

Swansea Science

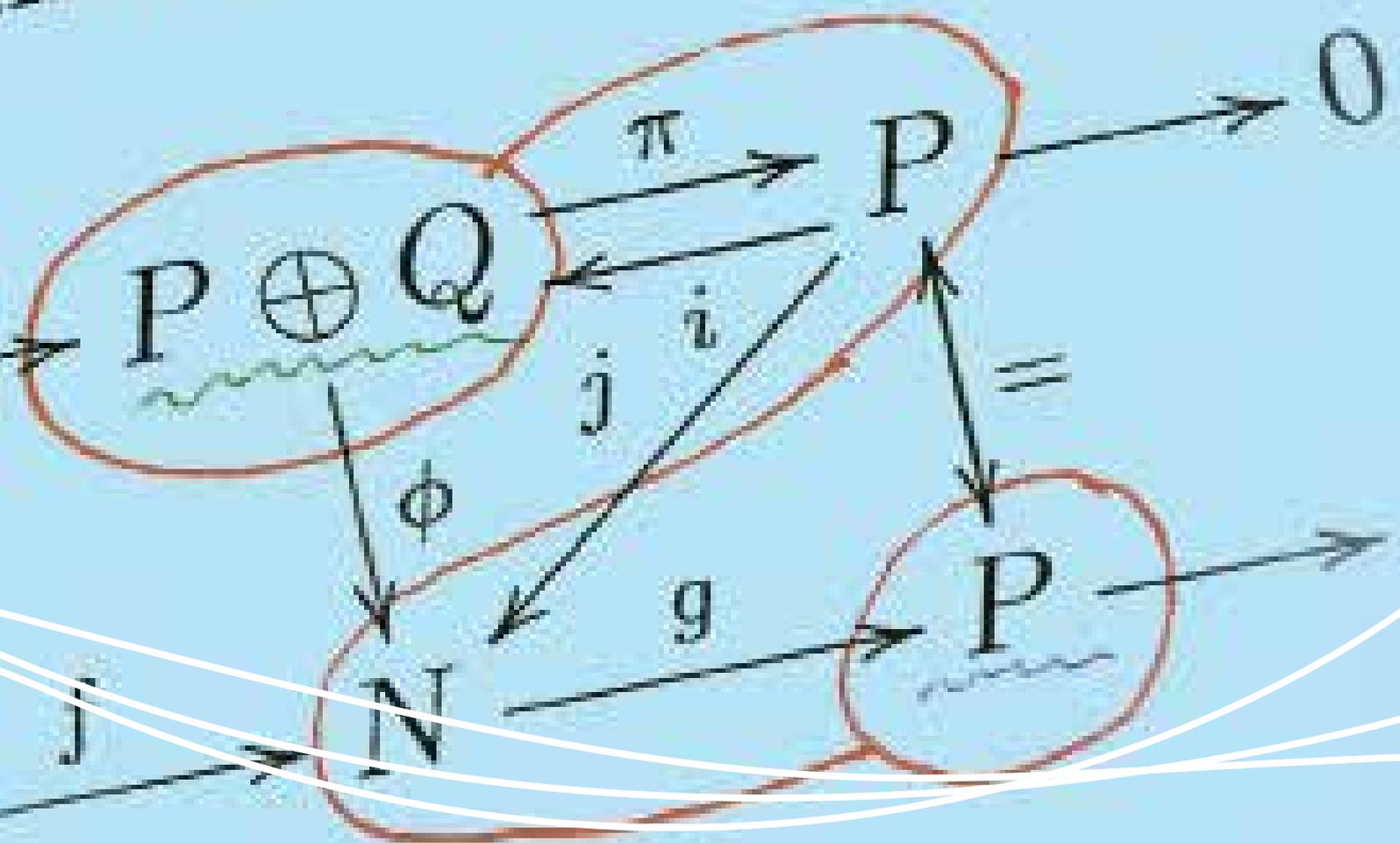


Swansea University
Prifysgol Abertawe

UNDERGRADUATE

MATHEMATICS

ine $j = \phi \circ i$, so $g \circ j =$



WELCOME

I am sure that you will find this brochure interesting and useful and that it will encourage you to study a degree involving Mathematics.

We have a staff of enthusiastic mathematicians, who love their subject and take great care of their students. We look forward to you visiting us to find out more about our courses. We will gladly help in any way we can. Our departmental teaching and research centres on modern applicable mathematics - algebra and topology, partial differential equations, stochastic processes, and their applications to physics, finance and engineering, as well as image and data processing, feature extraction and computational geometry.

Professor Biagio Lucini
Head of Department

SWANSEA OFFERS...



**YEAR IN
INDUSTRY
PROGRAMMES
AVAILABLE**

**TEACHING &
RESEARCH
CENTRES**
on modern
applicable
mathematics

HIGH EMPLOYABILITY

we are 14th in the UK for graduate prospects
[Complete University Guide 2016]



Extensive selection of final year projects designed
to develop excellent transferable skills

We are rated as one of the **TOP 25**
Mathematics departments in the UK,
and are within the **top third in the world**
[QS World University Rankings 2015]



**CONSISTENTLY
HIGH STUDENT
SATISFACTION
SCORES**

in the National Student Survey [94% in 2016]



**13TH IN UK
OVERALL**

[Guardian University
Guide 2017]

100% in graduate employment or further study six months
after leaving University [HESA data 2014/15]

A proud history an exciting vision

We've been equipping students for exceptional personal and professional achievement since 1920. Our long history of working closely with industry ensures that our degrees meet employers' needs, and that our worldleading research has a real impact on the health, wealth, culture, and well-being of our society.

Studying in a research-led university also means that you benefit from the knowledge and skills of internationally renowned academics at the top of their game. You'll benefit from a modern approach to learning, backed by excellent facilities and high standards of teaching – a 4 star rating in the QS stars global university ranking. Our wide range of Single and Joint Honours degrees give you the flexibility to take the subjects that interest you most.

A degree is important for getting a great job, but employers look for much more than a degree when choosing which graduates to employ.

Gaining experience and developing skills while you study and during vacation periods will give you a competitive edge. The Swansea University Employability Award helps you to gain experience and develop skills to give you that edge.

We'll also encourage you to try new subjects, and to take advantage of opportunities to experience other countries and cultures wherever possible. We're a University with an exciting vision for the future.

Our ambitious campus expansion and development programme is enabling us to double in size and provide even more facilities to enhance our award-winning student experience. It is creating a world-leading research, innovation and education complex, with the development of the new Bay Campus and the renovation of Singleton Park Campus, catapulting the University's success to the next level.



MATHEMATICS IS...

ANCIENT

Mathematics is more than 6000 years old, unsurpassed by any other scientific subject. Over 4000 years ago, the Babylonians were fascinated by numbers. The Greeks started a systematic study of numbers and geometry over 2000 years ago. Some of the problems they raised were only solved in the last 200 years. Fermat's last theorem, which is over 400 years old, was finally proved in 1995. There are still many more problems to solve. For example, it is still not known whether each even number is the sum of two prime numbers, or whether there is an odd number which is the sum of its proper factors.

MODERN

As the development of science and information technology continues, more sophisticated Mathematics is required. Topics which have been studied theoretically in the past are now proving to be important in quantum physics, computer design, engineering, and the financial industry. On the other hand, new mathematical topics are emerging, being investigated and being used to explain discoveries in physics, chemistry, biology, and environmental science.

USEFUL

In addition to its importance in scientific applications, a mathematical training develops logical reasoning and equips students to solve problems in all walks of life. A Mathematics degree is highly valued in the job market and graduates from Swansea have little difficulty in finding interesting and rewarding employment.

EXCITING

There is nothing quite like the special joy and satisfaction that you get from solving a problem, or developing theories to deal with new types of questions. And this is what Mathematics is all about - developing new ways to solve problems, giving us that excitement time and time again, and with it, a unique understanding of the world.

MATHEMATICS AT SWANSEA

We offer the following degree programmes:

G103	4 YEARS	FULL TIME	MMath MATHEMATICS
G100	3 YEARS	FULL TIME	BSc MATHEMATICS
G110	3 YEARS	FULL TIME	BSc PURE MATHEMATICS
G120	3 YEARS	FULL TIME	BSc APPLIED MATHEMATICS
G101	4 YEARS	FULL TIME	BSc MATHEMATICS (with Integrated Foundation)
G190	3 YEARS	FULL TIME	BSc MATHEMATICS FOR FINANCE

BSc Joint Honours in Mathematics and:

GC16	3 YEARS	FULL TIME	SPORTS SCIENCE
TBC	3 YEARS	FULL TIME	EDUCATION

WHAT ARE THE MAIN DIFFERENCES BETWEEN THE PROGRAMMES?

Our flagship MMath programme is a four-year degree aimed at giving exceptionally talented students a thorough grounding in all aspects of Mathematics. This is intended for those who wish to follow a highly mathematical career or postgraduate study.

Our three-year Single Honours programmes all cover the general range of mathematical material while allowing you either to focus on one particular aspect of the subject (Pure, Applied or Finance), or to cover a breadth of material with the Mathematics degree.

Our joint honours degree schemes offer the chance to combine Mathematics with either Sports Science or Welsh.

If you take Mathematics or Mathematics for Finance you will have the opportunity of spending a year in an industrial placement between your second and third year of study.

We also offer an Honours programme with an integrated Foundation Year (Year 0) suitable for applicants not possessing the necessary background for entry at Year 1.

The BSc Mathematics (with Integrated Foundation) degree scheme combines a foundation year followed by the standard BSc modules (Years 1, 2 and 3). In the first semester students complete modules in general science and key skills training as well as foundation and further Mathematics modules. In the second semester, the focus is predominantly on Mathematics modules with students having the possibility to choose an optional module with either a statistics or computational flavour. The Mathematics studied in Year 0 shares its look and feel with that of a typical A-Level (pure) Mathematics syllabus. However, teaching is focused on motivating and developing the key mathematical skills and principles needed to complete a degree in Mathematics. At the end of the foundation year, students will progress to one of our Single Honours degree schemes in Mathematics.

LIFE AS A MATHS STUDENT

MODULES

A degree programme is made up from a set of modules. Typically four or five modules are taught in each 11 week semester (September to December, February to May). Every degree programme has certain criteria, stating which modules are compulsory, providing the essential core material for that programme, and which options you have. Some more information about our modules is given in the following pages, and full details can be found on our departmental website: www.swansea.ac.uk/maths

For each module, you will normally have two or three lectures per week, in which the lecturer will describe the key ideas and theory, often illustrating these with worked examples. You will then deepen your knowledge and understanding with regular example sheets, problem classes, and independent study. Our single honours Year 1 students attend a total of about 17 hours of classes per week, made up of 12 lectures, four problem classes and one tutorial.

LECTURES

Lectures are 50 minutes long. The lecturer will talk and write on a chalkboard or use a data projector. Much is covered in one lecture, more than at school, and at a greater depth than most students will initially be used to. Our support system of problem classes and tutorials will help you with problems you cannot resolve.

ADDITIONAL SUPPORT: PROBLEM CLASSES, TUTORIALS, AND OFFICE HOURS

Problem Classes: Problem Classes are 50 minutes long and in Year 1 take place for each module once per week. During these sessions, the person taking the class will work through examples, and address any common problem areas that have been highlighted in the work submitted by the students.

Tutorials: Our Year 1 students are assigned an academic tutor at the start of the year, and meet with this tutor weekly with a small number (typically five or six) of other students for a tutorial. As well as answering specific mathematical queries, tutors may also use the time to give an overview or a different slant or perspective on topics you have studied in lectures, or to discuss different aspects of Mathematics.

Office Hours: All Mathematics students are able to consult academic staff during designated Office Hours, during which staff are available in their offices to answer questions on any issue.

COURSEWORK AND EXAMINATIONS

The best way to learn Mathematics is through practice. Students are expected to hand in coursework regularly: one example sheet in each module every week throughout Years 1 and 2. Usually this coursework contributes 20% towards the overall mark awarded for the module, with the remaining 80% provided by a formal 2-hour examination that takes place shortly after the teaching period ends. Having 20% of the final mark coming from coursework both takes the pressure off the formal examination, and also gives both us and you a chance to monitor your progress.

Marks from Year 2 and subsequent levels will be combined, with more weight given to the higher Levels, to determine your final degree classification.

PERSONAL TUTORS

Mathematics students in all years are assigned a personal tutor who:

- is your first point of contact with the university administration
- can put you in touch with university agencies, such as Wellbeing Services
- will advise and monitor your academic progress
- will provide references when it comes to applying for jobs

SUPPORT THROUGH THE MEDIUM OF WELSH

Welsh-speaking students may opt to have tutorials in Welsh, and some lecture materials in Welsh are available. Projects taken in final year can also be supervised in Welsh.

SUMSOC: OUR STUDENT SOCIETY

SUMsoc (Swansea University Mathematics Society) is a student-run society that aims to help Swansea Mathematics students from all years to get to know one another and help one another. Weekly drop-in sessions, where students can come along and ask the society's committee questions concerning example sheets, lecture notes or other aspects of their course, are very popular, as are the society's social events.

FACILITIES

The Aubrey Truman Room, located in the centre of the Department of Mathematics, houses the departmental library and computers for student use. It is a popular venue for students to work independently on the regular example sheets set by their lecturers, and to discuss Mathematics together.

Our main university library, Information Services and Systems (ISS), contains a notably extensive collection of Mathematics books.

PRIZES

We award a number of Departmental prizes:

Junior Foulkes Prize in Pure Mathematics

Awarded to the student who completes Year 1 with exceptional distinction in Pure Mathematics.

Lynne Charles Prize in Mathematics

Awarded to a student who shows exceptional merit in work assessed by the Department of Mathematics for Year 2.

Senior Foulkes Prize in Pure Mathematics

Awarded to the student who graduates with exceptional distinction in Pure Mathematics.

Oldroyd Prize in Applied Mathematics

Awarded to the student who graduates with the most distinguished performance in Applied Mathematics.

David Pryce History of Mathematics Project Prize

Awarded for the best final year Mathematics project at Year 3.

Rowland Wilson Prize in Pure Mathematics

Awarded to a graduate student who has completed a piece of work of exceptional merit which has subsequently been accepted for publication or for a Master's Degree of Swansea University.

I really enjoyed my course. I loved the varied nature of the work that we did and the expertise of the staff; you can tell they are passionate about what they teach. My course definitely set me up for my career as I can apply my degree directly to some of the work I do.

Since working as an underwriter for Zurich Financial Services, I have been in four different roles as part of the graduate rotation scheme. In my current role I am working in pricing and underwriting for our range of small and medium-sized enterprise products. My job is varied in nature but my main day-to-day jobs are very numerically focussed, using my Excel and mathematical skills.

Vicky Stockley
BSc in Mathematics for Finance





Further to my studies at Swansea University as a Master of Science graduate in Financial Mathematics, I am currently working at Deutsche Bank in London as part of the Structured Financial Services team providing client services for corporate lending and debt portfolios.

The complex nature of the course has helped me become a logical decision maker and a highly skilled problem solver. These transferable skills are very useful in the world of Finance since the role is highly challenging working towards deadlines and structured transaction targets.

My studies at Swansea University have also enriched me with leadership, motivational skills and have enhanced my communication skills. I work in a close team of 10 people within a large department which encourages a culture that strives towards learning and effective teamwork.

I thoroughly enjoyed my time at Swansea University and cherish the many fond memories. I am so pleased to be expanding my horizon within a major financial centre.

Rhian Ivey, BSc Mathematics,
MSc Mathematics and Computing for Finance

WHAT WILL YOU LEARN?

YEAR 1

All our students, both single honours students studying for either one of our three-year BSc degrees or the four-year MMath degree, and those pursuing joint honours programmes combining Mathematics and another subject, acquire a solid foundation for their mathematical education by taking a common core of four modules in Year 1.

These four core modules are made up of two analysis modules: Introductory Calculus and Introductory Analysis, which introduce and develop concepts such as sets, functions, limits, differentiation and integration, and two algebra modules: Foundations of Algebra and Introductory Linear Algebra, that cover the basics of logic, proof and algebraic manipulation. Students are then introduced to abstract algebraic structures, complex numbers, vectors, matrices and a first taste of abstract vector spaces.

Semester 1 (October - January) Core modules for all students	Semester 2 (February - June) Core modules for all students
Introductory Calculus	Introductory Analysis
Foundations of Algebra	Introductory Linear Algebra

This common core will make up half of your first year modules. For joint honours students, the other half of your studies will be in your other subject; for details, see our website:

www.swansea.ac.uk/math

For most of our single honours students, there are a further three compulsory modules in the first semester: Methods of Algebra and Calculus, which consolidates and reinforces fundamental methods in algebra and calculus, building on what you will have met at A-level and linking with the core algebra and analysis modules, Classical Geometry, that introduces basic geometric structures in two and three dimensions and a Key Skills module, which develops mathematical problem solving, use of computational software packages, and presentation skills.

Such students usually then choose two out of three optional modules in the second semester, depending on their own mathematical interests and tastes. The three streams are Applied Statistics, Classical Mechanics (of particles) and Computational Methods (with Matlab). Some degree programmes require these choices to include a specific module. For example, for the BSc in Pure Mathematics, the two choices should include the module Applied Statistics, and for the BSc in Applied Mathematics, Classical Mechanics (of particles) should be taken.

Students following the BSc in Mathematics for Finance degree programme take the modules Computational Methods (with Matlab) and Applied Statistics.

Semester 1 (October - January) Compulsory modules for single honours students	Semester 2 (February - June) Optional modules for single honours students
Methods of Algebra and Calculus	Applied Statistics
Classical Geometry	Classical Mechanics (of particles)
Key Skills for Mathematicians	Computational Methods (with Matlab)

YEAR 2

Our Year 2 modules follow a similar structure to the Year 1 modules, developing into more advanced material. The common core is deepened and strengthened with a further four modules in algebra and analysis that are taken by all students.

The optional Year 2 modules for single honours students in the first semester cover Advanced Geometry and Further Methods of Algebra and Calculus. In the second semester the options are Probability Theory, Game Theory and Optimization, Classical Mechanics (of rigid bodies) and Numerical Methods (with Matlab).

Students on the BSc in Mathematics for Finance scheme take the modules Probability Theory, and Game Theory and Optimization.

Semester 1 (October - January) Core modules for all students	Semester 2 (February - June) Core modules for all students
Real Analysis and Metric Spaces	Vector Calculus and Measure Theory
Vector Spaces	Groups and Rings
Compulsory modules for single honours students	Optional modules for single honours students
Further Methods of Algebra and Calculus	Probability Theory
Advanced Geometry	Classical Mechanics (of rigid bodies)
	Numerical Methods (with Matlab)
	Game Theory and Optimization

YEAR 3 AND M (MMATH)

In these years the modules become more specialised, probing particular areas in depth. Two advanced compulsory modules are taken by all our students in their third year:

- Complex Variables, which develops calculus for complex-valued functions, a topic that has many applications in Mathematics and physics
- Higher Algebra, which studies groups, rings and fields as abstract algebraic objects and introduces categories as a language and unifying force in modern Mathematics.

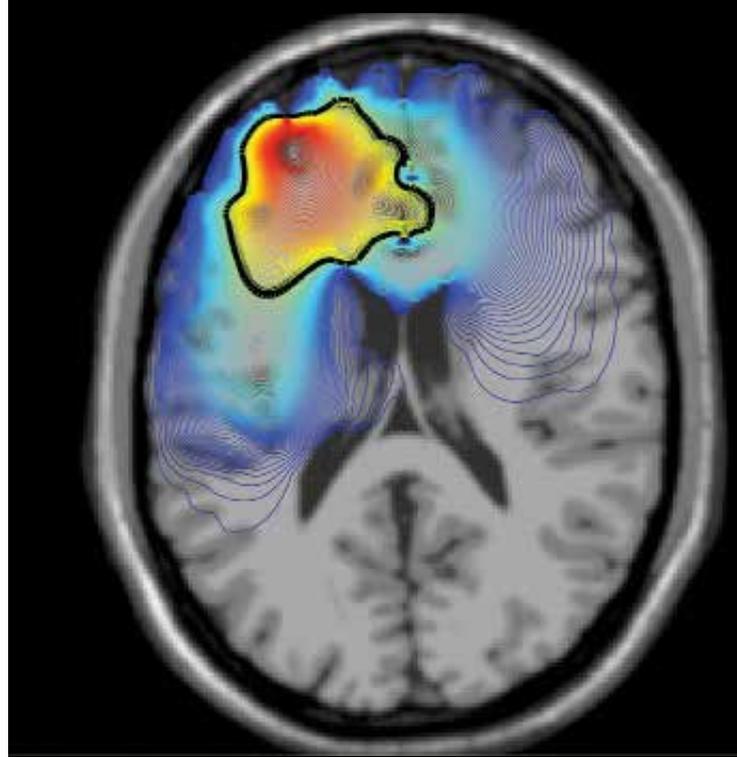
PROJECT MODULE

Most students will take a project module that makes up one quarter of the marks for their final year. This provides an excellent opportunity to explore a mathematical topic and learn new subjects independently, and to develop abilities in literature searching, project planning, written and verbal presentation and report writing. Such skills are highly valued by employers.

OPTIONAL MODULES

A wide and diverse choice of options is available to our students at Years 3 and M, allowing individual students to use the solid foundation built up during their first two years of study to specialise according to their own tastes. Many of these choices reflect and draw on the research interests and expertise of members of our staff. Here is a selection of topics that are regularly offered:

- Financial Mathematics
- Functional Analysis
- Fourier Analysis
- Differential Equations
- Partial Differential Equations
- Differential Geometry
- Topology
- Lie Groups and Lie Algebras
- Applied Algebra: Coding Theory
- Stochastic Processes
- Itô Calculus and Stochastic Differential Equations
- Black-Scholes Theory
- Numerical Analysis
- Numerics of Ordinary Differential Equations and Partial Differential Equations
- Analytical Dynamics
- Electromagnetics
- Statistical Mechanics
- Mathematical Modelling



Going back to a full time study hasn't been an easy thing to do, especially as I have other commitments, such as a young family.

From the very first moment I joined Swansea University, I received a lot of support from both the administrative staff and the lecturers. All my queries have been handled in a prompt and professional manner. All my lecturers have an excellent grasp of their subject and whenever I have had a question, they are always ready to help. I have learned a lot from my lectures and from my tutorials.

One of my favourite places on campus is the library, which has a really good selection of texts for the subject I am studying. It offers useful help and advice to support students in the learning process.

My journey is still long but I have great confidence that Swansea University will make my study experience as easy and enjoyable as possible.

Sarie Brice, BSc Mathematics

RESEARCH AT SWANSEA

The research excellence of our Department of Mathematics was recognised in the 2008 U.K. Research Assessment Exercise (RAE), with our Department being rated the strongest in Wales. Even more important than the RAE is how the international community views our research. In the International Review of Mathematics U.K. 2010, the work of our researchers in the field of stochastic analysis was highlighted as contributing to the U.K.'s world leadership in this area.

Our Department's research interests divide roughly into five main strands: algebra and topology, analysis and nonlinear partial differential equations, stochastic analysis, mathematical methods in biology and life sciences and image and data processing, feature extraction and computational geometry. Here is a taste of some specific topics currently exciting our researchers in each of these five groups. You will notice connections between these research areas and the wide range of module options offered to our students in Year 3 and M (MMath).

ALGEBRA AND TOPOLOGY

- Noncommutative geometry
- Hopf algebras, coalgebras and corings
- Categorical methods in algebra and topology
- Triangulated categories
- K-theory
- Algebras of operations and cooperations for cohomology and K-theory
- Homotopy theory and homological algebra
- Topology of moduli spaces, operads and low-dimensional topology
- Ring and module theory

ANALYSIS AND NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS

- Regularity theory for p-Laplace type operators
- Navier-Stokes equations in fluid dynamics
- Concentration phenomena in nonlinear Schrödinger equations
- Complexity in the calculus of variations
- Reaction-diffusion-convection equations and systems
- Pseudo-differential operators generating semi-groups

STOCHASTIC ANALYSIS

- Functional inequalities and applications
- Stochastic partial differential equations and applications to fluid mechanics
- Lévy-type processes
- Non-commutative (quantum) probability
- Stochastic modelling of fractal, multifractal and multiscale systems
- Numerical simulation of stochastic processes
- Infinite dimensional stochastic analysis

IMAGE AND DATA PROCESSING, FEATURE EXTRACTION AND COMPUTATIONAL GEOMETRY

- Noise reduction from images and data sets
- Approximation and interpolation of sparsely-sampled data
- Multiscale medial axis
- Feature extraction from images and geometrical objects e.g. edges, corners, intersections, endpoints of curves, boundaries of surfaces
- Oscillation detection for images and data sets
- Computational methods for image processing
- Applications to medical images and computer-aided geometric design

MATHEMATICAL METHODS IN BIOLOGY AND LIFE SCIENCES

- Mathematical pharmacology
- Heat and mass transfer models for plant cooling
- Modelling cellular signal transduction dynamics
- Mathematical Oncology: Multiscale modelling of cancer growth, progression and therapies, and modelling-optimized delivery of multi-modality therapies
- Multi-scale Analysis of Individual-Based Models
- Spreading speeds and travelling waves in ecology
- Numerical Analysis: hp-adaptive Discontinuous Galerkin Finite Element Methods, Finite Volume Method, iterative solvers
- High Performance Computing
- Computational solution of partial differential equations: fluid-structure interaction for cardio-vascular problems, crack propagation, multiphysics modelling

CAREER PROSPECTS

One of the University's key aims is to "prepare and promote the employability of students". The Careers and Employability Service plays a key role in fulfilling this aim by providing services that can help you develop the knowledge, skills and qualities to get your first job. These attributes will subsequently enable you to manage your future career effectively. Career skills are embedded in the Mathematics curriculum from Year 1 through to Year M and Employability Workshops with talks by graduate employers such as PriceWaterhouseCoopers, IBM, the Government Statistical Directorate and from a variety of professional bodies including the Institute of Mathematics and its Applications (IMA) are regularly organised.

Another recent initiative introduced by the Swansea Employability Academy is "SPIN" (Swansea Paid Internship Network) which helps undergraduate students gain valuable knowledge and experience of working life. Students can undertake a project or range of projects with a business

during the summer period. For more details, visit the Swansea Employability Academic website:

www.swansea.ac.uk/employability-academy

Our degrees will prepare you for a rewarding career in a wide range of areas such as the actuarial profession, the financial sector, IT, teaching, computing and opportunities within business and industry where employers need mathematicians for research and development, statistical analysis, marketing and sales. Recent graduates have obtained roles at Deutsche Bank, the Office of National Statistics, AXA, BA, Shell Research, BMW, KPMG, Tesco, Procter and Gamble, Zurich Financial Services, Rolls-Royce Submarines, PRA International, Health Authorities and Local Government for instance.

AN INTERNATIONAL PERSPECTIVE

The Department of Mathematics and the College of Science have a rich international community with many international links. Students from 80 countries around the world have chosen to study our undergraduate, postgraduate and research degrees.

The department is thoroughly international with staff from Australia, Belarus, China, Germany, India, Italy, the Middle East, Poland, Russia, Spain, the USA, and Ukraine. This means we have a lot of experience of the challenges that students face when coming from another country.

- Swansea is a safe and friendly multi-cultural city with lower living costs than most of the UK
- We are three hours from London by direct train
- We offer free academic English support classes for enrolled, full-time international students
- A free International Student Advisory Service is available for help and advice with healthcare, visas and more

Visit the international pages on our website for country-specific information, student videos, and much more - www.swansea.ac.uk/science/international

I am really enjoying the range of topics on the course. The lecturers are also always friendly and available if you have any problems.

Malgorzata Swietlik (from Poland)
MMath Mathematics

HOW TO APPLY

Students from the UK and the European Union (EU) should apply via UCAS, the standard application system for UK universities - www.ucas.ac.uk

Applicants from outside the EU may apply directly via the website: www.swansea.ac.uk/international/students/apply

When we receive your application, we will invite you to come to one of our Applicant Visit Days. These are a great opportunity for you to explore Swansea University and all it has to offer. Guided tours of the campus, accommodation and sports facilities are normally available in the morning, and in the afternoon you will have the opportunity to discuss your interests with us individually in an interview, to find out more about the degree, to get a first taste of university Mathematics in a short lecture, to meet staff and current students and ask any questions you may have.

If you are unsure whether to apply for the three-year BSc in Mathematics (G100) or the four-year MMath degree (G103), please note that it is usually possible to transfer between these programmes within the first two years of study. We also try to be as flexible as possible in allowing students to move between other degree programmes.

WHAT QUALIFICATIONS DO I NEED IF I AM A UK APPLICANT?

We welcome applicants with a wide range of qualifications, such as A levels, International Baccalaureate, Welsh Baccalaureate, BTEC National Diploma and relevant equivalents.

Our typical offers are as follows for our Single Honours BSc schemes (excluding G101):

- A levels - grades AAB-BBB to include Mathematics
- BTEC - DDD plus grade B in A level Mathematics
- Scottish Highers - ABBBC to include B in Mathematics
- IB - 34-32 to include at least 6 in HL Mathematics



For the latest information on our entry requirements, including our BSc Mathematics with Foundation Year and our Joint Honours schemes, please visit our website.

For our MMath scheme, we typically offer:

- A levels - grades AAA to include Mathematics
- BTEC - DDD plus grade A in A level Mathematics
- Scottish Highers - AABBB to include A in Mathematics
- IB - 36 to include at least 6 in HL Mathematics

Welsh Baccalaureate: Pass acceptable as equivalent to an A grade A level.

All applications will be considered on an individual basis, and we will look at the whole application when deciding whether to make an offer of a place, including: the balance, nature and quality of A-level, AS and GCSE subjects (or equivalent); personal statement and referee's comments.

WHAT QUALIFICATIONS DO I NEED IF I AM A EUROPEAN UNION OR AN INTERNATIONAL APPLICANT?

We welcome EU and international applicants with a wide range of qualifications. We have included most of these on the table below. Please note that these are for guidance only. If your country is not listed, please get in contact with maths-admissions@swansea.ac.uk or for International enquiries please contact international-science@swansea.ac.uk

English Language - We require IELTS 6.0 (with 6.0 in each component) or equivalent English test.

BURSARIES & SCHOLARSHIPS

The Department of Mathematics has a tradition of offering a number of departmental scholarships up to a total value of £3000, awarded on the basis of a competitive examination that takes place prior to Easter for students starting their studies the following September. Students who apply to us will be sent details if these scholarships are being offered in a particular year.

Financial assistance from several sources is available to help students to study at Swansea. Swansea University award a number of Excellence Bursaries to all students who achieve AAA at A-level (or equivalent) worth £3000 over three years; Merit Scholarships to all students who achieve AAB at A-level (or equivalent) worth £2000 over three years; Income Related Bursaries; Sporting Scholarships; as well as the Departmental Scholarships detailed above.

For details of scholarships for international students, visit our International Development Office website - www.swansea.ac.uk/international/students/fees-and-funding/scholarships

Whilst doing my PhD I lectured part time at both Swansea and Gorseinon Colleges. It was these positions that fuelled my passion to teach. In September 2004 I took a job as a Management Accountant with Corus, and then two years later, as a part-qualified accountant, I decided to accept a place on the PGCE programme at Swansea Institute. Part of my teacher training placement saw me team up with another ex Swansea Uni graduate, Dr. John Felton. I learned many great techniques under his guidance and graduated one year later with an award for the most outstanding PGCE student. I believe it was my PhD that gave me the opportunity to accept a job for the first post I applied for, at Olchfa Comprehensive, Swansea. After two years at this school I moved back to the Valleys and now teach at Ebbw Vale Comprehensive School where I have recently accepted a temporary position as "Head of House".

In my teaching career, the Maths PhD has made me very employable.

Scott Reasons, MMath, PhD Mathematics



ENTRY REQUIREMENT FOR EU APPLICANTS:

COUNTRY	MINIMUM ENTRY REQUIREMENTS FOR SINGLE HONOURS BSc SCHEMES
BULGARIA	5.5+ (with no scores below 5) - 4 in Diploma Za Sredno Obrazovanie or Diploma za Sredno - Spetzialno Obrazovanie to include Mathematics
CYPRUS AND GREECE	18 - 19/20 overall and 18/20 in Mathematics in the Apolytirion
FRANCE	15 - 13 (Bien - Assez Bien) overall average in French Baccaalaureate to include Mathematics
GERMANY	1.5 - 1.7 - 2.2-2.4 overall in Abitur to include Mathematics
HUNGARY	4@Higher 5@Standard - 4 in Erettsegi Bizonyitvany/Matura to include Mathematics
IRELAND	390 - 360 points in the Irish Leaving Certificate to include 120 points for Mathematics
ITALY	90 - 95 - 85 in High School Diploma (Esame di Stato) to include Mathematics
LITHUANIA	8 (to include 70 at 2 state exams) - 7.5 (to include minimum 70 average in state exams) in Brandos Atestatas to include Mathematics
NETHERLANDS	8 (with no scores lower than 6) - 7 in Voorbereidend Wetenschappelijk Onderwijs (VWO) to include Mathematics
POLAND	90-95 Standard or 65-70 Advanced - 80+ Standard or 70 Advanced in Swiadectwo Dojrzalosci/Matura to include Mathematics taken at the higher/advanced level
PORTUGAL	19 - 16 in Certificado de Fim de Estudos Secundarios and/or Diploma de Ensino Secundario Diploma de Enson Secundario to include Mathematics
ROMANIA	9 (with no scores lower than 7) - 7 in Diplom de Baccaalaureate Diploma to include Mathematics
SPAIN	9 - 7 in Titulo de Bachiller to include Mathematics

As my final year of my MMath course is about to begin, I am looking forward to the challenge, with the knowledge that the support of the lecturers and Department will be ever present, as it has always been over the last three years. My university life began on a three year BSc course, but having decided that I wanted to participate in a MMath course, there was no question that Swansea was where I wanted to continue my studies.

The decision to switch to a MMath course was a simple one because I was, and still am, thoroughly enjoying my Mathematics at Swansea University. This is primarily due to the lecturers and their evident passion for the subject, conveying this enthusiasm to the entire year, making Swansea a perfect place to study maths.

Having spent two years as the president of the maths society, I have had the privilege to get to know students from all levels of study. This community combined with the support from the Department makes Swansea University an ideal surrounding to study Mathematics.

James Harris, MMath Mathematics

LATEST INFORMATION

For up to date information on studying at Swansea, please visit www.swansea.ac.uk/undergraduate and for information about studying Mathematics at Swansea, please visit www.swansea.ac.uk/math/undergraduate

CONTACT

For enquiries or further information about Mathematics at Swansea, please contact maths-admissions@swansea.ac.uk or telephone **+44 (0)1792 606428**



The University holds Open Days for potential applicants during the Summer and Autumn, at which the Department of Mathematics runs events: see www.swansea.ac.uk/open-days. If you are unable to come to an Open Day and would like to visit on a different date, please contact us and we will be happy to make arrangements.

DISCLAIMER

The following message contains some very important information. Please read it before you use this brochure.

This brochure was printed in the Spring of 2016. It contains information on the undergraduate programmes in Computer Science that Swansea University intends to run for students who are planning to start university in the Autumn of 2017. We have made every reasonable effort to ensure that the information provided is both helpful and accurate as at the date of publication. However, some changes, for example to programmes, study location, placement opportunity, facilities or fees may become necessary due to legitimate staffing, financial, regulatory and academic reasons. We will endeavour at all times to keep any changes to a minimum and to keep prospective students informed appropriately. Any changes to the information contained in this brochure will be updated quarterly at www.swansea.ac.uk/undergraduate-programme-changes and on the online course pages at: www.swansea.ac.uk/compsc/undergraduate