CHE MIS TRY

PROSPECTUS 2020

COLLEGE OF SCIENCE







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GET IN TOUCH

If you have any questions, you can get in touch:

🔯 study@swansea.ac.uk 🕒 +44 (0) 1792 295111



Welcome to

THE COLLEGE OF SCIENCE

It's fantastic that you are considering Swansea University as your next step towards a bright future and career. As Head of Science, I wanted to tell you how important every member of our community is: if you join us, you'll be able to play an important role in the world-changing work we do.

We are proud to welcome people into our 'family' from many backgrounds and from around the world. Science moves forward where there is diversity and we encourage many perspectives, voices and hearts to become involved in our activities as we become one of the most creative, welcoming and recognised centres of science alobally.

During your time with us we will do everything we can to help you thrive and flourish; giving you the knowledge, skills and outlook for a fulfilling career and a good life. You'll meet people — fellow students and staff —who will have a life-long impact on you and you'll be encouraged to share your knowledge with others, too.

In this brochure, you'll find specific information on your specialist subject. You'll see that you'll be taught by world-leading researchers and teachers who are committed to your education. You'll read about the range of jobs and careers your education will open up for you and the high success rate our students have in finding the future that is right for them. Reading about this is all very interesting, but please do come and visit us, too, so you can aet a sense of the excitement and excellence that is part of our DNA.



Professor Matt Jones, Head of the College of Science

Welcome to CHEMISTRY AT SWANSEA UNIVERSITY

In studying with us you will gain insight into how Chemistry forms an integral part of everyday living and shapes the modern world around us. Based at Singleton Park Campus, our brand new facilities ensure an extensive modern teaching environment which uses the latest innovative techniques to support your studies.

You can also benefit from pre-lab simulation, allowing you to make the best use of your time in the lab. Our chemists play key roles in groups and projects in Swansea University, such as: The Energy Safety Research Institute; the SPECIFIC project, which develops buildings into solar power stations; the Centre for Nanohealth; the Biochemistry group in the School of Medicine: Biochemical Engineering and the Institute of Mass Spectrometry.

We collaborate across the university in designing renewable energy materials. Our BSc and MChem programmes focus on teaching excellence, student experience and employability.

We are much more than just a chemistry department, we are a close knit community working together to produce leading research that changes the world. Our close collaboration with industry translates our research into real-world applications and commercialisation. Studying chemistry will provide you with a whole host of skills valued by employers in an increasingly competitive job market and there will be a huge range of career options for you after you araduate. The world is full of emerging opportunities for our budding chemists.

CHEMISTRY IS RANKED

3RD IN THE UK

FOR STUDENT SATISFACTION

(Complete University Guide, 2020)

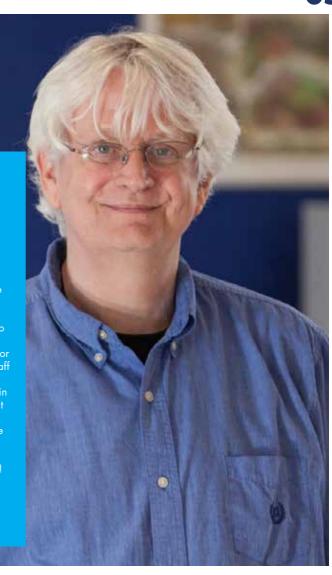


Professor Owen Guy

Thank you for thinking about studying chemistry at Swansea, you'll be making a great choice! A degree in chemistry can open many doors in a range of sectors and offer lots of exciting opportunities for you.

If you'd like to find out more about what a chemistry degree can offer you, then we'd love to welcome you to one of our Swansea Open Days. You'll get a real feel for the department, meet our staff and students and you'll get some hands on experience in our labs. If you can't make it to one of these days – not a problem. Just drop me a line and we'll set up your own personalised visit. We look forward to seeing you soon!

Professor Simon Bott S.G.Bott@Swansea.ac.uk 01792 513182





















FOLLOW US AND KEEP UP TO DATE WITH ALL THINGS SCIENCE

Don't just take our word for it

FIND OUT WHAT OUR
STUDENTS REALLY THINK
ABOUT CHEMISTRY AT SWANSEA





CHEMISTRY RETURNED TO SWANSEA IN 2017 SO ALL STUDENTS BENEFIT FROM BRAND NEW LABS AND EQUIPMENT

CHEMISTRY COURSES

F100

BSc CHEMISTRY

(3 years)

F101

BSc CHEMISTRY WITH A YEAR IN INDUSTRY (4 years) F106

BSc CHEMISTRY
WITH A YEAR
ABROAD (4 years)

F123

MChem CHEMISTRY (4 years)

BSc CHEMISTRY WITH INTEGRATED FOUNDATION YEAR (4 years)

Check our website for the latest information

"

Chemistry is an unbelievable subject and it is a great way to understand the world we live in.

Will Knight,
1st year BSc Chemistry



Chemistry FACILITIES AT SINGLETON CAMPUS

PURPOSE-BUILT LABS FOR A 21ST CENTURY CURRICULUM

The Chemistry Department is based in the Grove Building on Singleton Park Campus. The labs and equipment are all brand new, having been opened in September 2017. Designing our space from scratch allowed us to think about the 'flow' of learning in our practical space; our computer room forms the start and end of our practical classes, exploring pre-lab simulations as well as doing post-lab calculations and discussions. Going to the labs, students first pass through the locker-space where they can leave belongings securely before putting on their protective laboratory equipment.

There are two main labs: a state-of-the-art 'wet' lab for preparative experiments, and an instrument lab for measurements. In the wet lab, each student group has their own fume cupboard and computer, as well as bench space equipped with their own glassware. There is also a breakout room for group work. We use an integrated approach which combines automated data collection in experiments together with modern audiovisual capabilities to share experimental outcomes and procedures. Our labs are all fully accessible and can accommodate students with a wide range of abilities.

Singleton Park Campus is set in mature parkland and botanical gardens, overlooking Swansea Bay beach.

ENTERTAINMENT, LEISURE & SERVICES ON CAMPUS

- Sports Village
- Library
- Clothing Store
- Post Office
- Bank
- Taliesin Arts Centre
- Coffee shops
- Bar
- Supermarket
- Travel Agent

HEALTH, SAFETY & WELLBEING

- Doctors
- Dentist
- Money Advice
- 24 Hour wardens
- Disability Office
- Nursery
- International Student Advisory Service
- Mosque
- Chaplaincy
- Campuslife (disability, welfare, wellbeing and money support services)

















UCAS CODE: F100 3 YEARS FULL TIME TYPICAL OFFER: AAB – BBB UCAS CODE: F123 4 YEARS FULL TIME TYPICAL OFFER: AAA – AAB

BSc CHEMISTRY

The BSc Chemistry course will develop your practical skills as well as your theoretical comprehension, with as much time in the lab as any course in the country.

We teach chemistry differently. In your first year you'll undertake a 'Chemical Thinking' module to prepare you for university study. Other modules in the first year are divided into 'Structure and Bonding' and 'Chemical Reactions'. In addition, you will receive extensive exposure and work experience in research, commercial and government labs as well as classroom settings.

Year 2 modules cover organic, inorganic, physical, analytical, theoretical and biological chemistry, with content and project-based practical work included in all the modules.

Year 3 delves deeper into the core subjects, with options to allow specialisation, and a large research project which marks the beginning of your transition from student to professional chemist. Areas studied typically include advanced topics in molecular science, which cover research strengths in advanced materials, energy, medicinal chemistry and environmental science as well as a research project.

MChem CHEMISTRY

The MChem degree builds on the solid foundation of the BSc course, but explores the main topic areas in further depth. The defining feature of the MChem is a substantial research project, which you complete as part of a research group.

Typically, your research group will include a mix of postgraduate students and research staff and has the potential to result in publishable work. Uniquely, these projects can sit within other colleges as well as Science, such as Engineering or Medicine, to further your specialism.

MChem degrees are a good first step towards professional chemist status and an introduction to independent research.

UCAS CODE: F101 4 YEARS FULL TIME TYPICAL OFFER: AAB – BBB UCAS CODE: F106 4 YEARS FULL TIME TYPICAL OFFER: AAB – BBB

BSc CHEMISTRY

WITH A YEAR IN INDUSTRY

Our Year in Industry degree scheme incorporates an industrial placement with a sector relevant employer or organisation which can be taken either locally, nationally or overseas.

This not only helps students apply their knowledge, but also allows them to develop links with potential future employers.

BSc CHEMISTRY

WITH A YEAR ABROAD

On our Year Abroad scheme, students will get the opportunity to spend a year abroad at one of our partner institutions.

This is a marvellous opportunity to experience a different culture and, depending on the destination, to develop valuable language skills, although most opportunities are likely to be English speaking destinations. Find out more about studying abroad: www.swansea.ac.uk/international/opportunities

For further information about our courses and more details about entry requirements, please visit our website at:



UCAS CODE: F100 3 YEARS FULL TIME TYPICAL OFFER: CCD

BSc CHEMISTRY

WITH INTEGRATED FOUNDATION YEAR

The BSc Chemistry with foundation year is ideally suited to students who do not have the appropriate qualifications to go directly into the three-year BSc Chemistry degree.

The foundation year includes a wide range of relevant content in chemistry, maths and physics as well as laboratory skills that will prepare you for your studies.

You'll be introduced to organic, inorganic, physical, analytical, theoretical and biochemistry and will be well prepared for progression onto year 1, on which you will follow the regular BSc Chemistry curriculum and graduate with BSc Chemistry as your degree title.

Find out more about our foundation courses: www.swansea.ac.uk/science/study/foundation-year



Accreditation AND THE ROYAL SOCIETY OF CHEMISTRY

All of our Chemistry degrees are working towards accreditation from the Royal Society of Chemistry. Our new curriculum has been designed in conjunction with the Society and they are taking a keen interest in how our students are progressing.

Professor Sir John Holman, President of the Society, opened the new labs and met current students and staff.

He said: "It is such a pleasure, as President of the Royal Society of Chemistry, to be here and to see what excellent new facilities you have managed to create for the teaching of chemistry with your enthusiastic cohort, a cohort I am sure will only grow in the future. Congratulations to all of you at Swansea."

Our Chemistry programmes are on track for accreditation when the first cohort graduates in 2020.



One of our student ambassadors demonstrates to Professor Sir John Holman, President of the Royal Society of Chemistry

We are the only Chemistry department in the UK with a student society that is affiliated with the American Chemical Society (ACS). In April 2019 @SUChemSoc students visited Orlando for the National Meeting of the ACS, with Professor Simon Bott who is a member of their Education Committee. The ACS covered most of the costs of the trip.

#acsorlando

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One of the highlights of my course was the ACS meeting in Orlando. I got to meet other chemistry students from across the globe and explore their ideas and thoughts into how to further chemistry in the future.



Jess Hone 2nd Year Undergrad ChemSoc President

in Chemistry

Chemistry graduates have all the essential skills that employers need. Your top-notch analytical skills, team-working ethos and high level of numeracy, combined with your ability to present your findings to others are in demand by employers across all sectors.

Swansea Chemistry has superb links with industry, both locally and internationally with companies such as Tata Steel, SPTS Technologies, Biovici Ltd, Newport Wafer Fab, IQE and Perkin Elmer. We work with a huge range of companies from global leaders in semiconductor manufacturing to companies developing novel drug delivery.

Our students undertake industry-focussed research projects, gaining valuable experience and industry relevant skills – which subsequently opens up a plethora of job opportunities.

The University also assists you to find work experience with our WOW (Week of Work) and our SPIN schemes (Swansea Paid Internship Network).

TEACHER TRAINING

Did you know that you can now train to be a secondary teacher at Swansea University?

Once you've finished your BSc course, you can progress to study a PGCE here at the University and become a qualified chemistry teacher.

Visit www.swansea.ac.uk to find out more.





CHEMISTRY Research

Chemistry research at Swansea University is vibrant and covers a wide range of research areas and interests, and will be growing at a fast pace over the next 2 – 3 years.

It is focused on four themes: Energy, Health, New and Advanced Molecules and Materials, and Water and the Environment. These research initiatives transcend the traditional discipline boundaries, integrate the core areas of inorganic, organic, physical and analytical chemistries and intersect with other scientific disciplines, engineering and medicine.

Our researchers are working on projects such as developing novel catalysts to store solar energy while simultaneously mitigating CO₂ emissions, nanoparticle-based drug delivery, and the development of bioinspired water-repelling nanomaterials to replace more expensive and environmentally-damaging materials used for waterproofing. We collaborate with other disciplines, such as medicine, engineering and biosciences.

Students will get opportunities to take part in this research from their first year on campus, thereby applying the fundamental concepts learned 'in class' to cutting-edge invention and discovery. The critical thinking and other intellectual and social skills developed in this way are of increasing demand by employers.

www.swansea.ac.uk/chemistry/research-and-impact



RESEARCH

Spottight

Our staff are working to change the world. Dr Moritz Kuehnel has been working to transform unwanted plastic into hydrogen by adding light absorbing material to plastic, before it is placed in an alkaline solution and then exposed to sunlight-which creates hydrogen, which could then be used as fuel in cars. This is much cheaper than recycling as the waste plastic doesn't have to be cleaned first.



Dr Moritz Kuehnel







HOW SWANSEA'S CHEMISTRY RESEARCH CONTRIBUTES TO ACHIEVING THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

Dr Ian Mabbett, Associate Professor of Chemistry and Chief Operating Officer of the SUNRISE project, is helping to improve the lives of people in India.



My recent research focusses on problems in developing nations. In 2014 I had a chance encounter with the Bill and Melinda Gates Foundation (BMGF), where I discovered how 40% of the world's population have inadequate access to proper toilet facilities. The impact of this is a childhood death rate from diarrhoea that eclipses AIDS, malaria and measles combined. Together with the BMGF I realised that my skills and Swansea's innovation ethos could help with one of the world's biggest challenges. The reality is that technologies to solve these issues need to be commercially viable, we need to derive value from waste by creating other commodities such as fuels or fertilisers and clean water. One thing holding the technologies up is an economic way of preprocessing and de-watering faecal sludge materials. Through my previous work on the drying, curing and sintering of various materials, I'd gained a lot of experience in radiative drying, a technique which can help pre-treat materials, reducing the energy needed and driving down costs.

Most recently, I have taken a very exciting opportunity to combine all these experiences as chief operating officer of SUNRISE, a joint UK-India project to develop efficient, low-cost solar technologies and deploy them in rural India. SUNRISE utilises the experience and knowledge of SPECIFIC-IKC (an academic and industrial consortium led by Swansea University with Tata as its main industrial partner) and puts them to use scaling up the production of next generation energy materials. The project will develop technology in photovoltaics, energy storage, lighting, biomass and clean water and sanitation and co-create solutions with UK and Indian partners. We will then deploy five demonstrator buildings powered by these technologies in India and additionally create a doctoral training programme, similar to Swansea's industry focussed EngD, across both countries. 55



If you want to find out more about the contribution our staff, students and alumni make to the UNSDG, visit:

www.swansea.ac.uk/ science/unsdg

Student Profile

GETTING INVOLVED BUILD SKILLS WHILE YOU HAVE FUN!

Paige Mitchell is one of our student ambassadors for Chemistry. She's also a member of the Chemistry Society.

ambassador allows me to talk to prospective students and parents and answer any questions they may have. I really enjoy being able to talk about the course and other aspects of university life and hopefully ease their mind about the transition between school and university.

My favourite activity was the opening of the Chemistry department. I got to meet a variety of different people, including ex-Swansea chemists, teachers and lecturers from other universities and schools, and even members of the Royal Society of Chemistry.

I love being a member of the Chemistry Society as it helps me to build my CV at the same time as socialising with my friends. We help with outreach activities, such as assistina A-Level students who come into our department and carry out experiments, which they would otherwise be unable to do using their school facilities. ChemSoc members are demonstrators for these events and get to support the students by helping them understand the practical skills they need as well as the theory behind what they are doing. Some of these experiments include, pH titrations using data loggers and drop counters and organic synthesis of aspirin. A further aim for the society is to influence more women to go into science.

As a student here, you really need to manage your time well! Chemistry is a complex degree and requires the hours put in to understand and consolidate the material.

Plan your schedule so that you have time to socialise but also fit in all your required work and even some additional reading around the topic areas if you're feeling enthusiastic. Don't leave lab write-ups until the last minute, do them after the lab when the material is fresh in your mind. Don't skip lectures: contact time with academics is vital to success. Utilise them to questions and explain things you don't fully understand. Make the most of your contact time with them; they are here to help!







REASONS TO STUDY AT

Swapsea University

TEF Gold

THE TIMES
THE SUNDAY TIMES
GOOD
UNIVERSITY
GUIDE

2019

UNIVERSITY OF THE YEAR RUNNER-UP F 10 GRADUATE PROSPECTS

(Destination of Leavers from Higher Education 2018)



RESEARCH EXCELLENCE

THE MATTIMES THE SUNDAY TIMES

GOOD UNIVERSITY GUIDE

2019

WELSH UNIVERSITY OF THE YEAR 5 Star



TEACHING EXCELLENCE





WINNER INTERNATIONAL

¥30

(The Times and Sunday Times, Good University Guide 2019)



66

My name is Konstantinos but everyone calls me Sam. I'm an international student from Greece. When I was looking for a university, a visit was out of the question so I didn't have too much to go on; just uni guides, course outlines and league tables. Swansea had one of the highest student satisfaction rates and graduate prospects but the deciding factor for me, however, was the sea.

After I started my studies, I quickly found myself involved with the Students' Union after I asked for some help. I put myself up for the first-year Subject Rep elections and got elected. It's my job to bring whatever issues the students have to the departments' attention, and I love it!

I get to see behind the curtain as to how the decision makers in the department actually take our feedback into consideration when making changes that affect students.

I now work as one of the two Undergraduate College Reps and make sure that the students' voices are heard in every department of the College of Science. I really enjoy helping to make improvements to students' lives through working closely with the Students' Union.

VISITING SWANSEA UNIVERSITY and your offer

It's really important that you make the right choice of university and course, and you can always contact us if you're worried things might not go according to plan.

After you've applied, you'll be invited to attend a Swansea University Open Day. You'll have the opportunity to speak with staff and students who can answer any questions you may have. Also, visiting us is a great way to get a taste of life here at Swansea University and get the chance to chat one-on-one with academic staff to discuss your offer or ask questions about the course itself.

We can be flexible with offers, so please get in touch to tell us about your personal circumstances.



NOT GOT THE GRADES?

Contact us if all doesn't go to plan and we will do our best to help.

Come see us!

BOOK NOW

www.swansea.ac.uk/open-days



SCHOLARSHIPS AND BURSARIES

Swansea University award a number of Excellence Scholarships to all UK 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.

Visit www.swansea.ac.uk/ scholarships for the latest information and terms and conditions.

Additional departmental scholarships may be available. Email: s.g.bott@swansea.ac.uk for more information.

*The scholarship may also be awarded to EU students, please check the website for the latest information

What our open day visitors say ...

Really interesting speakers and content. Students were extremely helpful. An informative and enjoyable experience.

All presentations were very informative, and was great to hear how the course will be delivered.

Loved using the equipment and talking to staff 1:1.

Absolutely perfect in every way!

Very enthusiastic lecturers and students!

Key Dates FOR YOUR APPLICATION



UCAS applications open

JAN - JUNE

More opportunities to visit us and have one-to-one chats with our lecturers

OCT/NOV

Attend a Swansea University open day

MAR - JUN

Apply for finance and accommodation

JAN 15TH

UCAS application deadline

(although we will still accept applications after this date)

SEPTEMBER

Arrivals and welcome week!







OPEN DOOR POLICY

All of the lecturers have an 'open door' policy, so you can go and ask questions or talk to them about any issues you are having.



'FLIPPED LEARNING'

This means that you'll get more time in class to engage with your lecturers and ask about anything you're not sure about.



STUDENT SUPPORT

The Chemistry Department is friendly and welcoming. Our lecturers have a close bond with students and are always available to offer help and advice.

ONLINE RESOURCES

These prepare you for experiments so that you're ready to do the practical when you walk into the lab. These include simulations and worked problems as well as videos that detail the experiment.



Each student has an academic mentor as well as a chemistry content tutor so they have multiple people to go to for support.



10 Things YOU MUST DO

- 1 Eat Joe's Ice Cream
- 2 Paddle in Swansea Bay
- Wisit the National
 Waterfront Museum –
 one of many museums
 and galleries in the city
- 4 Surf down the Gower
- 5 Grab fish & chips at Mumbles Pier
- 6 Walk around our Marina
- 7 Socialise with friends on Wind Street
- 8 Eat Welsh cakes at Swansea Market
- Watch football, or the nation's favourite, rugby at the Liberty Stadium
- 10 Take in a show at the Grand Theatre

WHEREVER YOU GO IN SWANSEA...

you're by The sea

It's a beautiful location and a buzzing city; warm and friendly, it's compact, yet offers it all.

Swansea is as rich an environment for living as it is for learning. From its breath-taking sweep of award-winning beaches and coves to its dazzling nightlife, eclectic dining and unique shopping experiences, it's 378km² of everything you need to make your student experience amazing.



3RD MOST AFFORDABLE UK TOWN

(TotallyMoney.com 2018)







JARGON buster

When you apply to University you will come across terms and jargon you may not have come across before. We have attempted to take some of the worry away by producing a 'Jargon Buster' covering the most frequently used terms.

Adjustment: If your grades are better than expected and you exceed the conditions of your conditional offer, you can 'adjust' to an alternative place.

Change course offer:

This can be offered by your university/college if you don't meet the entry requirements of your original choice.

Choice: This is the course you apply for. UCAS allows you to initially apply for up to 5 courses.

Clearing: Clearing gives students the chance to look for a place on a course after 30 June, at any university or college if you haven't already had an offer of a place.

Conditional Offer:

Congratulations, we have made you a conditional offer. This means that you have an offer of a place subject to meeting the conditions, which usually means achieving specific grades or tariff points in your exams.

Unconditional Offer:

Congratulations, you have an unconditional offer. This means that you have a place with us!

Confirmation: The decision made by university or a college once examination results are received to accept or reject the application.

Deferral: This applies to students who want to start at a later date. UCAS will allow up to two deferrals before you have to re-apply.

Entry Requirements:

These are the grades that we recommend students get to join our courses. Each course has its own requirements. These can all be found on our website.

Firm Choice: This is your first choice university, so make sure you save this spot for Swansea!

Insurance Choice: This is your second choice university.

Track: This is the UCAS online tracking system where you can see the progress of your application.



UCAS: UCAS stands for Universities and Colleges Admissions Service. All UK applications go through UCAS

Undergraduate: All first degrees (i.e. BSc) are known as undergraduate degrees.

Undergrad: When you start university, you may be referred to as an undergrad while you are studying an undergraduate degree.

BSc: An undergraduate academic degree known as a Bachelor of Science. When you graduate you will be awarded a BSc in your subject.

MChem: This is a 4 year undergraduate course with an integrated master's qualification.

IMPORTANT INFORMATION -PLEASE READ

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

This guide was printed in the Spring of 2019. It contains information on programmes that Swansea University intends to run for students who are planning to start university in the autumn of 2020. 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, facilities or fees may become necessary due to legitimate staffing, financial, regulatory and academic reasons. We will endeayour 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 guide will be updated quarterly:

Undergraduate: www.swansea.ac.uk/ undergraduate-programmechanges and on the online course pages at: www.swansea.ac.uk/ undergraduate/courses

CONTACT US

College of Science Singleton Campus, Swansea University, SA2 8PP Wales,UK

Telephone: +44 (0)1792 295111 Email: study@swansea.ac.uk

FOLLOW US

@swanscience @gyddontawe

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