

BIO SCI EN CES

PROSPECTUS 2020
COLLEGE OF SCIENCE

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1920~2020



Swansea
University
Prifysgol
Abertawe





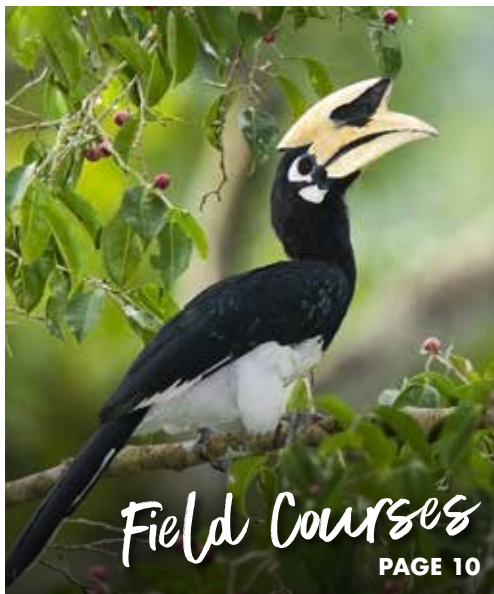
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VISITING Swansea



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Field Courses

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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 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 globally.

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 get a sense of the excitement and excellence that is part of our DNA.



Professor Matt Jones,
Head of the
College of Science

**RANKED
8TH
IN THE UK
FOR STUDENT
SATISFACTION**

(The Guardian University
Guide, 2019)

Swansea University
has great employability
success, with **70%**
**of graduates in
a professional or
managerial job 6
months after graduating.**
See how we compare
to other universities.

Swansea	70%
University of Exeter	69%
University of Liverpool	60%
University of Plymouth	60%
Cardiff University	44%
Bangor University	35%

(Source: Unistats, comparing
BSc Biology, accessed April 2019)

BIOSCIENCES COURSES

C100
**BSc BIOLOGICAL
SCIENCES**
(with deferred
specialisation)

C101
BSc BIOLOGY
(with Integrated
Foundation Year)

C104
BSc BIOLOGY

C105
**BSc BIOLOGICAL
SCIENCES WITH
A YEAR ABROAD**
(with deferred choice)

C106
**BSc BIOLOGY
WITH A YEAR
ABROAD**

C152
**BSc BIOLOGY
WITH A YEAR IN
INDUSTRY**

C160
**BSc MARINE
BIOLOGY**

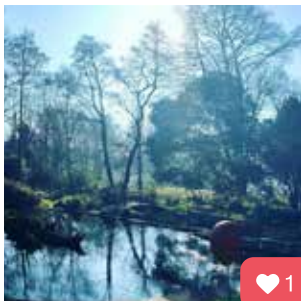
C107
**BSc MARINE
BIOLOGY WITH
A YEAR ABROAD**

C424
**BSc MARINE
BIOLOGY WITH
A YEAR IN
INDUSTRY**

C300
BSc ZOOLOGY

C301
**BSc ZOOLOGY
WITH A YEAR
ABROAD**

C384
**BSc ZOOLOGY
WITH A YEAR
IN INDUSTRY**



**FOLLOW US AND KEEP UP TO DATE
WITH ALL THINGS SCIENCE**



SINGLETON PARK CAMPUS

 **HUMAN AND HEALTH SCIENCES**

 **LAW AND CRIMINOLOGY**

 **BIOSCIENCES**

 **ARTS AND HUMANITIES**

 **MEDICINE**

 **STUDENT ACCOMMODATION**

 **SINGLETON PARK LIBRARY**

 **MYUNI HUB**

 **TALIESIN ARTS & EGYPT CENTRE**

 **24HR BUS** (Term Time)

 **FULTON HOUSE**

 **SPORTS VILLAGE**

 **BEACH**



See for yourself

check out our
virtual tour
around campus!



swansea.ac.uk/virtual-tour

360
VIRTUAL
TOUR

Biosciences Facilities

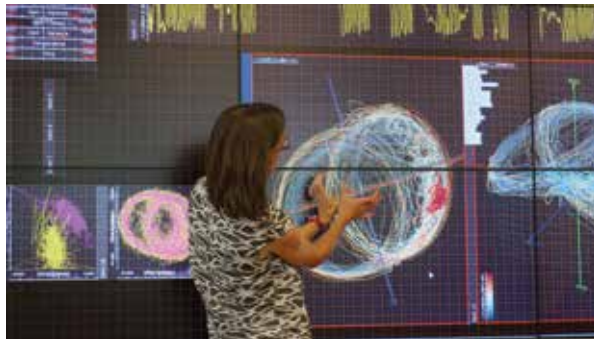
AT SINGLETON CAMPUS

Top class facilities on land or sea

Our facilities include a £4.2M state-of-the-art suite of science laboratories, an extensive range of modern analytical equipment, specialised culture facilities for a range of organisms, constant temperature rooms, greenhouses, the Centre for Sustainable Aquatic Research (CSAR), the Zoological Museum and a Visualisation Centre, unique in the world for displaying

multidimensional information from animal movement tag data. You'll also have access to our social learning space at 'Science Central'.

Boat work will be carried out on our brand new £1.3M custom-designed 18m catamaran-class survey vessel, the R.V. Mary Anning, equipped with state-of-the-art survey and research equipment.



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
- 24 Hour wardens
- Nursery
- International Student Advisory Service
- Mosque
- Chaplaincy
- Campuslife (disability, welfare, wellbeing and money support services)

See for yourself

check out our
virtual tour
around campus!



The Mary Anning

The R.V. Mary Anning is a custom-designed catamaran-class survey vessel, and was named after one of the earliest female marine biologists, fossil collectors and palaeontologists by one of our students, Alicia Laing.

The vessel can carry 25 passengers and is designed as a stable working platform for inshore and offshore research.



BIOSCIENCES FIELD COURSES

**TROPICAL ECOLOGY
AND CONSERVATION (YEAR 3)**

Borneo

Explore the flora and fauna of the rainforests, mangroves, waterfalls and streams of the breathtaking Danum Valley, home of the orangutan and the hornbill, and learn about conservation of these biodiverse habitats.

The Field Centre where you will be based is situated within the largest and richest remaining area of lowland rainforest in SE Asia, with over 200 species of tree per hectare. The rainforest itself is 130 million years old and contains the rarest and most endangered species of Borneo wildlife.



Indian Himalayas (year 3)

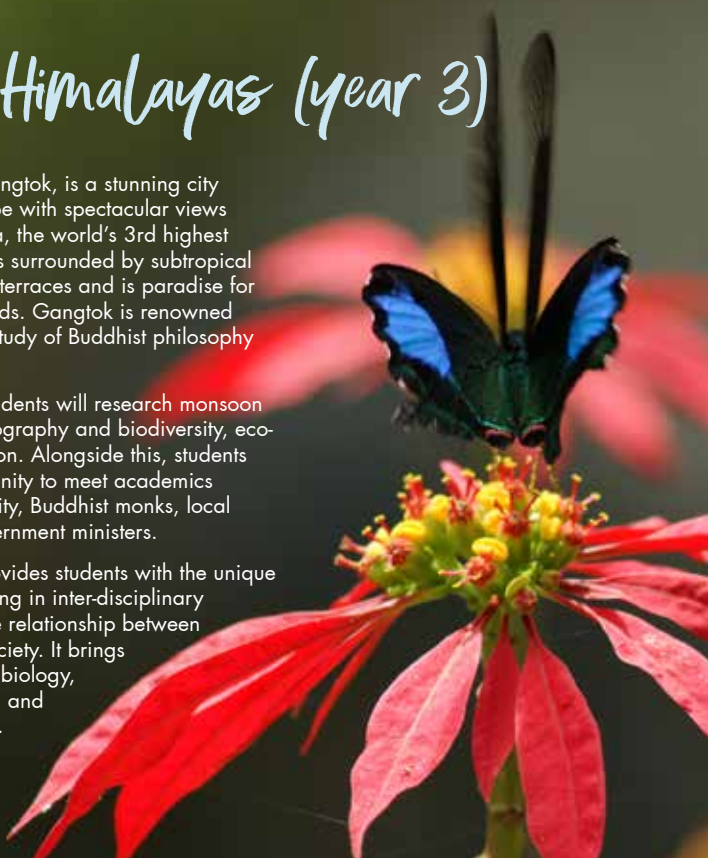
Sikkim's capital, Gangtok, is a stunning city built on a steep slope with spectacular views of Kangchendzonga, the world's 3rd highest mountain. The city is surrounded by subtropical rainforests and rice terraces and is paradise for butterflies and orchids. Gangtok is renowned as a centre for the study of Buddhist philosophy and religion.

Whilst in Sikkim, students will research monsoon phenomena, biogeography and biodiversity, eco-tourism and migration. Alongside this, students also get the opportunity to meet academics from Sikkim University, Buddhist monks, local politicians and government ministers.

This field course provides students with the unique experience of working in inter-disciplinary teams to explore the relationship between environment and society. It brings together students of biology, zoology and human and physical geography.

“My experience of Sikkim has changed my perspective as a biologist. I went with the intention of gaining a deeper understanding of a biological hotspot situated in the majestic mountains of the Indian Himalayas. On reflection I realised I gained so much more. Before I knew it, I could understand interdisciplinary viewpoints and the connection between the society and the environment.”

Emily Park, BSc Biology



Tropical Marine Biology

FIELD TRIPS

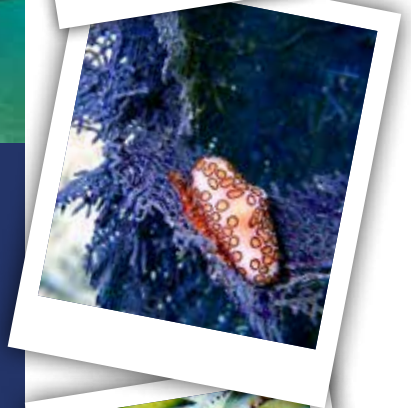


Puerto Rico

Ever wanted to snorkel between incredible Caribbean coral reefs? Or to experience the world-famous bioluminescent bay? To be lucky enough to see a manatee in the wild or come face to face with a barracuda? This field course provides these amazing opportunities and many more! Held on the beautiful Magueyes Island, this field course presents a fantastic opportunity to study marine ecology in a unique and exciting environment and, at the same time, live on a paradise island overrun with iguanas.

The island is surrounded by coral reefs, mangroves and lush seagrass. Manatees and dolphins are commonly sighted and students may even snorkel with these amazing animals.

During 13 days in the field, you will have the opportunity to snorkel in coral reefs, seagrass meadows and mangroves, get involved with international monitoring projects, run independent group research projects and utilise the excellent facilities of the University of Puerto Rico marine field station.





Irini Papageorgiou

BSc MARINE BIOLOGY

The experience I gained from the trip has really helped me grow as a person, giving me the ability to develop critical thinking and a broader understanding of the environment, what threatens it, and its conservation. I thoroughly enjoyed learning about the tropical environment but it was only after the actual trip that I could truly grasp the meaning of all the information we were taught over the years. Swimming through the colourful fish and corals and seeing little flamingo tongues hanging on the sea fans made each day worthwhile and this trip unforgettable.

Zoology

FIELD COURSE (YEAR 2)

This residential field course at Stackpole, Pembrokeshire comprises practical work employing techniques appropriate to sampling the zoological biodiversity of a range of terrestrial and freshwater habitats (coastland, woodland, grassland and freshwater systems).

You will learn techniques for surveying and identifying animal species, practice recording accurate field notes and gain experience in the analysis and presentation of zoological and ecological data. You will learn to recognise and describe key groups of animals associated with a range of temperate habitats.

Biology

FIELD COURSE (YEAR 2)

This residential field course at Margam Park comprises practical work and the use of ecological techniques to sample biodiversity and environmental parameters from a range of terrestrial and freshwater habitats (freshwater systems, woodlands and sand dunes).

You will learn techniques for the identification of species, practice recording accurate field notes and gain experience in the analysis and presentation of ecological data. You will learn to recognise different temperate habitats and indicator species associated with them.

Marine Biology

FIELD COURSE (YEAR 2)

This residential field course at Oriellon, Pembrokeshire teaches students a wide variety of shore-based sampling techniques, with a strong emphasis on practical skills. You will learn techniques for the identification of marine organisms and gain experience in the analysis and presentation of ecological data. You will learn to recognise and describe organisms from a range of marine habitats.



PROFESSIONAL SKILLS IN MARINE BIOLOGY (YEAR 3)

This field-based module takes place on Carmarthen Bay in West Wales and introduces students to the professional techniques utilised to monitor and study marine life in a variety of marine and coastal habitats, and in relation to conservation management and biodiversity monitoring in the UK.

A strong emphasis is placed on marine ecological census techniques, protected and economically-important species, habitat surveys and water quality surveys. You will learn about the biotic and abiotic factors that define different UK habitats, the relevant regulations that protect them, and an introduction to Environmental Impact Assessments (EIA).



PROFESSIONAL SKILLS IN CONSERVATION (YEAR 3)

This field based module takes place on the Gower Peninsula and introduces you to the professional techniques utilised to monitor and study animals and plants in a variety of terrestrial habitat types and in relation to conservation management and biodiversity monitoring in the UK.

The course places a strong emphasis on ecological census techniques, classification and taxonomy. You will develop key techniques relevant to the environmental sector and carry out an environmental impact assessment. These skills are necessary for a career in conservation or ecological consultancy.



Lizzie Daly

SWANSEA UNIVERSITY TEACHING AND OUTREACH FELLOW

Lizzie is a Welsh wildlife biologist, broadcaster, filmmaker and conservationist and is now a Teaching and Outreach Fellow here at Swansea University. Lizzie has presented on Cbeebies, CBBC, National Geographic, BBC Two, Animal Planet and is now a host on the BBC Earth Unplugged YouTube channel. In 2018 Lizzie hosted the renowned Panda Awards at WildScreen. In addition to broadcasting work, Lizzie continues to publish her own wildlife films on her YouTube channel, LizzieDalyWildlifeTV.

In 2016 Lizzie graduated from University of Exeter with a BSc in Animal Behaviour and went to Bristol University to study an MSc in Biological Sciences studying electroreception in arthropods. Lizzie is proud to be at Swansea and aims to continue to push boundaries in trying to bridge the gap between scientific understanding and the need to reach wider audiences. With a lifelong passion for the conservation of elephants, Lizzie has a research interest in elephant behaviour in order to better understand elephant movements across a changing landscape. She is now beginning her PhD research, looking at the conflict between humans and elephants in Kenya.

As a conservationist, Lizzie has a fierce passion to care for our oceans and protect our wild spaces. She is an ambassador for the Marine Conservation Society, the Jane Goodall Institute UK and an ambassador for Norwich Science Festival.



Take a look
AT LIZZIE'S
YOUTUBE
CHANNEL



REASONS TO STUDY AT

Swansea University





Biosciences courses

ACCREDITATION

Our degree schemes are accredited by the Royal Society of Biology following an independent and rigorous assessment. Accredited degree programmes contain a solid academic foundation in biological knowledge and key skills, and prepare graduates to address the needs of employers. The accreditation criteria require evidence that graduates from accredited programmes meet defined sets of learning outcomes, including subject knowledge, technical ability and transferable skills.



Royal Society of
Biology



UCAS CODE: C104
3 YEARS FULL TIME
TYPICAL OFFER: ABB – BBB

BSc BIOLOGY

This scheme is designed to provide a broad-spectrum understanding of the themes that run through modern biology. This is ideal for those students who wish to have a comprehensive and integrated degree scheme with an emphasis on the ecological sciences.

The course offers an excellent range of laboratory and field-based topics where students can develop their practical skills and choose from a wide range of modules such as Molecular and Evolutionary Biology, Animal Diversity and Behaviour, Marine and Terrestrial Ecology, Immunology, Animal Physiology, Professional Field and Laboratory skills. You will also have the opportunity to undertake residential field courses in Wales at the Orielton Field Centre, Pembrokeshire, at other locations in Brecon and Gower, and to take part in an international field course to Sikkim, Puerto Rico, Borneo or Jamaica.



UCAS CODE: C160
3 YEARS FULL TIME
TYPICAL OFFER: ABB – BBB

BSc MARINE BIOLOGY

BSc Marine Biology integrates a broad coverage of biological principles with the biology and ecology of marine organisms. This is ideal for students with a special interest in life inhabiting our coasts and oceans.

The course is highly practical and fieldwork based, with all second year students receiving training at sea. Students will also be able to choose from a range of modules which could include Marine Plankton and Oceanography, Marine Ecosystems, Ichthyology, Marine Invertebrates, Professional Skills in Marine Biology and Conservation of Aquatic Resources.

With our unique coastal location, we have easy access to a wide range of study habitats including exposed rocky shores, steep cliffs enclosing sandy sheltered bays, salt marshes and estuarine mudflats. Students will attend a residential field course and have the opportunity to undertake an international field course studying tropical reefs. Recent locations include Puerto Rico and Jamaica.



UCAS CODE: C300
3 YEARS FULL TIME
TYPICAL OFFER: ABB – BBB

BSc ZOOLOGY

The BSc Zoology scheme integrates a broad understanding of biological principles with a special focus on animals in their natural environments. This is ideal for students with a particular passion for studying the behaviour and ecology of animals.

The course gives our students an unrivalled opportunity to study animal behaviour, ecology and conservation in a range of natural environments including the Gower Peninsula. With its diverse habitats and an array of wildlife species including adders, otters and orchids, Gower is a uniquely rich site for students to study.

The habitats include rocky shores, sandy estuaries, natural grasslands and ancient woodlands. Students are able to explore a detailed and unique understanding of major zoological themes including animal diversity, physiology, taxonomy, ecology, behaviour and conservation. Students will undertake a residential field course and either a professional skills in ecology module, or an international field course in Borneo or the Himalayas.



UCAS CODE: C100
3 YEARS FULL TIME
TYPICAL OFFER: ABB – BBB

BSc BIOLOGICAL SCIENCES WITH DEFERRED SPECIALISATION

The BSc Biological Science with deferred choice degree scheme offers an excellent range of laboratory and field-based topics with a strong emphasis on the development of key practical skills.

This course is ideal for those who don't yet know if they want to specialise in biology, zoology or marine biology. The course offers a diverse and stimulating range of modules in Year 1, such as Molecular and Evolutionary Biology, Animal Diversity, Cellular and Micro-Biology and Behaviour and Ecology. Students will then decide which degree to study and will have the opportunity to study research-led topics, including ecology and conservation, residential local and international field courses, field and laboratory professional skills, microbiology, molecular ecology, immunology and marine ecosystems.



UCAS CODE: C101
4 YEARS FULL TIME
TYPICAL OFFER: CCD

BSc BIOLOGY **WITH INTEGRATED** **FOUNDATION YEAR**

The BSc Biology with Integrated Foundation is suitable for applicants not possessing the necessary background for entry at Year 1.

The scheme offers students an opportunity to build up the scientific and numerical understanding essential for successful completion of a degree in biosciences. At the end of the Biology foundation year, students progress to one of our three Single Honours accredited degree schemes: BSc Biology, BSc Marine Biology or BSc Zoology. Modules in the foundation year prepare students for life as a biological scientist and include topics such as foundation biology, data analysis and techniques in ecology.

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 biology teacher.

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



YEAR IN **INDUSTRY** **SCHEMES**

C152

BSc BIOLOGY WITH
A YEAR IN INDUSTRY
 (4 years)

C424

BSc MARINE BIOLOGY
WITH A YEAR IN INDUSTRY
 (4 years)

C384

BSc ZOOLOGY WITH
A YEAR IN INDUSTRY
 (4 years)

Our Year in Industry degree schemes incorporate an industrial placement with a sector relevant employer or organisation and 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.



YEAR ABROAD SCHEMES

C105

**BSc BIOLOGICAL
SCIENCES WITH
A YEAR ABROAD
(WITH DEFERRED
CHOICE)**

(4 years)

C106

**BSc BIOLOGY WITH
A YEAR ABROAD**

(4 years)

C107

**BSc MARINE
BIOLOGY WITH
A YEAR ABROAD**

(4 years)

C301

**BSc ZOOLOGY WITH
A YEAR ABROAD**

(4 years)

On our Year Abroad schemes, you 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. Find out more about studying abroad:
www.swansea.ac.uk/international/opportunities

For further information about our courses and entry requirements, please visit our website at:
www.swansea.ac.uk/bioscience

Key Dates

FOR YOUR APPLICATION

SEPTEMBER

UCAS applications
open

OCT/NOV

Attend a Swansea
University Open Day

JAN 15TH

UCAS application
deadline
*(although we will still
accept applications
after this date)*

JAN – JUNE

More opportunities to
visit the Biosciences
Department and meet
current students and
lecturers

MAR – JUN

Apply for finance
and accommodation

SEPTEMBER

Arrivals and
welcome week!





“Being a student studying Marine Biology at Swansea University has been an adventure that I will always remember. With engaging lectures on some amazing topics, laboratory work carrying out different experiments and exciting fieldwork both locally and abroad, this degree has provided an amazing opportunity to gain knowledge, experience and

skills within marine biology. The first year of my degree was a great opportunity to discover which areas of biology I was interested in. Ultimately I found that I enjoyed the fieldwork that we carried out on beaches around Swansea and the Gower looking at intertidal species, and I gained a new appreciation for animal diversity and, surprisingly, algae!

“

I was bouncing up and down with excitement to discover the local marine fauna within the bay!

”

A trip out on the University's R.V. Noctiluca towards the end of the year also confirmed that I was definitely meant to be a marine biologist, as after a series of short trawls I was bouncing up and down with excitement to discover the local marine fauna within the bay!

Being a member of the Swansea University Sub Aqua Club (SUSAC, the SCUBA diving club) for the past two years has meant that I have shared my experiences from the Marine Biology degree with other students. The SCUBA diving club in particular is a great way to combine the social aspect of Swansea University with exploring local areas and teaching others about topics covered in the marine biology degree! ”

Matt Barry

BSc Marine Biology with Integrated Foundation, Conservation Project Manager, St Lucia National Trust

During my time at Swansea I have been lucky enough to have been able to visit a number of stunning locations, both close to home and further afield. One of the biggest draws of the University for me when I was visiting on open days was the proximity of the university to the Gower, an unbelievably picturesque and remarkably interesting location right on our doorstep, especially for aspiring marine biologists. Visiting sites such as Rhossili and Worms Head to Manorbier and Orielson instilled a work ethic and love of the natural environment that I will continue to use in my future career.

The third year tropical marine ecology field course in Puerto Rico was a truly unforgettable experience that has given me a first class taste of working as a tropical marine scientist.

Being part of the Biosciences family at Swansea University has helped me develop from a young, curious minded student into a well equipped conservationist, with the personal and professional skills ready to work as a Conservation Project Manager.



Harry Read

BSc ZOOLOGY CO-FOUNDER OF BEARPHOTO

“Graduating from, and leaving Swansea University was more difficult than moving there in the first place. From my perspective, living with the ocean on your doorstep, with the Gower Peninsula just around the corner is a biologist’s heaven. I got to work with one of the most innovative bioscience departments in the UK, who constantly encouraged me to challenge myself.

I had excellent supervisors during my three years at Swansea, who constantly tried their best to open doors for me. Whilst I was completing scientific fieldwork during various 2nd year projects and my dissertation, I was encouraged to develop my skills as a photographer whilst in the field. The shared enthusiasm of my tutors pushed me to continually network. This led me to apply for a job working as a guide in the

Arctic circle, photographing the Aurora Borealis. I currently help people from all over the world observe and photograph the Northern Lights in Sweden. More recently, I used vital networking skills learnt during my time at Swansea to start my own photographic tour company. The company helps wildlife enthusiasts and photographers to photograph some of Europe’s most elusive species of wildlife, including brown bears, wolves and wolverine. I have plans to run trips to Svalbard, Russia and America in the near future.

I was able to develop key skills while studying in Swansea, which are helping me on a daily basis. Effective communication when working as part of team is something I learnt on the course. During 2nd and 3rd year fieldtrips, I learnt about working with a broad selection of personalities,

and how to encourage team members to get the most of out each other. Going out of my way to network, and being encouraged to do so at university, has led me to reach out to a number of professionals. Not only has networking proved to be of key importance when looking for job opportunities, it has also helped me build a reputation for our young brand in the wildlife ecotourism market.

Travelling to the foothills of the Himalayas (Sikkim) in 2nd year was the standout highlight of the entire year for me. I was lucky enough to be given the chance to work alongside geographers and biologists in one of the most biologically diverse environments in the world. It was here that my obsession for travelling and photography was reaffirmed. In terms of wildlife, dramatic landscapes and culture, the ►



scientific and photographic opportunities were endless, it was heaven. In my 3rd year I was lucky enough to undertake my dissertation research on Skomer Island, in Pembrokeshire. During two weeks of concentrated research, I was able to spend the evenings photographing one of the UK's more incredible seabird colonies, an opportunity I am still hugely grateful for. ”



Emmanuel Lourdes

BSc ZOOLOGY

“I chose Swansea by researching online, especially through websites such as Times Higher Education and QS World University Rankings. The Swansea University website was also useful in providing important information such as module choices and tuition fee costs, which helped me make my decision.

I had never been overseas on my own before and I was really glad that the University offered a shuttle bus service for students arriving from Heathrow Airport to the university campus. All in all it was an exciting experience!

I was definitely made to feel welcome! The people here in Swansea are polite and open, which allowed me to adapt better to my new environment. There was also the Freshers' Fayre during orientation, which helped me meet new people and allowed me to join various societies.

There are many student support services in Swansea University which reassured me.

So far I've been on field trips to Oxwich Bay in our 1st year and the Dale Fort Field Centre last September. I thoroughly enjoyed both field trips, as it was great to get out of the lecture halls and actually implement what we learned in theory out in the wild.

I am really enjoying my course. Sure, it does get tough at times managing coursework and revision, but I genuinely love what I'm learning here. The lecturers here have been friendly and enthusiastic in their teaching and the modules themselves are well structured and exciting.

I am currently the Secretary of the Malaysian Society, which has been really rewarding and fun so far! I've also been involved in the Live Music Society and the English and Creative Writing Society. The jam sessions and poetry recitals



at Mozart's were definitely memorable experiences for me. When I'm not studying, I play the guitar, read books, watch movies and dabble in a little creative writing. I really enjoy the genres of horror/thriller/sci-fi and I love comic books and anime. I'm also very interested in animals and nature, which is why I'm pursuing a degree in Zoology.

After I complete my degree, I plan to either pursue a Master's programme or begin working in the UK or back in Malaysia. My goal at the moment is to pursue a career as a field zoologist and perhaps become the next Malaysian Sir David Attenborough! ”



Dale Fort Field Centre, Pembrokeshire



**EMMANUEL
TALKS ABOUT
THE DALE FORT
FIELD TRIP**



WELSH LANGUAGE OPTIONS AND SCHOLARSHIPS

Our degree schemes in Biology, Zoology and Marine Biology are eligible for the Ysgoloriaeth Cymhelliant scholarships, as we offer 40 credits through Welsh at all levels. Students who intend to study at least 33% of their subject through the medium of Welsh can apply.

The ability to communicate scientific topics in the biological sciences through Welsh is a key skill required by increasing numbers of employers, and Swansea University is perfectly situated to take advantage of this. The range of subjects taught in Welsh include core topics such as Animal Diversity and Physiology, Ecology and Behaviour and Vertebrate Biology. Modules such as these are central to understanding the natural world; being taught via the medium of Welsh will enhance your degree and career prospects in the natural sciences.

For more information on scholarships:

www.colegcymraeg.ac.uk/cy/astudio/cymorthariannol/ysgoloriaethcymhelliant

CAREERS

Our Biosciences Department works alongside the University's Careers Service to ensure that you develop and expand your employability skills. Not only will you learn how to write an effective CV, you will be encouraged to undertake work experience, volunteering, internships and work placements.

Our staff work with individuals and organisations throughout the world and within the UK and can help some students to facilitate work or research-based placements abroad.

Students can also join clubs and societies, plus the GradIntel programme which connects our talented graduates to employers.

You will also benefit from working with one of the following organisations for your research project:

- Gower Bird Hospital
- Swansea County Council
- South Wales Amphibian and Reptile Group
- Amphibian and Reptile Trust UK
- Neath Port Talbot County Council
- Carmarthenshire County Council
- Llanelli Water Vole Group
- Royal Society for the Protection of Birds
- Chester Zoo
- National Public Health Service
- Bimini Biological Research Centre, Bahamas
- Bat Conservation Trust
- Countryside Council for Wales
- Environment Agency Wales
- National Trust
- Wildfowl and Wetlands Trust



Carly Green

BSc ZOOLOGY PROPAGATOR, NATIONAL BOTANIC GARDEN OF WALES

“I was lucky enough to have a fantastic supervisor at Swansea who always had his door open for students no matter how busy he was. It was at one of these casual meetings, over a cup of tea, that he told me about an apprenticeship program being set up at the National Botanic Garden of Wales nearby. After that conversation I completed the apprenticeship in botanical horticulture and was then hired by Wales Botanic to lead a project conserving Welsh native species, as well as growing Mediterranean-climate plants from around the world. I now collaborate with botanic gardens around the country to preserve some of the rarest species in the UK and Europe.”

*Image © James Davies, Press Photographer,
National Botanic Garden of Wales*

SOME OF OUR GRADUATE CAREERS INCLUDE:

- **Ecologist** (Jacobs Engineering & CSA Environmental)
- **Delivery Officer** (Biotechnology & Biological Science Research Council)
- **Project Officer** (Amphibian & Reptile Conservation Trust)
- **Hydrometry and Telemetry Officer** (Natural Resources Wales)
- **Benthic Taxonomist** (Oceanology Ltd)
- **Wildlife and Education Officer** (Ipswich Borough Council)
- **Crop Technician** (Humber Growers)
- **Animal Keeper** (All Things Wild)
- **Quality Control Associate** (Amgen Biovex Ltd)
- **Royal Navy Officer** (Britannia Royal Navy College)
- **Research Assistant** (TRP Research)

Alumni profiles



Owen Bidder

**BSc ZOOLOGY / PHD / POSTDOCTORAL
RESEARCHER, UNIVERSITY OF CALIFORNIA**

“Studying at Swansea University opened up my career to opportunities around the world. In 2014, I graduated with a PhD that was fully funded by the EU’s Knowledge Economy Skills Scholarship, without which I probably would never have had the means to obtain a higher degree.

With this qualification I was subsequently able to obtain an Alexander von Humboldt Post-Doctoral Fellowship to conduct research on red foxes in Germany. Now I conduct research at the University of California, Berkeley, studying the interactions between elk and wolves in the Greater Yellowstone Ecosystem. None of this would have been possible without the support I received at Swansea.”





Charlotte Davies

**BSc BIOLOGY, PHD BIOLOGICAL SCIENCES,
POSTDOCTORAL RESEARCH – INSTITUTE OF MARINE
SCIENCES AND LIMNOLOGY, MEXICO**

Choosing to study my BSc in Biology at Swansea University was one of the best decisions I have made. Swansea presents many opportunities and I was an enthusiastic student. I was a member of the Swansea Sirens Cheerleading Squad, a committee member of the Bioscience Society and a Biosciences Ambassador for UCAS open days. As a PhD student I was elected as Postgraduate Officer within the Students' Union to represent all postgraduate students at Swansea.

Enthusiastic lecturers in the Biosciences Department gave me a thirst for knowledge and my dissertation gave me a firm foundation in research, which inspired me to continue studying with a PhD at Swansea. My research into lobster diseases has been published in scientific journals, newspapers, magazines and online all over the world and

I have spoken at conferences from Aberystwyth to New Orleans.

I love to travel and was able to study abroad in Bangalore, India during my undergraduate degree on a cultural exchange programme and I spent time working in Boston, USA and Charlottetown, Canada, whilst studying for my PhD. During the final year of my PhD I also attended a conference in Cancun, Mexico, where I met my current supervisor.

I am now a Postdoctoral Research Fellow at the Reef Systems Unit, part of the Institute of Marine Sciences and Limnology of the National Autonomous University of Mexico. I have my dream job and without Swansea University, none of this would be possible.

STAFF RESEARCH

The Biosciences Department has adopted the United Nations Sustainable Development Goals and is proud to be actively contributing towards them through world-leading research.

Our staff have a wealth of expertise and many are internationally renowned in their field:

Professor Rory Wilson, Rolex Laureate and Chief Scientific Consultant behind National Geographic's Great Migrations. Rory invented the non-invasive Daily Diary tag to monitor animal movement and behaviour. He has also been named as one of Britain's 50 most influential conservation heroes by BBC Wildlife Magazine.

Professor Tariq Butt has developed sustainable, environmentally friendly products from fungi for the



control of arthropod pests of global socio-economic importance. These products contain insecticidal properties which can control invertebrate pests which impact on food security and animal health and human health.

Professor Carole Llewellyn has been focussing on innovative algal research to help provide solutions to the global challenges of climate change, human health, bioenergy, food security and industrial biotechnology.

Professor Carlos Garcia de Leaniz researches environmentally friendly ways of controlling parasites in salmon farming using cleaner fish, the development of better fish for research, and the adaptive management of dams to restore stream connectivity across Europe.

Associate Professor Mike S. Fowler is interested in understanding how variation

7TH
IN THE UK FOR
RESEARCH
EXCELLENCE
 (REF 2014-2021)

in environmental conditions over time and space filters through biological processes within and between species, to drive the fluctuations in population size we observe in natural populations. He applies knowledge gained from mathematical and statistical models to both lab and natural populations, focussing on problems related to conservation and invasive species management.

Associate Professor Andrew King is a behavioural ecologist. His research group – SHOAL – study how individuals' behaviours relate to the structure and functioning of groups and populations. He studies a variety of group-living animals, from fish and birds to monkeys and people, in the wild and in the laboratory. Andrew is a member of the Institute for Communities and Wildlife in Africa (iCWild) in Cape Town, South Africa. His work often features in the news, and he ►



regularly delivers workshops and seminars to the public, at events such as science festivals, and to the corporate sector, to organisations such as the NHS and AXA.

Associate Professor Emily Shepard is interested in how birds are affected by airflows, that is, everything from wind and turbulence, to up-draughts. She uses tags to record the behaviour of birds in the wild and combines this with work using a new, custom-designed, wind tunnel, in order to address questions such as how birds chose their flight paths.

Dr Ines Fürtbauer is a behavioural endocrinologist and is interested in the causes and consequences as well as the adaptive value of variation in behaviour. Dr Fürtbauer set up and runs the Endocrinology

Research Laboratory which is specialised in non-invasive hormone analysis techniques. Work involves the quantification of various hormones (e.g. reproductive and stress hormones) in water, hair, saliva, and faecal samples, combined with behavioural observations in a variety of species ranging from laboratory fish to wild primates.

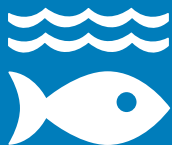
Professor Kevin J Flynn is a marine biologist with international expertise in plankton physiology, simulating climate change impacts such as eutrophication and ocean acidification upon harmful algal blooms. He specialises in questioning long-held beliefs in marine plankton ecology and building new explanations. He has authored over 160 papers, and an e-book on teaching

dynamic ecology. He is a Fellow of the Learned Society of Wales.

Professor Kam Tang studies plankton ecology and biogeochemistry in both marine and freshwater environments, using a combination of field observations, experimentation and modelling. He is leading Swansea University SEACAMS2 (part-funded by ERDF) to assist the development of marine renewable energy in Wales. Prof. Tang is a Fellow of the Royal Society of Biology and a Fellow of the Higher Education Academy.

Examples of further areas of research include the genetics and epigenetics of parental care, the molecular basis of host-seeking behaviour in arthropod vectors, genetic models of innate immunity, avian locomotor energetics, the macroecology of anti-predator defenses, herpetology and evolution, fungal community dynamics, the functional consequences of biodiversity, the conservation of sea turtles, coral reefs, seagrass and bees, management of aquatic resources, and sustainable marine energy.

14 LIFE BELOW WATER



ADVISING THE BLUE PLANET II PROGRAMME

Blue Planet II was the not-to-be-missed programme of 2017. Our Biosciences Department was very excited to be involved. The Blue Planet II research team approached Project Seagrass, a charity set up by Biosciences academic Dr Richard Unsworth and two of his students, to suggest ideas for the programme.

Together with colleagues at Cardiff University, the Project Seagrass team presented their research ideas. They were asked about seagrass meadows and specifically about Dr Unsworth's research on the behavioural 'collaborative hunting' interactions between grouper fish and octopus – which was the first time this behaviour had even been recorded. The 'Coral Reef' episode featured this interaction. The team at Project Seagrass also provided technical content and fact-checked the film.

Richard said, "The 'Green Seas' episode helps us to

appreciate the wonder and importance of marine plants such as seagrass. These biodiverse ecosystems are of fundamental importance to the human planet yet remain threatened around the world."

Dr Unsworth leads an annual field module in the Caribbean, where you can take part in seagrass conservation activities.

Project Seagrass is an environmental charity devoted to the conservation of seagrass eco-systems through education, influence, research and action. It was

created with the mission of turning cutting-edge research into effective conservation action and education schemes, by collaborating with local communities and other stakeholders all around the world. They are a dedicated team of seagrass scientists, who work to protect seagrass, and through seagrass, to support marine conservation more broadly. Through this conservation activity, staff, students and alumni of Swansea University are helping to achieve UN Sustainable Development Goal number 14, Life Below Water.

CENTRE FOR SUSTAINABLE AQUATIC RESEARCH (CSAR)

The Centre for Sustainable Aquatic Research (CSAR) is a centre of excellence founded in 2003 with support from the European Union, Welsh Government and Swansea University.

Equipped with modern, fully programmable recirculating aquaculture systems, CSAR carries out applied research on a diverse range of aquatic organisms from temperate to tropical, marine and freshwater environments.

CSAR operates from state-of-the-art, controlled environment facilities in Swansea University's College of Science.

CSAR conducts research and technological development, and provides training and advice on behalf of commercial farmers and aquaculture service providers, funding agencies and governmental institutions, both in the UK and internationally.

In addition to its own experimental facilities, CSAR has direct access to comprehensive expertise and laboratories across Swansea University, encompassing biochemistry, molecular biology, physiology, histo-pathology, water chemistry, systems engineering, bio-processing technologies and complex fluids processing.





INTERNATIONAL STUDENTS AT THE COLLEGE

If you are an International (non-EU) student studying a Science Foundation Year, your degree will begin at The College.

The College offers academic pathways at Swansea University that lead to undergraduate and postgraduate degrees. The College provides teaching in smaller groups, with a personalised and supportive educational philosophy. When you study in The College, you are a full student of the University from the start of your course.

All courses are available with a choice of start dates and durations, depending on your qualifications and English language proficiency.

The College has an all new purpose-built building located on the beachfront Bay Campus. There is a new 411-bed student residence just for the students of The College, also located on the Bay Campus.

Find out more: www.swansea.ac.uk/the-college



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.

Remember that we can be flexible with your offers so this gives you a chance to discuss any personal circumstances or ask any questions about the course itself.



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.

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



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](http://www.swansea.ac.uk/open-days)

10 Things YOU MUST DO

- 1 Eat Joe's Ice Cream
- 2 Paddle in Swansea Bay
- 3 Visit 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
- 9 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)



SWANSEA HAS AN
ESTIMATED POPULATION OF

244,500



HOME OF THE GOWER
**THE UK'S FIRST AREA
OF OUTSTANDING
NATURAL BEAUTY**



STUDY AT Swansea



1 HOUR

FROM CARDIFF



2 HOURS

FROM BRISTOL



3 HOURS

FROM LONDON



3 HOURS

FROM BIRMINGHAM



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.

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

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 also known as 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 university place.

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 will have its own requirements. These can all be found on our website.

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

Insurance Choice: This is your second choice university. ►



IMPORTANT INFORMATION – PLEASE READ

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

This brochure was printed in the Spring of 2019. It contains information on the undergraduate programmes and modules in Biosciences 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, 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/biosci/undergraduate

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: This applies to all first level degrees.

Undergrad: When you start university, you may be referred to as an Undergrad while you are studying an Undergraduate Degree.

COLLEGE OF SCIENCE

Singleton Campus,
Swansea University,
SA2 8PP Wales, UK

For UK admissions information please email:
admissions@swansea.ac.uk

For international admissions information please email:
international.admissions@swansea.ac.uk

Telephone: +44 (0)1792 295111

Email: study@swansea.ac.uk

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Swansea
University
Prifysgol
Abertawe

swansea.ac.uk/bioscience