about your future.

### Where can I complete my placement?

We have links with over 300 institutions and can provide you with the opportunity to embark on a placement across the world.

Our students have completed exciting placements at organisations such as:

- HM Revenue and Customs (London)
- Ministry of Defence (Warminster)
- Office for National Statistics (Newport)
- Welsh Government (Cardiff)
- Barclaycard (Northampton)
- Lloyds Banking Group (Cardiff, Bristol and London)
- PwC (various locations)
- BAE Systems (Bristol)
- Corus (Newport)
- GSK (Greenford and Harlow)
- National Air Traffic Services Ltd (Southampton)
- Roche Pharmaceuticals (Welwyn Garden City)

- Rolls Royce (Derby)
- Rutherford Appleton Research Laboratories (Didcot)

### How does it work?

Your placement will last typically between 10-12 months and will take place between the second and third year of your degree. You don't need to commit to a placement until the start of your second year, so there's plenty of time to add this on at a later date if you're not sure what you would like to do yet.

Our School has a dedicated Placement Officer that will help you find and apply for suitable placement opportunities. They will also prepare you for the workplace through a series of personal development workshops during your second year.

Whilst you work on real mathematical problems, your placement provider will directly supervise your work. Our Placement Co-ordinators will keep in close contact with you, through email and face-face visits, so you can discuss your progress and get the most out of the year. We will encourage you to reflect on your experiences by posting weekly entries to an online journal, which we will use to monitor your progress.

You will return to Cardiff following the successful completion of your work placement at the start of the autumn semester, ready for another year of studies.

A professional placement year extends the three-year BSc degree programme to four years and the four-year MMath and MMORS degree programmes to five years.

Although we are able to assist you with finding placement opportunities, the responsibility to secure a placement lies with you. If you are not able to secure a placement, you will transfer to the same version of your degree course without completing a placement year.

### Potential to earn an additional professional award

Once you have completed the full-year professional training period, you can be considered for the City and Guilds Senior Licentiateship Award (LCGI).

The learning outcomes of the placement year are based on professional standards set by the City and Guilds Institute of London, and assessed by a series of reflective reports which contribute to the overall assessment of your degree programme.

Find out more:

[www.cardiff.ac.uk/mathematics/courses/undergraduate/placement-year](http://www.cardiff.ac.uk/mathematics/courses/undergraduate/placement-year)



# Year abroad



My Year Abroad changed my **world view**. Not only did I get to travel to 10 new countries, where I picked up some new language **skills** and discovered new **cultures**, but my experience taught me that it's possible to establish a career in another country when I graduate. **Oliver Baynam**



## Immerse yourself in another language and culture with a unique year abroad experience.

We offer the opportunity to study at one of our partner universities abroad. Our numerous partnerships with top universities means you can study in some of the most iconic and inspiring cities in the world.

Destinations include Paris, Berlin, Milan and Barcelona, as well as many other universities further afield in the United States, Australia, Canada and Hong Kong.

### Why a year abroad?

An international experience will not only enhance your CV by demonstrating essential skills such as communication, flexibility and collaborative working, but can provide you with valuable networking opportunities. Studying abroad is a great way to broaden your academic knowledge, immerse yourself in another culture and gain skills that could be valued by employers.

Above all, it is the start of a new adventure. You will experience other cultures and viewpoints, make new friends and share unforgettable experiences during your time abroad. You may also have the chance to embrace a new language.

### How does it work?

Your placement will last one academic year (this will vary depending on your chosen location) and will take place between the second and third year of your degree.

You don't need to commit to a university abroad until the start of your second year, so there's plenty of time to add this on at a later date if you're not sure what you would like to do yet.

The Global Opportunities Team provides a dedicated resource and source of expertise for all of the international opportunities available at Cardiff University.

They can support you in the application process if you are considering a period of time abroad to study, work or volunteer and offer a range of international opportunities.

You will return to Cardiff following the successful completion of your year abroad at the start of the autumn semester, ready for another year of studies.

A year abroad extends the three-year BSc degree programme to four years and the four-year MMath and MMORS degree programmes to five years.

For more information, please contact:  
email: [go@cardiff.ac.uk](mailto:go@cardiff.ac.uk)  
Telephone: +44 (0)29 2087 4844



# Beginning your career



## What can you do with a degree in mathematics?

A maths degree can open doors to a wide range of professional fields. Employers appreciate the skills of logical thinking and the innovative problem-solving and decision making that can be taught in a maths degree, and understand that this can make for an intelligent, well-rounded graduate.

## What skills will I develop?

Our mathematics degrees will help you pick up subject-specific skills in:

- logical and quantitative thinking
- numeracy
- ability to handle tricky intellectual challenges
- problem solving skills
- statistical inference
- computing

You will also have the opportunity to develop transferable skills including:

- communication
- time management
- organisation (including working methodically and accurately)
- decision-making
- team working

## What type of jobs can I get?

After graduation, you might choose to pursue a career teaching others theoretical mathematical knowledge. A maths qualification can also be a good starting point for a career in the finance sector, social research and scientific studies. There is also a clear pathway from the computer based skills learned in a maths degree to an IT or software development based career.

Maths students are particularly likely to be suited to the following job roles:

- Acoustic consultant
- Actuarial Analyst
- Actuary
- Chartered accountant
- Data analyst
- Data scientist
- Investment analyst
- Researcher
- Secondary school teacher
- Software Developer
- Statistician

Many employers accept applications from graduates with any degree subject, so this list is by no means exhaustive.

## Further study

Alternatively, you may choose to use your degree as a stepping stone to further study. Many graduates go on to complete a postgraduate teacher training course, or study for an MSc or PhD. Further study is essential for a research career and an undergraduate degree in mathematics is a great base for further study in a wide variety of STEM (Science, Technology, Engineering, and Mathematics) subjects.

## Careers and Employability Service

Our Careers and Employability Service offers a range of service to help you get the most out of your degree, including:

- Employability masterclasses
- One-to-one advice sessions and daily drop-in sessions with qualified careers advisors
- Help and advice finding work experience and placements
- Careers fairs and employer-led events where you can network with top graduate employers.

Find out more here:

[www.cardiff.ac.uk/careers-advice](http://www.cardiff.ac.uk/careers-advice)

# Studying with us



## Learning and assessment

The year is divided into two semesters, the first running from early October to January (Autumn semester) and the second from February until June (Spring semester). Each semester, you will typically study six modules.

In a typical week, you will normally attend twelve hours of lectures, where new material is presented to you. There are an additional three hours of examples classes, where understanding is reinforced by working through example questions.

In the first year, you will also attend small group tutorials where you have the chance to work in small groups and ask individual questions.

Assessment is mostly by examination, although formative (informal) assessment is used to provide constant feedback to students of their progress. Exams take place at the end of each semester. The comments and feedback you receive from the formative assessment will help you to maximise your performance in the exams.

## Modules

Our degrees includes a carefully chosen balance of core modules and optional modules. Modules are worth 10 or 20 credits and you need to earn 120 credits a year. The modules you choose in years one and two will inform the choices available to you later.

For the Joint Honours in Maths and Music, students will complete 120 credits a year, split equally between the two Schools. The course structure for this course can be found on page 18.

## Course structure

### Year one

Much of year one is common to our degree programmes, so if you wish to change to another programme within the School at the end of your first year, this may be possible.

In year one, all degrees will cover the foundation areas of Pure and Applied Mathematics. Depending on your course, you may also be able to choose between modules in Financial Mathematics, Mechanics and Statistics.

If you have chosen to focus your degree in a specific area, such as Financial Mathematics or Operational Research and Statistics, you will complete additional core modules in your specialist area.

Sample modules for each course can be found on their respective course pages.

### Year two

There is a greater choice of optional modules on all courses in year two. The modules you select will inform the choices available to you in year three.

### Year three

In year three, there are no compulsory modules and your options are wide-ranging. As well as taught modules, excluding MMath and MMORS, you can also choose to undertake an individual 10-credit or 20-credit project.

### Year abroad and professional placement programmes

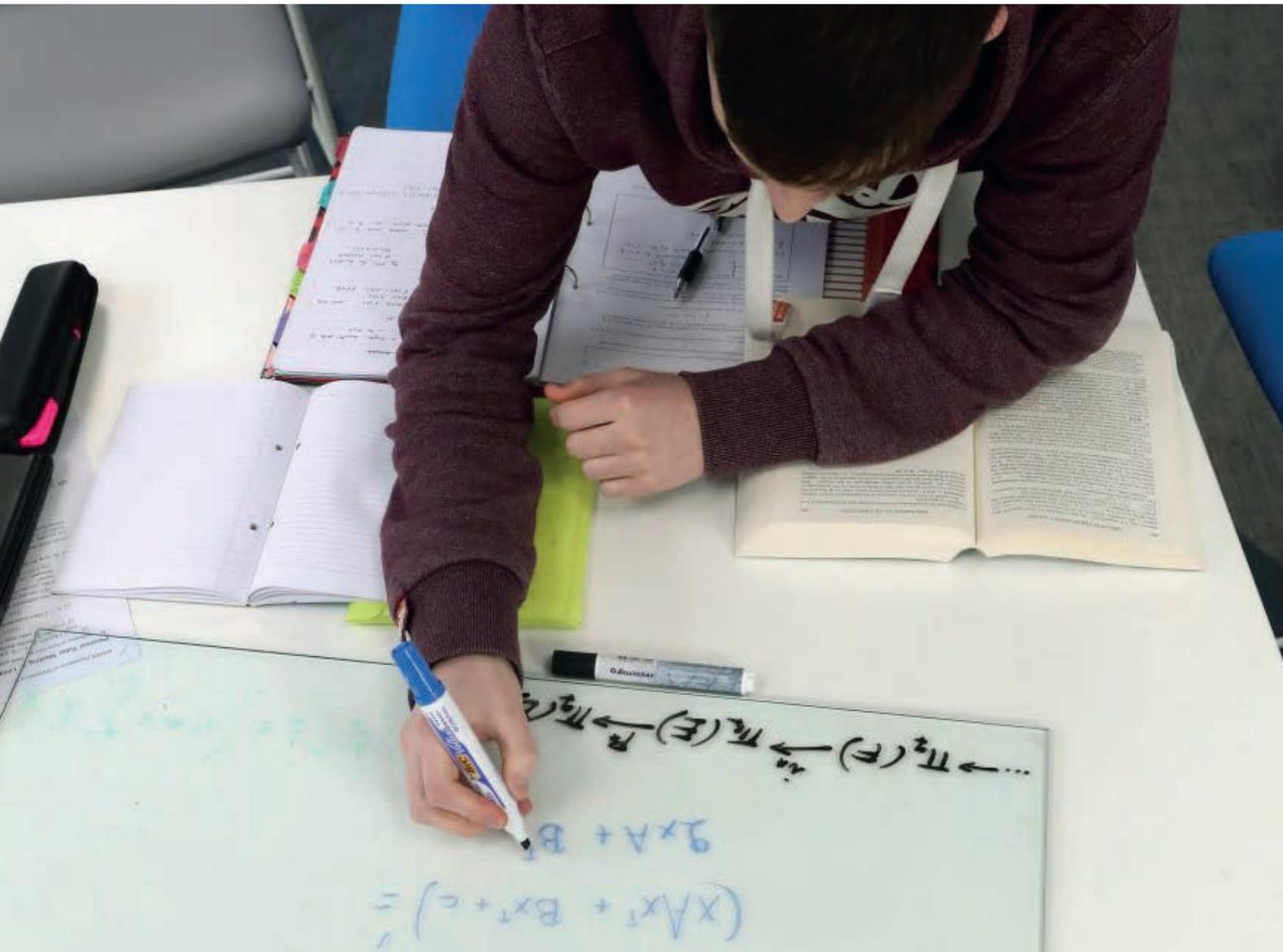
If you choose to complete a course with a professional placement or year abroad, you will commence salaried employment or begin your studies at a university abroad during year three. You will return to Cardiff following the successful completion of year three at the start of the autumn semester ready for another year of studies (two years for MMath/MMORS students with year abroad or placement options).

### Year four

#### MMath and MMORS students only

In year four, the course develops research training and enhanced mathematical skills, especially in Mathematical Analysis, Mathematical Physics and Fluid Dynamics. There is also a major piece of project work worth 40 credits, in which you will undertake novel research in a research topic of your choice.

# Our degree programmes



I really liked the freedom of the course and they have really good opportunities to **study and work abroad**. My best experience has been living and working in France and Switzerland, including 6 months' work at CERN. I cycled to work every day looking at Mont Blanc – it was amazing.

**Rhys Ward**, BSc Mathematics with a Professional Placement Year

# Mathematics **BSc** (3 years)

UCAS Code: **G100**; with Year Abroad **G103**;  
with Professional Placement **G105**



This flexible course offers a broad range of modules from the major branches of mathematics.

A Mathematics degree from Cardiff provides you with core mathematical skills, that will equip you for a variety of careers, and gives a strong basis for further study.

This three-year course provides a broad background in applied mathematics, statistics, computing and operational research. You will have the opportunity to sample modules in all of these areas.

As you move through the course, you will gain academic independence, moving from small group teaching in your first year, through to an optional independent project in your final year.

In most cases, you will have the option to switch courses at the end of your first year, so you can keep your options open when you apply. You will also have the opportunity to complete a professional placement year or a year abroad after your second year.

The most up-to-date module information can be found on our website at:  
[www.cardiff.ac.uk/courses](http://www.cardiff.ac.uk/courses)

## Distinctive features

- Explore a broad range of topics from pure and applied mathematics, financial mathematics and statistics.
- Take advantage of our strong links with industry and complete a summer work placement at organisations such as: Sainsburys, Network Rail, GSK, Welsh Government, the MOD and Welsh Water.



In one of my modules, we completed group work with students we had never met before. Working with others on a collaborative piece of work meant I had to organise my tasks as well as the work of my team. This has helped me to improve my leadership and communications skills and manage my own time better. **Francesca Stocker**, BSc Mathematics

# Financial Mathematics **BSc** (3 years)

UCAS Code: **15R4**; with Year Abroad **15R5**;  
with Professional Placement **15R6**

This course is designed to provide you with the core mathematical skills directed towards a career in finance, banking and insurance.

To manage the complex financial sector, banks and financial institutions need talented mathematicians who are fluent in the language of finance.

This course will provide you with a solid foundation in general mathematical theory and techniques, whilst also developing knowledge and skills that are essential for jobs in the finance industry.

You will gain an understanding of modern financial markets, institutions, investments and policies, with a focus on issues and topics relevant to the computational and market design side of contemporary finance, including:

- Complex Systems
- Trading (in particular high-frequency trading)
- Fund Management
- Analytics

The BSc in Financial Mathematics also offers a good grounding in general mathematical theory and techniques.

In most cases, you will have the option to switch courses at the end of your first year, so you can keep your options open when you apply. You will also have the opportunity to complete a professional placement year or a year abroad after your second year.

## Distinctive features

- Alongside learning a broad range of mathematical techniques, you will gain the in-depth knowledge and skills required to pursue a role in the finance, banking and insurance industries.
- Take advantage of our strong links with industry and complete a summer work placement at organisations such as: Lloyds Banking Group, HSBC, PwC and the Institute and Faculty of Actuaries.

# Mathematics, Operational Research and Statistics **BSc** (3 years)

UCAS Code: **G991**; with Year Abroad **GG23**;  
with Professional Placement **G909**

This course provides a solid foundation in the ideas and techniques of modern statistics and operational research.

Operational Research, or Management Science, uses advanced statistical and analytical techniques to help organisations and individuals make decisions efficiently.

Working in this field, you might be:

- determining manpower and resources allocation
- finding sequences in a supply and procurement chain
- developing customer profiles and segments

This course will equip you with the skills, methods and ways of thinking you need to become a confident statistical analyst. You will be able to tackle complex organisational problems using methods

such as data collection, statistical modelling and simulation.

The BSc in Mathematics, Operational Research and Statistics also offers a good grounding in general mathematical theory and techniques.

In most cases, you will have the option to switch courses at the end of your first year, so you can keep your options open when you apply. You will also have the opportunity to complete a professional placement year or a year abroad after your second year.

The most up-to-date module information can be found on our website at:  
**[www.cardiff.ac.uk/courses](http://www.cardiff.ac.uk/courses)**

## Distinctive features

- Alongside learning a broad range of mathematical techniques, you will gain the in-depth knowledge and skills required to pursue a role in statistics and/or analysis.
- Take advantage of our strong links with industry and complete a summer work placement at organisations such as: the Office of National Statistics, the MOD, Welsh Water, and the Met Office.

# Integrated Master's programmes

These four-year degree programmes combine three years of undergraduate study with an additional fourth year at postgraduate level, in a single course.



The Maths School has a really warm and **welcoming** feel. It feels like the staff here are really invested in helping you to **develop** as a person and to follow your chosen career path. The flexibility of my course is allowing me to study, travel and achieve my professional goals.

**Niamh Yale-Helms**, Second Year MMORS student  
with a Year Abroad option

## Mathematics **MMath** (4 years)

UCAS Code: **G101**; with Year Abroad **G104**;  
with Professional Placement **G112**

The four-year MMath shares the same core as our BSc in Mathematics but enables you to explore your areas of interest in greater depth, through optional modules, specialised year four modules and via a substantial research project.

This course provides the ideal preparation for high-level entry into relevant professions and is also a solid base for pursuing a research career.

In year four, you will complete a major piece of project work, which could include:

- a survey of an existing area of mathematical theory not covered in taught modules
- an introductory research project
- the development of a piece of mathematical software

Not only will you explore a research topic of your choice, but you will also develop the professional skills that graduate employers are looking for.

You will also demonstrate that you are at the forefront of the discipline through extensive coverage of topics in the School's main research areas, such as Mathematical Analysis, Mathematical Physics and Fluid Dynamics.

The most up-to-date module information can be found on our website at:

[www.cardiff.ac.uk/courses](http://www.cardiff.ac.uk/courses)

### Distinctive features

- You will complete a substantial mathematical project in a research area of your choice
- You have the opportunity to graduate with a Masters qualification.

## Mathematics, Operational Research and Statistics **MMORS** (4 years)

UCAS Code: **252D**; with Year Abroad **252F**;  
with Professional Placement **G901**

The four-year MMORS shares the same core as our BSc in Mathematics, Operational Research and Statistics but enables you to explore your areas of interest in greater depth, through optional modules, specialised year four modules and via a substantial research project.

This course provides the ideal preparation for high-level entry into relevant professions, and is also a solid base for pursuing a research career.

In year four, you will complete a major piece of project work, which could include:

- a survey of an existing area of mathematical theory not covered in taught modules
- an introductory research project
- the development of a piece of mathematical software

Not only will you explore a research topic of your choice, but you will also develop the professional skills that graduate employers are looking for.

You will also demonstrate that you are at the forefront of the discipline through extensive coverage of advanced topics in the School's main research areas.

The most up-to-date module information can be found on our website at:

[www.cardiff.ac.uk/courses](http://www.cardiff.ac.uk/courses)

### Distinctive features

- You will complete a substantial mathematical project in a research area of your choice
- You have the opportunity to graduate with a Masters qualification.

# Joint Honours

## Mathematics and Music **BA** (3 years)

UCAS Code: **GW13**; with Year Abroad **GW31**;

Discover abstract mathematical concepts, logical argument and deductive reasoning, while you build a portfolio of skills associated with literate musicianship.

This degree consists of 120 credits a year, split equally between the two Schools.

You will develop a sound basis of knowledge, understanding and skills in the main areas of mathematics, alongside experience of a range of musical disciplines, including performance, composition, historical and critical musicology, ethnomusicology and acoustics.

This Joint Honours degree with a year abroad programme enables students to combine the study of Music and Mathematics with an adventure-packed third year studying at one of our partner universities abroad.

Listed is a sample of typical modules that we offer. The most up to date information can be found on our website.

### Year one

In Music, you will receive core instruction in analysis, harmony and counterpoint, history of music, composition and practical musicianship. To complement your academic study, you are actively encouraged to join the University Choir or Orchestra.

In Mathematics, year one currently consists of four compulsory modules. These include modules such as Foundations of Mathematics, Linear Algebra and Elementary Differential Equations.

Note that in both subjects some modules are 'prerequisites', providing essential preparation for more advanced modules if you wish to pursue them in later years.

### Year two

In Music, courses are more advanced, and you will focus on more specialist topics, choosing from four subject groups, Composition and Electroacoustic Studies, Written and Practical Musicianship, Analytical and Critical Skills, and Historical Studies.

Our year two modules on the Business of Music I/II are designed to help you better understand different branches of the music profession, and give an opportunity for a short placement in an area related to music or the arts, either in one block or as a series of regular workplace visits.

In Mathematics, year two consists of four compulsory modules and two optional modules. Please note: Statistics is not available to students taking Music.

### Final year (Year three for GW13 or Year four for GW31)

In Music, you choose again from the four subject groups, and pursue at least one (but no more than two) of the three major academic projects: Dissertation, Project in Ethnomusicology, or Project in Music Analysis.

There are no core modules for Mathematics in the final year.

### Year abroad programme

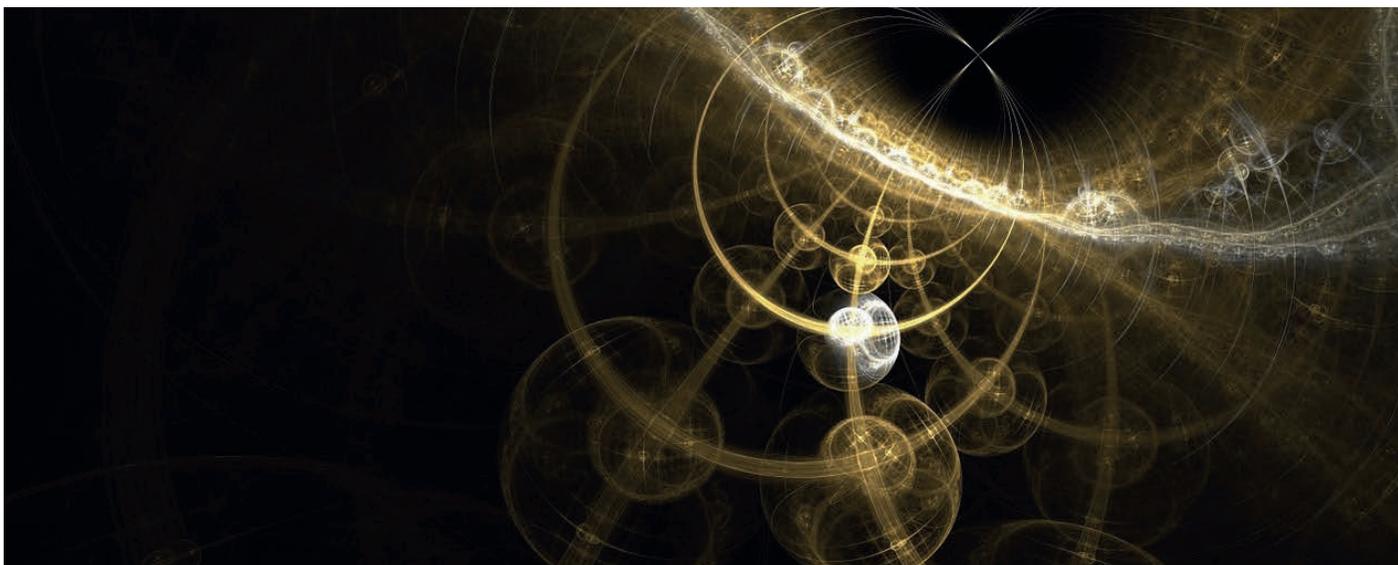
If you choose to complete a Year Abroad, you will commence your studies at a university abroad during year three.

You will return to Cardiff following the successful completion of year three at the start of the autumn semester, ready for another year of studies.

The most up-to-date module information can be found on our website at:  
[www.cardiff.ac.uk/courses](http://www.cardiff.ac.uk/courses)



# Research



Our internationally recognised research demonstrates the impact of mathematical sciences on everyday life. We provide solutions to contemporary issues, such as data security and hospital waiting times and continue to explore important questions in fundamental mathematics.

The research work undertaken by academic staff is an essential component of the life of the School, and Cardiff has been highly rated in recent national assessments.

Current interests encompass a very wide range, from highly theoretical investigations in various branches of Pure Mathematics to practical problem-solving in the fields of Applied Mathematics, Operational Research and Statistics.

## Our environment

Our active research groups collaborate with leading academic researchers across the world. We also offer a lively postgraduate environment, with a large community of postgraduate researchers working in our specialist areas.

In addition to the substantial funds we attract from the Research Councils and European Union, the School receives significant awards from the Leverhulme Trust, the Ministry of Defence, the Wellcome Trust, GlaxoSmithKline, and Proctor and Gamble.

Research in the School is supported by the University's Advanced Research Computing facility (ARCCA), one of the largest academic computational resources in the UK, as well as High-Performance Computing (HPC) Wales.

## Quality of our research

In the Research Excellence Framework 2014, we achieved a GPA of 3.08, ranking us 19th in the UK. We ranked 9th for the percentage of our research that is 'world-leading' or 'internationally excellent'. A distinctive feature of our submission was that 100% of our research was rated as 'outstanding' or 'very considerable' for its impact in terms of its reach and significance.

## Collaboration

Our researchers are committed to finding new benefits to their work by collaborating with some other disciplines. Current examples of this include research into convection of the Earth's mantle, and inverse problems in brain imaging.

The EPSRC funded research network on inverse problems aims to bring together groups in the UK interested in the mathematics of both pure and applied problems which arise in Inverse problems, to produce greater synergy. The network will run between 28 December 2016 and 27 December 2019.

We also work with other leading UK and international universities, as well as with a range of industrial partners.

## Research groups

Each of our research areas has an active research group which collaborates with leading academic researchers throughout the world in areas, such as:

- Applied and Computational Mathematics
- Geometry, Algebra, Mathematical Physics and Topology
- Mathematical Analysis
- Mathematics Education
- Operational Research
- Statistics

Find out more at:

[www.cardiff.ac.uk/mathematics/research](http://www.cardiff.ac.uk/mathematics/research)

# A capital city



Cardiff is a compact city with an enormous character. Nestled between the rugged coastline and breathtaking mountainous scenery of Wales, the country's capital is a cornucopia of culture, marrying historical delights with cosmopolitan amenities.

Providing an endless array of activities, one stroll through its cobbled streets can see you learn about the rich tapestry of Cardiff's past at Cardiff Castle, before soaking in the atmosphere as the crowds spill from the Principality Stadium after one of the many sporting events it holds year round.

The vibrant and independent culinary scene is the heartbeat of the city. With something

to please every palette, you can enjoy fine dining, plant-based treats and exotic cuisines from almost every corner of the globe, without forgetting Welsh cakes for dessert!

Wales is the land of song, and Cardiff certainly contributes heavily to this legacy. This city is built with music running through its veins, from the oldest record store in the world, Spillers Records, which is tucked away in Morgan Arcade, to more contemporary and intimate venues which host some of the world's most exciting new musical talent.

Though your Cardiff bucket list may be bursting at the seams, be sure to make a little room for our National Museum which is a place of

true wonder, while the iconic Wales Millennium Centre in the idyllic setting of Cardiff Bay is simply not to be missed.

Bustling with personality, Cardiff is a city made for students, offering an endless string of entertainment opportunities while remaining inexpensive and easy to navigate.

The modern shopping centres, aesthetic arcades, luscious green parks and thriving nightlife are a huge draw for living in Cardiff, though you'll always find your way back to our Students' Union, which is the true home of the student scene in the city.

“With an exhilarating mix of heavyweight cultural sights, exciting regeneration projects – not least the revitalised Cardiff Bay – world-class sport, a prolific music scene and some seriously banging nightlife, it's easy to see why Cardiff now ranks alongside London and Edinburgh as one of the UK's most compelling destinations.”

The Complete University Guide, 2017

# A leading university

Part of the  
**RUSSELL  
GROUP**

A capital city



“Cardiff University is highly rated on a local and global scale.”

The Telegraph, 2018

Our students learn from leading researchers in over 300 courses across the University. As Wales’ only Russell Group institution, we have gained an international reputation for excellence in teaching and research, which is built from our history of achievement since 1883.

Cardiff University becomes home for approximately 5,500 new undergraduate students every year. While competition for places is strong, we pride ourselves on being an inclusive university, welcoming applications from everyone who wishes to study with us.

We are a global university with over 7,500 international students from more than 100 countries and open our doors to all applications, irrespective of background.

## Facilities and development

Committed to investing in our services, Cardiff University is home to new and well-equipped laboratories, lecture theatres, libraries and

computing facilities to name a few, with more exciting developments continuously underway.

We take our environmental, safety and security responsibilities seriously, embracing our comprehensive Energy, Water and Waste Policy, which is already making great savings in energy consumption and helping us to do our bit to tackle climate change.

## Global Opportunities

We are partnered with over 200 leading institutions across the world, and our Global Opportunities team will help you to gain valuable international experience, through study, work or volunteering.

## Supporting you

Our student support and wellbeing centres deliver a substantial range of services available to all students that are free, impartial, non-judgemental and confidential, aimed to help you make the most of student life and support you during your study.

We are also rated as one of the best universities for supporting LGBT+ students and are proud to be ranked highly in the Stonewall Workplace Equality Index.

## Virtual campus tour

Discover more about the University and the city of Cardiff through our interactive online tour at:

[virtualltour.cardiff.ac.uk](https://virtualltour.cardiff.ac.uk)

# Living in Cardiff



“Cardiff has one of the biggest, best and most active students’ unions in the UK, with high quality facilities including Y Plas, a 2,150 capacity nightclub; and the Great Hall, a major concert venue.”

Complete University Guide, 2019



Cardiff is the perfect place to be a student. It mirrors the hive of activity a big city offers, but in an intimate and compact setting with endless character. Drink in the atmosphere, soak up the culture and get stuck into the host of activities available in our city; your new home.

## A guarantee of accommodation

If you accept your offer of a place at Cardiff on a firm basis, you are guaranteed a single occupancy place in University accommodation during your first year, living with other first year undergraduate students.

The residential dates for your particular accommodation will be confirmed in your Offer of Residence.

## Residence Life

While staying in Cardiff student accommodation, you will have access to the incredible service provided by the Residence Life Team who work tirelessly to enhance your student experience.

Working in partnership with Student Support and Wellbeing, the Residences Office and the Students’ Union, Residence Life will welcome you to Cardiff and help you to make a smooth transition into University.

They also help foster a strong sense of community through social events and cultural activities, as well as practical support too.

## Students’ Union

Our Students’ Union is at the heart of the Cardiff student experience. It’s a student-led and independent part of the University, dedicated to making your time with us the best it can be.

Built on the foundation of inclusion, diversity, personal development and friendship, the Students’ Union runs a range of activities and services to help enhance your Cardiff University experience.

These include advice, training, skills development, entertainment, volunteering opportunities and employment throughout your time at Cardiff and to prepare you for a career after university.

## Find out more . . .

### Accommodation

For further information please visit our website: [www.cardiff.ac.uk/residences](http://www.cardiff.ac.uk/residences)

You can also watch our residences film online at: [www.youtube.com/watch?v=hxzX-dYlfB8](http://www.youtube.com/watch?v=hxzX-dYlfB8)

### Students’ Union

 [facebook.com/cardiffstudents](https://facebook.com/cardiffstudents)

 [snapchat.com/add/cardiffstudents](https://snapchat.com/add/cardiffstudents)

 [instagram.com/cardiffstudents](https://instagram.com/cardiffstudents)

 [@cardiffstudents](https://twitter.com/cardiffstudents)

 [www.youtube.com/cardiffstudents](http://www.youtube.com/cardiffstudents)

# Applications



## Application process and entry requirements

Applications must be made through the UCAS scheme, details of which can be found at [www.ucas.com](http://www.ucas.com). Applications can be made either in the English or the Welsh language. The UCAS code and number for Cardiff University is **CARDF C15**.

Once we receive your application, you will normally be invited to visit the School on one of our applicant visit days. The visit includes a guided tour of the School and the University campus, allowing you to see facilities such as the library and Students' Union.

You also have the opportunity to talk to present students, and find out what life as a mathematics student is really like.

There is the opportunity to talk to staff and to raise any questions that you may have.

Most of our offers are conditional on A-level results. The standard A-level offer for Single Honours Mathematics degree programmes is **AAA / A\*AB** with an **A** in Mathematics.

A-levels in General Studies and Critical Thinking are not counted towards this offer. You are not required to have studied Further

Mathematics, nor does it matter which version of Mathematics A-level you have taken, as long as it contains the core material in Pure Mathematics. A minimum C grade in GCSE English or equivalent is typically required. The Welsh Baccalaureate is accepted as one of the three A level grades.

The corresponding IB offer is 36 points overall, with at least 6 in Higher Level Mathematics. An English qualification of minimum grade C at GCSE or equivalent is normally required. Applications from mature students and students who have equivalent qualifications, such as BTEC, GNVQ, ACCESS, are also welcome.

Overseas students are also welcome, and we would consider your qualifications on a case by case basis.

## Open Days

University-wide Open Days are held throughout the year and provide the opportunity to visit all schools in addition to residences, the Students' Union and sports facilities.

The Admissions tutors are also very willing to discuss queries, by telephone, letter or email. For further information, please see the website: [www.cardiff.ac.uk/open days](http://www.cardiff.ac.uk/open days)

## Applicants with disabilities/ equal opportunities

Every application is considered on an individual basis. We welcome applications from students with disabilities. Applicants with special requirements that relate to a disability or medical condition are encouraged to contact the Disability Advisor, who can discuss individual needs.

Where appropriate, informal visits can be arranged in which applicants can view accommodation and meet academic staff in addition to staff from the Disability Service.

The Disability Advisor can be contacted at:

Disability and Dyslexia Service  
Student Support Centre  
50 Park Place  
Cardiff CF10 3AT

Tel: **029 2087 4528**

Email: [studentsupport@cardiff.ac.uk](mailto:studentsupport@cardiff.ac.uk)

All applicants are afforded an equal opportunity, irrespective of their age, colour, race, ethnic or national origins, sex, sexual orientation, marital status, family responsibilities, physical or sensory disabilities, or their political or religious beliefs.

## Applications *continued*



The diversity of background among Cardiff's mathematics students is encouraged, and all selection decisions are made strictly by merit.

### Notes for Welsh language applicants

We recognise that if you are a Welsh speaker, you may feel more comfortable speaking to a Welsh speaking personal tutor. Provided there are Welsh speaking members of staff in your subject area; every effort will be made to allocate a Welsh speaker to you in year one. We offer Welsh speakers the opportunity to attend some tutorials conducted in Welsh.

In year two we offer additional Welsh language classes on some of our core modules.

In year three we offer a Welsh language version of our Introduction to Secondary School Mathematics Teaching module, which includes a weekly placement in a local Welsh medium secondary school.

If you wish, you can also submit your assessed work and take your examinations through the medium of Welsh, regardless of the language of tuition of the course you are following.

Some of the accommodation at Senghennydd Court and Talybont student residences has been allocated for Welsh speakers and learners who would like to be grouped. If you want to take advantage of this, please make a note of this on your accommodation form.

### Admissions contact

For information on applying and enrolling on any of our programmes please contact:

Caroline Frame-Morgan  
Admissions and Clerical Assistant  
School of Mathematics,  
Cardiff University, Senghennydd Road,  
Cardiff CF24 4AG

Tel: **+44 (0)29 2087 4811**  
Email: **FrameC@Cardiff.ac.uk**

Dr Jonathan Gillard  
School of Mathematics,  
Cardiff University, Senghennydd Road  
Cardiff CF24 4AG

Tel: **029 2087 0619**  
Email: **gillardjw@cardiff.ac.uk**

### Tuition fees and financial assistance

The University charges an annual fee which covers all tuition fees, registration and examinations other than the retaking of examinations by students not currently registered.

Please note charges for accommodation in University Residences are additional.

Please see the following website for more information: **[www.cardiff.ac.uk/fees](http://www.cardiff.ac.uk/fees)**

### Scholarships and bursaries

For more information, please visit the following website:

**[www.cardiff.ac.uk/scholarships](http://www.cardiff.ac.uk/scholarships)**

Useful websites for information about tuition fees and financial assistance:

Cardiff University website:  
**[www.cardiff.ac.uk/fees](http://www.cardiff.ac.uk/fees)**

Student Support Centre website:  
**[www.cardiff.ac.uk/financialsupport](http://www.cardiff.ac.uk/financialsupport)**

Student Finance Wales:  
**[www.studentfinancewales.co.uk](http://www.studentfinancewales.co.uk)**

Student Finance England:  
**[www.studentfinanceengland.co.uk](http://www.studentfinanceengland.co.uk)**

Student Loans Company:  
**[www.sl.c.o.uk](http://www.sl.c.o.uk)**



## Important Legal Information

The contents of this brochure relate to the Entry 2020 admissions cycle and are correct at the time of going to press in May 2019. However, there is a lengthy period of time between printing this brochure and applications being made to, and processed by us, so please check our website at: [www.cardiff.ac.uk](http://www.cardiff.ac.uk) before making an application in case there are any changes to the course you are interested in or to other facilities and services described here. Where there is a difference between the contents of this brochure and our website, the contents of the website take precedence and represent the basis on which we intend to deliver our services to you.

Your degree: Students admitted to Cardiff University study for a Cardiff University degree.



This brochure is printed on paper obtained from well managed sources using vegetable-based inks. Both the paper used in the production of this prospectus and the manufacturing process are FSC® certified. The printers are also accredited to ISO14001, the internationally recognised environmental standard.

When you have finished with this brochure it can be recycled, but please consider passing on to a friend or leaving it in your careers library for others to use.

Thank you.

Cardiff University is a registered charity, no. 1136855

## How to find the School

The School of Mathematics is situated in a building known as the Mathematics Institute, located in a central position within the University campus, yet within five minutes walking time of the main city shopping complex and Cardiff's magnificent Civic Centre.

## Key

-  School of Mathematics
-  University and NHS buildings
-  Student residences

This prospectus can be made available in alternative formats, including large print (text), Braille and on audio tape/CD.

To request an alternative format please contact Laura Roberts:

Tel: **029 2087 4455**

Email: **RobertsL9@cardiff.ac.uk**

**CARDIFF**  
UNIVERSITY

PRIFYSGOL  
CAERDYDD

To find out more about the  
School of Mathematics please  
visit our website:

[www.cardiff.ac.uk/mathematics](http://www.cardiff.ac.uk/mathematics)

## Contact us

Tel: **029 2087 4811**

Email: [mathematics@cardiff.ac.uk](mailto:mathematics@cardiff.ac.uk)

### School of Mathematics

Cardiff University  
Senghennydd Road  
Cardiff CF24 4AG

## Stay in touch

 [cardiffuniug](https://www.facebook.com/cardiffuniug)

 [@MathsCU](https://twitter.com/MathsCU)

## Student life

Got questions about student life?  
Get them answered at:

[www.cardiff.ac.uk/  
studentbloggers](http://www.cardiff.ac.uk/studentbloggers)

Want to know more about life at  
Cardiff University? Our student  
bloggers are recording their  
experiences and are happy to  
answer your questions.

Our student bloggers are real  
students studying on a range of  
courses. They are here to answer  
any questions you have about life at  
Cardiff University. What's a typical  
day like? What clubs and societies  
are there? Is Cardiff's music  
scene any good? It can be almost  
anything.