

UNIVERSITY OF
EXETER

BIOSCIENCES

UNDERGRADUATE SUBJECT BROCHURE 2018
CORNWALL AND EXETER CAMPUSES



KEY INFORMATION AND ENTRY REQUIREMENTS

PENRYN CAMPUS, CORNWALL	UCAS CODE	TYPICAL OFFER	
Biosciences in Cornwall			
<i>Unless otherwise stated, all programmes require GCE AL grade B or IB HL5 in one of the following subjects: Biology/Human Biology, Chemistry, Physics, Psychology or Maths/Pure Maths/Further Maths. GCSE Maths at grade B.</i>			
BSc Single Honours			
Animal Behaviour	D391	AAB-ABB; IB: 34-32	
Animal Behaviour with Study Abroad [^]	D392	AAA-AAB; IB: 36-34	
Animal Behaviour with Professional Placement	D394	AAA-AAB; IB: 36-34	
Conservation Biology and Ecology	C190	AAB-ABB; IB: 34-32	
Conservation Biology and Ecology with Study Abroad [^]	C150	AAA-AAB; IB: 36-34	
Conservation Biology and Ecology with Professional Placement	C152	AAA-AAB; IB: 36-34	
Environmental Science	F750	AAB-ABB; IB: 34-32	
Environmental Science with Study Abroad [^]	F752	AAA-AAB; IB: 36-34	
Environmental Science with Professional Placement	F753	AAA-AAB; IB: 36-34	
Evolutionary Biology	C182	AAB-ABB; IB: 34-32	
Evolutionary Biology with Study Abroad [^]	C183	AAA-AAB; IB: 36-34	
Evolutionary Biology with Professional Placement	C186	AAA-AAB; IB: 36-34	
Marine Biology	CF17	AAB-ABB; IB: 34-32	
Marine Biology with Study Abroad [^]	CF19	AAA-AAB; IB: 36-34	
Marine Biology with Professional Placement	CF20	AAA-AAB; IB: 36-34	
Zoology	C300	AAB-ABB; IB: 34-32	
Zoology with Study Abroad [^]	C301	AAA-AAB; IB: 36-34	
Zoology with Professional Placement	C304	AAA-AAB; IB: 36-34	
BA/BSc Single Honours			
Human Sciences	BCL0	AAA-ABB; IB: 36-32	
Human Sciences with Study Abroad [^]	BCL1	AAA-AAB; IB: 36-34	
Human Sciences with Professional Placement	BCL2	AAA-AAB; IB: 36-34	
MSci Single Honours			
Animal Behaviour	D393	A*AA-AAB; IB: 38-34	
Conservation Biology and Ecology	C151	A*AA-AAB; IB: 38-34	
Evolutionary Biology	C184	A*AA-AAB; IB: 38-34	
Marine Biology	CF16	A*AA-AAB; IB: 38-34	
Zoology	C302	A*AA-AAB; IB: 38-34	

STREATHAM CAMPUS, EXETER	UCAS CODE	TYPICAL OFFER	REQUIRED SUBJECTS
Biosciences in Exeter			
<i>With the exception of Human Biosciences, all programmes require GCE AL Biology grade B or IB Biology HL5, GCSE Maths at grade B and either GCSE Double Award Science or GCSE Chemistry at grade C, in addition to any requirements listed below. Human Biosciences requires GCE AL Biology grade B or IB Biology HL5, in addition to any requirements listed below.</i>			
BSc Single Honours			
Biological Sciences	C100	AAB-ABB; IB: 34-32	plus another AL science subject at grade B; IB second science HL5
Biological Sciences with Study Abroad [^]	C000	AAA-AAB; IB: 36-34	plus another AL science subject at grade B; IB second science HL5
Biological Sciences with Professional Placement	C101	AAA-AAB; IB: 36-34	plus another AL science subject at grade B; IB second science HL5
Biochemistry	C724	AAB-ABB; IB: 34-32	plus GCE AL Chemistry at grade B; IB Chemistry HL5
Biochemistry with Study Abroad [^]	C732	AAA-AAB; IB: 36-34	plus GCE AL Chemistry at grade B; IB Chemistry HL5
Biochemistry with Industrial Experience	C737	AAA-AAB; IB: 36-34	plus GCE AL Chemistry at grade B; IB Chemistry HL5
Biological and Medicinal Chemistry	CF71	AAB-ABB; IB: 34-32	plus GCE AL Chemistry at grade B; IB Chemistry HL5
Biological and Medicinal Chemistry with Study Abroad [^]	CF7C	AAA-AAB; IB: 36-34	plus GCE AL Chemistry at grade B; IB Chemistry HL5
Biological and Medicinal Chemistry with Industrial Experience	FC17	AAA-AAB; IB: 36-34	plus GCE AL Chemistry at grade B; IB Chemistry HL5
Human Biosciences	C900	AAB-ABB; IB: 34-32	plus another science at grade B or two GCE AS science subjects at grade B; IB Biology and second science HL5 or two science subjects at SL5

GCE AL/AS science includes: Biology/Human Biology⁺; Chemistry; Computing; Design and Technology; Electronics; Environmental Studies; Geography; Geology; Maths/Pure Maths/Further Maths⁺; Physical Education; Physics; Psychology; Science (applied); Statistics.

⁺ if more than one of these is taken they would only count as one 'science' but could count as two A levels towards our general requirements

The full and most up-to-date information about Biosciences and our entry requirements is on our undergraduate website at www.exeter.ac.uk/ug/biosciences

We make every effort to ensure that the entry requirements are as up-to-date as possible in our printed literature. However, since this is printed well in advance of the start of the admissions cycle, in some cases our entry requirements and offers will change.

International students

If you are an international student you should consult our general and subject-specific entry requirements information for A levels and the International Baccalaureate. The University also recognises a wide range of international qualifications. Find further information about academic and English language entry requirements at www.exeter.ac.uk/ug/international

All of our Bioscience programmes are available for part-time study; for further information, see www.exeter.ac.uk/ug/biosciences

[^] for details about Study Abroad please see www.exeter.ac.uk/ug/biosciences

BIOSCIENCES

Top 10 in the UK for Biosciences in *The Guardian University Guide 2017*, 9th for Biological Studies in *The Complete University Guide 2016*, and Top 10 in the UK for world-leading and internationally excellent research¹

Degrees available on topics covering the entire spectrum of biology, from molecules and microorganisms to whole organisms and ecosystems

Opportunities to study abroad, and undertake field study in the UK and overseas

Professional placement opportunities



PENRYN CAMPUS, CORNWALL

Undergraduate Admissions

Website: www.exeter.ac.uk/ug/biosciences

Email: cornwall@exeter.ac.uk

Phone: +44 (0)1326 371801



STREATHAM CAMPUS, EXETER

Undergraduate Admissions

Website: www.exeter.ac.uk/ug/biosciences

Email: cles-externalrelations@exeter.ac.uk

Phone: +44 (0)1392 725818

You may also be interested in:

BSc/MSci Natural Sciences

Please see www.exeter.ac.uk/ug/natural-sciences

BSc Medical Sciences

Please see www.exeter.ac.uk/ug/medical-sciences

Biosciences at the University of Exeter is a world-class centre for the teaching and research of biological sciences. You will be taught by internationally renowned experts in subjects at the frontiers of science and across the spectrum of biology: evolution, conservation, ecology, whole organism biology, microbiology, molecular and cellular biology, computational biology, and biological chemistry.

Our teaching introduces new concepts in systems biology and describes how fundamental research is both commercialised in the biotechnology industry and applied practically in the fields of ecology and conservation. State-of-the-art teaching laboratory facilities integrate with activities in lecture theatres, classrooms and the field.

You can also participate in a huge range of extracurricular activities, specialised societies, and volunteering opportunities so you can meet like-minded students and translate theory into real-world actions.



The Athena SWAN Charter recognises and celebrates good employment practice for women working in Science, Technology, Engineering, Mathematics and Medicine (STEMM) in higher education and research. Find out more about Athena SWAN in Biosciences at www.exeter.ac.uk/biosciences/athenaswan

¹ Research Excellence Framework 2014 based on the percentage of research categorised as 4* and 3*



FIELD COURSE FORTNIGHT

In January each year, around 200 students and staff from our Penryn Campus participate in field courses around the globe. Our final year undergraduate Biosciences students undertake field courses in Tenerife, Costa Rica, Africa, Borneo and the Bahamas*. During their time overseas, they share their experiences of living with the world. See the pictures, hear the stories and be inspired at www.exeter.ac.uk/fieldcoursefortnight

** field course destinations are subject to change*

BIOSCIENCES IN CORNWALL

Our staff are active researchers who specialise in a range of fields and topics, including marine biology, conservation biology, behavioural, population and community ecology, zoology, and evolutionary biology and genetics. Expert teaching and world-class research explore the very factors influencing biodiversity and complexity in the natural world.

Cornwall is a perfect living laboratory, offering a diverse range of marine and terrestrial habitats and a wealth of natural resources. It is an interactive, dynamic and intimate environment in which to study, with state-of-the-art equipment, including our recently extended and refurbished teaching laboratory.

Staff are affiliated with our Centre for Ecology and Conservation, and the campus also features the University's Environment and Sustainability Institute (ESI), which leads cutting-edge research into solutions to problems of environmental change.

Fieldwork is an essential aspect of our programmes and is included in all years of study. These include: Year 1 field courses in Cornwall; residential field courses in Year 2 in Cornwall, Pembrokeshire, Scotland, Cyprus, Iceland or the Isles of Scilly; and a two-week international field course in Year 3 to Yukon, Galapagos, Tenerife, Costa Rica, South Africa, Bahamas or Borneo*.

As part of our research-led department, discuss the very latest ideas in our interactive seminars and tutorials and become an active member of the research team. We have close links with conservation and environmental organisations in the UK and overseas; these provide for opportunities for collaboration on final year research projects, work placements, and volunteering.

MSci/BSc Animal Behaviour

- You will identify natural behaviour patterns, understand how behaviour varies among individuals and species (wild, domestic and captive), and explore how current and past environments and ecology influence not only behaviour, but also the underlying gene-environment interactions that shape it

- Learn the value of studying animals in their natural habitats, utilising the expertise of staff members who run long-term studies of iconic species in the wild – an approach underpinned by field courses in the second and third years
- Take an interdisciplinary approach throughout the programmes, gaining a wide range of theoretical and practical techniques used to study animal behaviour

Year 1 Gain broad experience of behaviour, zoology, ecology, and evolutionary biology while learning about the main concepts underlying the scientific study of animal behaviour. Study the major milestones in behaviour research and explore current topics of outstanding interest. In practical classes, learn how to collect data on behaviour and to analyse and interpret results in a rigorous scientific manner.

Year 2 Discover how behaviour is influenced by genes and the environment in which an animal develops, and how behaviour is regulated by hormones and neuronal mechanisms. Learn evolutionary approaches to the study of behaviour, with a focus on how natural selection shapes the behaviour and life histories of animals in their natural environment. Experience a residential field course to gain an understanding of habitats and biodiversity.

Year 3 Specialise in your area of interest. Interact closely with an expert member of the academic staff who is research-active and carry out a detailed independent research project on animal behaviour in the wild or a laboratory. You will also take part in an international field trip.

Year 4 (MSci only) The fourth year provides an opportunity to work on an advanced literature review and a research project, both focused on a specialised area aligned with one of our leading research groups. The remainder of your time will be spent on a two-week intensive field course in which your scientific field-research, debating and presentation skills will be further developed.

MSci/BSc Conservation Biology and Ecology

- A practical and applied programme that places you in the field
- A strong emphasis on learning practical skills including wildlife identification and data handling
- The interdisciplinary nature of the programme allows you to explore the sociological, economic, and political factors affecting wildlife conservation

Year 1 Field trip modules, led by wildlife specialists, are an exciting aspect of the programme. Learn about a wide range of organisms, from marine mammals to heathland flowers, in their natural environments, surveying how they interact with their surroundings and humans.

Year 2 Develop your analytical skills and have the chance to begin to specialise in habitats or groups of species. Experience a residential field course to gain an understanding of habitats and biodiversity.

Year 3 Even greater emphasis on field-based experience and the opportunity to use the skills built up over the previous two years. You will take an international field course. You will also engage with your area of expertise by carrying out a piece of research supported by a member of Biosciences staff.

Year 4 (MSci only) The fourth year provides an opportunity to work on an advanced literature review and a research project, both focused on a specialised area aligned with one of our leading research groups. The remainder of your time will be spent on a two-week intensive field course in which your scientific field-research, debating and presentation skills will be further developed.

MSci/BSc Environmental Science

- The University's flagship environmental degrees, enabling you to learn the science behind the Earth's amazing complexity and its environmental processes
- At the cutting edge of current thinking in the environmental field
- Gain practical and theoretical insights from internationally renowned research experts in a range of environmental disciplines

Year 1 Global Issues in Environmental Science; Analysis of Environmental Data; West Penwith Fieldclass; Tutorials; Earth System Science; plus optional modules including Environment and Society, and Investigating Social and Spatial Environments.

Year 2 Geographical Information Science and Systems; Remote Sensing for Environmental Management; Key Skills for Environmental Scientists; Environmental Regulation and Redress. Options including: Applied Insect Ecology; Natural Hazards and Risk; Population and Community Ecology; Atmosphere and Ocean Systems; Rural Social Issues; The Politics of Climate Change and Energy; Introduction to Ecological Consultancy.

Year 3 International Field Course*; Dissertation; Preparing to Graduate. Options including: Issues in Climate Change; Quaternary Environmental Change; Energy Policies for a Low Carbon Economy; Volcanic Processes and Environments; Sustainability; Trends in Ecology and Evolution.

Year 4 (MSci only) You will spend your fourth year performing two research projects, each focused on a specialised area aligned with one of our leading research groups, one of which will be in partnership with an external organisation; plus a two-week intensive field course.

Full details of the programmes are available in the Geography, Environmental Science and Human Sciences subject brochure and online at www.exeter.ac.uk/environmentalscience

MSci/BSc Evolutionary Biology

- Access to state-of-the-art facilities helps develop a deep understanding of this rapidly developing field utilising ever more sophisticated molecular and genetic

technology to unravel the history of life on Earth

- A fast-growing area of study, which encompasses genetics, animal behaviour and psychology
- Examine evolution from many perspectives – from the smallest building blocks of life to entire ecosystems

Year 1 Develop both practical skills and knowledge of theory in evolutionary ecology. This year includes lectures and laboratory work, introducing you to modern approaches to understanding evolution. You will also develop important communication and analytical skills.

Year 2 Become more specialised and apply your knowledge to examine the basis for evolutionary change, including consideration of both the ecological and genetic mechanisms driving adaptive evolution. You will further develop essential analytical and communication skills. Take a field course to gain an understanding of evolution in the wild.

Year 3 Undertake a research project with a member of academic staff. Tailor your degree to your interests, gaining expertise in your chosen area. You may also take a residential field course in Tenerife, Costa Rica, Africa, Borneo or the Bahamas* to gain practical experience of research in the wild.

Year 4 (MSci only) The fourth year provides an opportunity to work on an advanced literature review and a research project, both focused on a specialised area aligned with one of our leading research groups. We expect that one of these projects will be carried out in partnership with an external organisation. The remainder of your time will be spent on a two-week intensive field course in which your scientific field-research, debating and presentation skills will be further developed.

BA/BSc Human Sciences

- Combine aspects of social and biological sciences, covering a broad range of topics from human evolution and genetics to sustainability and social organisation
- Enables you to examine the past and present of humans from the contrasting perspectives of the social and biological sciences
- You will understand relationships between science and policy and show how you can facilitate decision-making in this context

Delivered jointly by Geography and Biosciences the programme combines these exciting disciplines to make connections between biological processes, political and environmental issues and social patterns.

Year 1 Develop both knowledge and practical skills in a range of core disciplines in the human sciences. This year will include lectures and laboratory work, introducing you to modern approaches to understanding the biology of organisms including humans, through ecology, genetics and evolution, to the comparative study of social and cultural patterns of world populations. You will also develop important communication and analytical skills.

Year 2 Perform a more in-depth examination of the subject areas to which you were introduced in your first year. For example, you will consider the evolutionary origins of human behaviour by exploring the relationship between human cultural processes and human genetic processes. In particular, you will be encouraged to investigate the ways in which human beings both shape their environments and are shaped by them.

Year 3 Undertake a research project with a member of academic staff. Outside of the research project you will have freedom to choose among our final year modules, tailoring your degree to your specific interests. You may also take a residential field course in the USA or Africa* to gain practical experience of how humans develop interpretative frameworks of explanations to make sense of the world around them.

MSci/BSc Marine Biology

- Focus on understanding the biology of marine organisms and their ecosystems, with special emphasis on whole animal biology, biodiversity, ecology and behaviour
- The programmes provide the skills, concepts and experience to understand all aspects of marine ecosystems and the pressures they face, ranging from over-exploitation to climate change
- Interdisciplinary approach to the study of marine ecosystems allows you to learn about a wide range of theoretical and practical techniques

Year 1 Develop a broad knowledge of the biology of the marine environment. Emphasis will be placed on theory underpinned by fieldwork and development of a suite of techniques appropriate to studying life in the sea.

Year 2 Make use of the skills and concepts learned in your first year to study marine life in more detail, with a particular emphasis on the interaction between organisms and their environments. Concepts will be explained in detail in the classroom and brought to life in the field – both via the living laboratory of the Cornish coastline and during a residential field course to Pembrokeshire.

Year 3 Build on previous insights and develop some key themes in more detail – particularly issues at the forefront of current knowledge. You will interact closely with an expert member of the academic staff who is research-active and will carry out a detailed independent research project on animal behaviour in the wild or a laboratory. You may also take a bespoke marine biology residential field course in a location such as Tenerife or Bahamas* in order to gain practical experience of research in the wild.

Year 4 (MSci only) The fourth year provides an opportunity to work on an advanced literature review and a research project, both focused on a specialised area aligned with one of our leading research groups. The remainder of your time will be spent on a two-week intensive field course in which your scientific field-research, debating and presentation skills will be further developed.

MSci/BSc Zoology

- One of the largest groups of scientists in the UK specialising in animal behaviour, ecology and conservation; these degrees build on our internationally recognised expertise in this field
- Focus on an understanding of animal biology, with an emphasis on whole animal biology, ecology and behaviour, and the evolution of animal life histories
- The programmes will be of interest to students seeking graduate careers in both human and veterinary sciences, as well as in animal ecology and behaviour

Year 1 Explore animals in the context of the environments in which they live. You will examine zoology from molecules to ecosystems and get experience with the modern techniques used to generate knowledge about animal systems.

Year 2 Explore how animal development relates to the diversity of animal forms and examine animal behaviour as it relates to life history and adaptive evolution. You will experience a residential field course to gain an understanding of habitats and biodiversity.

Year 3 Put your analytical and experimental skills to use through your research project with a member of academic staff. Work side by side with researchers, developing an independent research project. The opportunity to go on one of our final year field courses to Yukon, Galapagos, Tenerife, Costa Rica, Africa, Borneo or the Bahamas*.

Year 4 (MSci only) The fourth year provides an opportunity to work on an advanced literature review and a research project, both focused on a specialised area aligned with one of our leading research groups. The remainder of your time will be spent on a two-week intensive field course in which your scientific field-research, debating and presentation skills will be further developed.



MODULES IN CORNWALL

KEY ● = Core
● = Optional

How your degree is structured

Degrees are divided into core and optional modules, giving you the flexibility to structure your degree according to your specific interests. Individual modules are worth 5, 15, 30 or 40 credits. Full-time undergraduates need to take 120 credits in each year. In addition to the core modules, you can choose from an extensive range of options in all years. Each year you may take up to 30 credits from another discipline outside of Biosciences.

Please note that availability of all modules is subject to timetabling constraints and that not all modules are available every year.

Third year modules will be taken in the fourth year of degrees taken with Study Abroad or Professional Placement.

For up-to-date details of all our programmes and modules, please check www.exeter.ac.uk/ug/biosciences

Year 1 Modules

Module Name	MSci/BSc Animal Behaviour	MSci/BSc Conservation Biology and Ecology	MSci/BSc Evolutionary Biology	BA/BSc Human Sciences	MSci/BSc Marine Biology	MSci/BSc Zoology
Analysis of Environmental Data				C		
Environment and Society				C		
Field and Laboratory Techniques	C	C	C		C	C
Genetics	C	C	C		C	C
Global Issues in Environmental Science				●		
Introduction to Ecology and Conservation		C	●			C
Introduction to Evolution and Behavioural Ecology	C	C	C	C	C	C
Introduction to Human Sciences	C		●	C		
Introduction to Invertebrate Zoology	C	C	C		C	C
Introduction to Marine Biology					C	
Introduction to Vertebrate Zoology	C	C	C		C	C
Investigating Social and Spatial Environments				C		
Key Skills in Biological Sciences	C	C	C		C	C
Physiology	C	C	C	●	C	C
Power, Conflict, Inequality: Issues in Global Politics				●		
Professional Development Experience	●	●	●	●	●	●
Tutorials				C		
West Penwith Fieldclass				●		

Module Name	MSci/BSc Animal Behaviour	MSci/BSc Conservation Biology and Ecology	MSci/BSc Evolutionary Biology	BA/BSc Human Sciences	MSci/BSc Marine Biology	MSci/BSc Zoology
Biology of Aquatic Vertebrates	●	●	●		C	C
Biology of Birds	●	●	●		●	●
Critical Thinking and Scientific Reasoning	C	C	C		C	C
Development of Behaviour	C		●	●		C
Environmental Regulation and Redress				●		
Evolution of Human Societies	●			C		●
Evolutionary Ecology	●		C			●
Evolutionary Conservation Genetics	●	●	C			●
Exploitation of the Sea		●			C	●
Field Course (Scillies, Scotland, Cyprus, Iceland, Pembrokeshire, Grand Challenges*)	C	C	C		C	C
Geographical Information Science and Systems		●			●	●
Grand Challenges Cornwall				●		
Introduction to Ecological Consultancy		●				●
Key Skills for Human Scientists				C		
Living with Environmental Change	●	●	●	●	●	●
Marine Ecology					C	
Mathematics of the Environment II	●	●	●	●	●	●
Nature and Culture				C		
NGOs: Responding to Global Challenges				●		
Political Psychology of Elites				●		
Political Psychology of Masses				●		
Population and Community Ecology	C	C			●	●
Professional Development Experience	●	●	●	●	●	●
Remote Sensing for Environmental Management		●			●	●
Rural Social Issues				●		
The Biology of Mammals	●	●	●			C
The Ethics and Politics of Humanitarian Intervention				●		
The Politics of Climate Change and Energy				●		
Time and Place				●		
Wildlife Disease	●	●	●		●	●
Workplace Learning	●	●	●	●	●	●

Year 2 Modules

Module Name	MSci/BSc Animal Behaviour	MSci/BSc Conservation Biology and Ecology	MSci/BSc Evolutionary Biology	BA/BSc Human Sciences	MSci/BSc Marine Biology	MSci/BSc Zoology
Analysis of Biological Data	C	C	C		C	C
Animal Ecophysiology	●		●	●	●	C
Applied Insect Ecology	●	C				●
Behavioural Ecology	C	●	C	C		C
Biodiversity and Conservation		C			●	C

Year 3 Modules

Module Name	MSci/BSc Animal Behaviour	MSci/BSc Conservation Biology and Ecology	MSci/BSc Evolutionary Biology	BA/BSc Human Sciences	MSci/BSc Marine Biology	MSci/BSc Zoology
Animal Life Histories	●	●	●		●	●
Climate Change and Society				●		
Coevolutionary Interactions	●	●	●		●	●
Dissertation				C		
Ecological Responses to Climate Change	●	●	●		●	●
Ecology and Evolution of Disease	●	●	●		●	●
Energy Policies for a Low Carbon Economy				●		
Environment and Empire				●		
Field Course (Tenerife, Costa Rica, Bahamas, Borneo, South Africa*)	C	C	C		C	C
Frontiers in Global Health	●	●	●	●	●	●
Human Behavioural Ecology	●	●	●	●	●	●
International Field Course*				C		
Issues in Climate Change				●		
Legal Response to Environmental Destruction				●		
Living in Groups	●	●	●		●	●
Living with Environmental Change	●	●	●	●	●	●
Marine Ornithology					●	

Module Name	MSci/BSc Animal Behaviour	MSci/BSc Conservation Biology and Ecology	MSci/BSc Evolutionary Biology	BA/BSc Human Sciences	MSci/BSc Marine Biology	MSci/BSc Zoology
Marine Spatial Ecology	●	●	●		●	●
Marine Vertebrate Conservation	●	●	●		●	●
Mathematics Biology and Ecology	●	●	●	●	●	●
Mating Systems Biology	●	●	●		●	●
Nature via Nurture	●	●	●	●	●	●
Political Psychology of Elites				●		
Political Psychology of Masses				●		
Preparing to Graduate	C	C	C	C	C	C
Reproductive Biology	●	●	●		●	●
Research Project	C	C	C		C	C
Science in Society	●	●	●		●	●
Sensory Ecology	●	●	●		●	●
Sustainability				●		
Symbiosis in Marine Systems					●	
The Behavioural Ecology of Information Use	●	●	●	●	●	●
The Complexity of Human Societies				C		
Trends in Ecology and Evolution	●	●	●		●	●
Waste and Society				●		



MODULES IN CORNWALL CONTINUED

Year 1

Analysis of Environmental Data	Introduces quantitative approaches to data analysis in geographical science. You will learn about using satellite imagery and digital mapping technology. Data handling techniques will also be introduced in practical classes.	Introduction to Human Sciences	Introduces a range of core disciplines within the Human Sciences degrees, from the biology of organisms including humans, through ecology, genetics and evolution, to the comparative study of social and cultural patterns of world populations. We will explore the impact of humans on the natural environment by examining why some populations decline and others grow, and ask the question how many people can the planet support?
Environment and Society	Explores the relationships between environmental and social processes in different geographical contexts and at different spatial scales. Explains the contested nature of these interactions at the global, national, regional, urban and local levels, and the role of different stakeholder groups in shaping them.	Introduction to Invertebrate Zoology	This module develops your core knowledge of biodiversity and macroevolutionary patterns, forming a grounding for future studies. You will attend lectures covering a wide range of topics from the origin of life to the most complex invertebrates. In practical classes, you will learn about invertebrate diversity, concentrating on function and adaptation to environments and ecosystems.
Field and Laboratory Techniques	There is an extraordinary wealth of wildlife everywhere you look. This module introduces you to the diverse ways that we as scientists can gather information from the world around us, from collection and identification of specimens to laboratory analysis. The combination of field and laboratory techniques covered in this module will leave you with a wealth of skills and methodologies for exploring fully the world around you.	Introduction to Marine Biology	This module will provide the fundamental building blocks for the study of marine biology. You will attend lectures covering a wide variety of topics including oceanography, marine ecosystem function, and marine conservation. During laboratory and field practicals, you will learn about identification and diversity of marine life, as well as methods for studying biology in the seas.
Genetics	You will gain a basic understanding of how information is stored and expressed in cells, the differential role of genes and the environment on expression of a phenotype, and of the behaviour of genes in populations.	Introduction to Vertebrate Zoology	This module builds on the first-term module <i>Introduction to Invertebrate Zoology</i> , exploring similar themes in vertebrates. You will attend lectures covering a wide range of topics from the first chordates through to the evolution of humans. In practical classes, you will learn about vertebrate diversity, concentrating on function and adaptation to environments and ecosystems.
Global Issues in Environmental Science	The search for knowledge about the impact of humans on the global environment has grown in importance as population growth intensifies the demand for resources such as energy and water. A growing body of scientific evidence is highlighting the fragile future of biodiversity, water resources, food security, and natural carbon stocks under global climate change. Our changing environment presents a fascinating and urgent set of challenges and opportunities for today's practitioners, policy makers and researchers. You will be introduced to the concept of the 'grand challenges' in environmental science by providing a thought-provoking overview of the main issues facing environmental scientists today.	Investigating Social and Spatial Environments	Introduces how geographers investigate human societies and their qualitative relations to different environments. It uses a variety of techniques, including group practical projects, to examine the various research questions, methods and sources used by geographers to investigate the dynamic and complex interaction of social groups and spatial environments.
Introduction to Ecology and Conservation	This module introduces the fundamentals of each topic and will provide you with core knowledge of ecology and conservation.	Key Skills in Biological Sciences	This module develops a variety of practical and transferable skills in areas such as teamwork, scientific report writing, oral presentations, study skills, basic laboratory skills, experimental design, data handling, display and interpretation, and basic statistical analysis.
Introduction to Evolution and Behavioural Ecology	This module provides grounding in the basic principles and significance of Darwinian evolution in an ecological and behavioural context. It introduces the mechanisms of evolution and explores how this process links to behaviour and biodiversity.	Physiology	We explore the essential features of anatomy and how morphology relates to physiological function throughout a range of animals and some plants. We place an emphasis on how structure, function and physiology link to lifestyle, habitat and evolutionary history.

Year 2

Analysis of Biological Data

This module provides basic training in the collection and analysis of ecological datasets, recognising that statistics is a tool for understanding biological data. You will gain experience with the modern scientific method as applied in ecology and evolution, including hypothesis formulation, experimental design and modern techniques for collecting and analysing data.

Applied Insect Ecology

You will gain an understanding of the systematics and biology of a range of pest species, disease vectors and species providing ecosystem services (eg, pollinators). We will also investigate methods of pest control and monitoring rare species.

Behavioural Ecology

This module explores how natural selection shapes the behavioural strategies of animals in the wild. The emphasis will be on discussing key concepts that can be applied to explain behaviour across very different animals in different habitats, exploring the problems faced by animals as they survive and reproduce, and the behavioural and social adaptations that have evolved in response to environmental pressures.

Biology of Aquatic Vertebrates

Aquatic vertebrates (including turtles, sharks, rays, cetaceans, penguins and other aquatic birds) are generally considered very charismatic animals and attract much public and research attention. As a group they also represent a diverse range of adaptations to the challenges of life in water. This module provides you with an in-depth insight into the range of adaptations for life in the water and the ways in which organisms have adapted to cope with the challenges of low oxygen, high pressure and unpredictability in resources.

Critical Thinking and Scientific Reasoning

This module explores how knowledge is created and validated and explores key skills for critical thinking and evaluating evidence applicable to all disciplines.

Development of Behaviour

Explore how genes, environment and physiological mechanisms interact to shape the behaviour of animals, from insects to humans. You will focus on how behaviour develops over the lifespan of the animal, how experience affects social and cognitive development, and how an evolutionary perspective can shed light on the causes of variation in behaviour within and among species.

Evolutionary Conservation Genetics

This module develops and expands your understanding of the principles introduced in *Introduction to Evolution and Behavioural Ecology* by considering the genetic mechanisms underlying evolutionary change. It focuses on the concepts of genetic variation and the forces underlying the changes in allele frequency over time.

Evolution of Human Societies

How can we explain the great diversity of human cultures around the world? How have human societies changed over time? This module focuses on the evolutionary origins of human behaviour, and shows how cultural change and human societies can be studied within an evolutionary framework. Topics covered include subsistence strategies and the development of agriculture, population expansions, language, religion, social and political organisation, and the ways culture can affect the evolution of genes and vice versa.

Key Skills for Human Scientists

Enables you to develop the conceptual, analytical and research skills necessary to carry out independent research work throughout your degree as well as in future workplaces. You will be introduced to a range of methodologies used in study and sampling design, data analysis, interpretation of information, and presentation.

The Biology of Mammals

In this module, we first build a foundation understanding of mammalian evolution and classification. We then move rapidly to draw inspiration from case studies and controversies in mammalian biology and use these to explore the evolution, adaptation, ecology and management of modern mammals. In the lab, we will explore evolution and morphology, while in the field we will develop skills in catching and handling small mammals.

Workplace Learning

This module will provide you with an opportunity to get ahead of the crowd by gaining practical experience in a real life working environment. You will apply for a placement position with a relevant organisation, and spend 70 hours in the workplace (either full-time or part-time, depending on when the placement is conducted). This module provides a valuable opportunity for you to build confidence, develop transferable skills and enhance your CV, all of which will improve your career prospects after graduation.

Year 3

Animal Life Histories

This module is designed to develop and expand your understanding of the principles introduced in earlier modules by exploring animal life history diversity and evolution in the context of conservation and wildlife biology.

Climate Change and Society

Climate change is not only a scientific issue but one which affects many areas of our everyday lives. This module goes beyond the science of climate change to ask how it is understood in fields as diverse as – for example – economics, policy and art, as humanity faces one of the greatest challenges to its future.

MODULES IN CORNWALL CONTINUED

Co-evolutionary Interactions	The evolution of one species in response to another, and reciprocal adaptation of the other species to the first, plays a central role in shaping the great diversity we see in nature. The module will use a range of approaches to investigate how species interactions might: generate and maintain diversity, drive speciation, help or hinder the spread of invasive species, and affect the stability of communities.	Mating Systems Biology	The evolution of animal mating systems and alternative mating strategies lies at the heart of studies of sexual selection. In this module we will discuss how factors such as population density, operational sex ratio, and habitat quality can directly influence animal mating patterns. You will examine the concept of the opportunity for sexual selection, why it can be restricted to one sex while opposed in the other, and why it is a powerful evolutionary force. The focus will be on how ecological and historical processes that directly influence the spatial and temporal distribution of receptive females determine the evolution of animal reproductive strategies.
Dissertation	This module aims to provide you with an opportunity to prepare a dissertation on a research topic of modern interest and relevance to your specialism. You will develop your skills in reviewing the literature relevant to your chosen topic, and in writing a scientific report. You will choose your topic through discussions with the academic staff.	Nature via Nurture	Understanding the chief generators of phenotypic variation lies at the heart of attempts to understand the process of evolution by natural selection. It is becoming increasingly clear that phenotypes are governed by direct and indirect 'environmental' effects on patterns of gene expression as well as the underlying genotype. Such epigenetic effects can be heritable, influencing the phenotype of offspring and grand-offspring. This module will introduce you to epigenetic processes – in particular highlighting how they influence phenotypes – and examine the role of epigenetics in adaptation.
Energy Policies for a Low Carbon Economy	Introduces the idea that any given desired energy system requires a tailored energy policy and examines the building blocks of an energy policy: economic, social, security and environmental goals.	Preparing to Graduate	This module will ensure that in your final year you are aware of the different career paths available to Biosciences graduates and will allow you to gain the skills and experience necessary to maximise your chance of securing graduate-level employment. You will be provided with an opportunity to attend career-focused seminars which will give advice on self-promotion (through CVs, application forms, covering letters and web resources) as well as advice on obtaining CV-enhancing skills and experience (eg, web design, scientific communication, grant writing, postgraduate study).
Environment and Empire	Focusing on the British Empire in the 19th and 20th centuries, this module explores how global environments have been transformed by the rise and fall of colonial empires. Involves the critical examination of how Western colonial ideologies shaped new ideas and forms of nature, industry, urbanisation, technology, science, environment and society.	Science in Society	This module expands on the principles of ecology and evolution introduced in your second year, leading to an understanding of their implications for public policy issues and the public understanding of science.
Human Behavioural Ecology	In this module we will use evolutionary theory to try to understand why humans behave the way they do. We will examine both the differences and similarities in the behaviour of human populations across the world to understand how natural selection has shaped our anatomy, mating and marriage systems, patterns of reproduction, lifespans, social systems and culture. We will build on the theoretical material covered during the lectures with practical exercises and guest lectures from experts.	The Behavioural Ecology of Information Use	This module focuses on ecology at the interface of evolutionary, physiological and behavioural aspects of the subject, concentrating on information use by organisms in their natural habitats. It will help you develop a fuller understanding of the way natural and sexual selection can and do act to mould much of what we see in the natural world.
Issues in Climate Change	Develops your understanding of current issues concerning present and future climatic change through an investigation of past change over a range of timescales, from the interglacial/glacial cycle, through millennial and centennial cycles to change over the observational record.	The Complexity of Human Societies	In this module you will learn more about the processes of cooperation and conflict involved in the origin, maintenance, and collapse of complex societies. Using evolutionary and ecological theory you will examine a number of topics including structural inequalities, division of labour, warfare, and population cycles. You will explore how this perspective can address important issues facing the world today, including failed states, environmental sustainability, and global disparities in economic development.
Living in Groups	When animals live in groups we see some of the most remarkable behaviours in the animal kingdom. From the highly coordinated movements of shoaling fish, to the extreme morphological adaptations seen in some social insects, animal societies are truly spectacular. This module will explore the different social systems that exist in the animal kingdom and consider how these societies may have evolved.		





BIOSCIENCES IN EXETER E

Become part of a community of scientists whose world-class research is matched by their passion for teaching, with expertise spanning the fields of ecotoxicology and environmental biology, plant pathology, whole-organism biology, microbiology, biochemistry, cell biology and molecular biology.

Our teaching laboratory is equipped with state-of-the-art instruments for observational, experimental and numerical aspects of biosciences. In addition, we have next-generation DNA sequencing facilities, a bio-imaging facility, scanning and transmission electron microscopes, laser confocal and fluorescence microscopes, real-time polymerase chain reaction and advanced analytical machines. Our aquatic resource centre provides opportunities for work on both freshwater and marine systems.

Our academics have close links with a wide range of industrial, medical and conservation organisations that you may be able to collaborate with for your final year research project. Many of our students work with these organisations during their vacations and others build their experience through one of our four year programmes with Professional Placement/Industrial Experience.

BSc Biological Sciences

BSc Biological Sciences (Animal Biology)

BSc Biological Sciences (Microbiology and Infectious Disease)

BSc Biological Sciences (Molecular and Cellular Biology)

- A flexible degree programme, with the option to design either a broad-based biology degree or a more focused degree specialising in areas of biology that interest you
- After a first year that covers the range of biology from molecules to ecosystems, you have great freedom of module choice. Depending on your choices, specialisms in animal biology, microbiology and infectious disease or molecular and cellular biology can be named as part of the degree title

- The opportunity to apply your skills in practical settings throughout your studies provides a variety of employment and further study opportunities after you graduate

Year 1 You will be introduced to modern techniques associated with biology research and their application within a range of fields from biotechnology industries to biodiversity and conservation. Modules cover biochemistry, genetics, microbiology, animals, plants and ecology.

Year 2 There is only one compulsory module in the second year (*Research Skills and Bioethics*) and this forms a foundation for the work of the final year research project. Optional modules will increase your understanding of key concepts in biological sciences and also offer you the opportunity to specialise within particular areas.

Final Year In the final year, you will take modules that will provide you with the opportunity to focus on an area of biology that particularly interests you. You will also undertake a research project, centred on the cutting-edge research of leading scientists in Biosciences.

BSc Biological Sciences with Professional Placement

- This four-year version of the Biological Sciences degree includes a professional placement year between the second and final years
- Benefit from our collaborative partnerships with local, national, and multinational businesses, industries, and research organisations
- Gain valuable experience from work placements, increase your first-hand knowledge, improve personal and transferable skills, make new contacts and enhance your employability

BSc Biochemistry

- Focuses on understanding the biochemical control of biological processes, particularly in the cell, and the tools for investigating these mechanisms
- After a broad first year, this degree explores aspects of cellular biochemistry

by providing specialist modules aimed at understanding key topics at the frontiers of cell biology

- This degree leads to career opportunities in biotechnological, pharmaceutical and other industries, as well as many further study options, including PhD, MSc or MRes programmes

Year 1 Gives a firm foundation for your degree with modules in biochemistry, cell biology, genetics, microbiology, organic and inorganic chemistry. Options available in physical chemistry and plant biology.

Year 2 In addition to biochemistry, organic chemistry and cell biology, you will choose three optional modules in subjects ranging from biological chemistry through medical and general microbiology to evolutionary biology.

Final Year Around the core topics of *Horizons in Biochemical Research and Energy Metabolism*, you can put your analytical and experimental skills to use through a research project, alongside a flexible choice of modules covering biochemistry, molecular cell biology and biological chemistry.

BSc Biochemistry with Industrial Experience

This four-year version of the Biochemistry degree includes a paid year in industry between the second and final years.

Spend a salaried year working on a research project in the biotechnology or pharmaceutical sectors. In addition to learning more about the science of your chosen study topic, you will also gain valuable professional experience that will make you a more competitive candidate for jobs once you graduate. We have established collaborations with a wide range of industrial partners, and have successfully placed students with local, national, and international companies.

During your year in industry you are paid by the company and take two modules: *Learning from Industrial Experience* and *Industrial Placement and Report*. You will have regular contact with an academic supervisor in addition to an industrial supervisor at the company.

BSc Biological and Medicinal Chemistry

- This interdisciplinary degree provides core training in chemistry, supplemented with options in biochemistry and biology in order to show how these areas relate to aspects of medicine and drug design
- Module choices in your second and final year allow further specialisation in chemistry, forensic science, cell biology, molecular biology and genomics, and biotechnology
- Many career opportunities in pharmaceutical, chemical, biotechnological and other industries as well as medically-related employment and further study

Year 1 You will develop an understanding of the fundamentals of chemistry and biochemistry, cell structure and physiology, genetics and microbiology. Practical work is designed to complement the lectures.

Year 2 In addition to core chemistry and biochemistry, you can also take optional modules focusing on the molecular biology of the gene, cell biology, microbiology, genomics and bioinformatics, or forensic science.

Final Year You will study, amongst other things, pharmacology, medicinal chemistry and drug design, and you will choose an independent research project centred on the expertise of academic staff in the areas of biological science, chemistry, biochemistry, or clinical research.

BSc Biological and Medicinal Chemistry with Industrial Experience

This four-year version of the Biological and Medicinal Chemistry degree includes a paid year in industry between the second and final years, during which you will work on a research project in either the chemical, pharmaceutical or biotechnology sectors. We have established collaborations with local, national and multinational companies,

and have successfully placed students with companies including AstraZeneca, DSTL, GSK, Pfizer, the Environment Agency, Axiom Veterinary Laboratories and Shell (USA).

BSc Human Biosciences

- Taught jointly by Biosciences and Sport and Health Sciences, this interdisciplinary degree is an innovative collaborative programme. You will study scientific aspects of health, physical activity and cell biology and learn about the importance of exercise in the prevention and treatment of disease
- Provides a thorough grounding in the study of cell and molecular biology together with the various sub-disciplines of exercise and sport sciences, including biomechanics, kinesiology, human and applied physiology, molecular biology, genetics and microbiology
- This unique degree can lead to further study opportunities, a variety of biological and sport-related employment opportunities, and jobs in other fields thanks to its application of theory to the real world

Year 1 This year provides you with a foundation in exercise science and biology. Practical work is designed to complement the lectures. You will receive training in key scientific skills as part of the *Fundamental Principles for Bioscientists* module, which includes small group academic tutorials.

Year 2 Second year modules build on knowledge and skills obtained in the first year. You can now begin to tailor your degree to suit your personal interests in biology and exercise and sports sciences.

Final Year Focus on areas of biology and exercise and sport sciences that particularly interest you, and undertake a project centred on the research work of a member of staff. Under their academic supervision, you will develop the skill set needed to move forward as a science graduate.

BSc Medical Sciences

- Provides a firm foundation in the core biomedical, biomolecular and physiological sciences, alongside an insight into medical practice and the technologies used to prevent or diagnose disorders and treat patients
- Develop an integrated, scientific knowledge that you can put into practice in a clinical setting and a range of robust research skills, plus creative and inquisitive communication, leadership, critical appraisal and problem-solving skills
- Flexibility of four optional pathways: Human Genomics, Neuroscience, Pharmacology and Therapeutics, and Health Research

Full details of the programmes are available in the Medical Sciences subject brochure and online at www.exeter.ac.uk/ug/medical-sciences

BSc/MSci Natural Sciences

Our Natural Sciences degrees give you the opportunity to advance in the more traditional subjects, whilst also engaging with inspirational new areas of modern scientific innovation and research, such as mathematical and computational biology; biophysical, biochemical and biomedical science; materials science and materials chemistry; the science of oceans, atmospheres and climate; astrophysics and energy research.

Full details of the programmes are available in the Natural Sciences subject brochure and online at www.exeter.ac.uk/natural-sciences





MODULES IN EXETER



How your degree is structured

Our degrees are divided into core and optional modules, giving you the flexibility to structure your degree according to your specific interests. Individual modules are worth 15, 30 or 45 credits. Full-time undergraduates need to take 120 credits in each year.

Please note that availability of all modules is subject to timetabling constraints and that not all modules are available every year.

Year three modules will be taken in the fourth year of degrees taken with Study Abroad, Professional Placement or Industrial Experience.

For up-to-date details of all our programmes and modules, please check www.exeter.ac.uk/ug/biosciences

For details of the Sport Science modules taught on BSc Human Biosciences please see www.exeter.ac.uk/ug/sport

Year 1 Modules

Module Name	BSc Biological Sciences	BSc Biochemistry	BSc Biological and Medicinal Chemistry	BSc Human Biosciences
Animals	C			
Biochemistry	C	C	C	
Bioenergetics				C
Cells	C	C	C	C
Ecology	C			
Foundations of Biomechanics				C
Fundamental Inorganic and Physical Chemistry		●	C	
Fundamental Principles for Bioscientists	C	C	C	C
Genetics	C	C	C	C
Human Anatomy and Kinanthropometry				C
Human Physiology				C
Integrated Practical Chemistry		C	C	
Microbiology	C	C	C	C
Plants	C	●		
Structure and Reactivity of Organic Compounds I		C	C	

Year 2 Modules

Module Name	BSc Biological Sciences	BSc Biochemistry	BSc Biological and Medicinal Chemistry	BSc Human Biosciences
Advanced Cell Biology	●	C	●	●
Analytical Techniques in Biochemistry	●	C	C	
Animal Ecophysiology	●			
Bioinorganic Chemistry		●	C	
Biomechanics and Kinesiology				C
Coral Reef Field Course	●			
Ecology and Environment	●			
Exercise Physiology				C
Forensic Science	●	●	●	●
Genomics and Introductory Bioinformatics	●	●	●	●
Marine Biology	●			
Medical and General Microbiology	●	●	●	●
Metabolism	●	C	C	
Modelling for Biosciences	●			
Modern Theories of Evolution	●	●		●
Molecular Biology of the Gene	●	●	●	●
Molecular Microbiology	●	●	●	●
Nutrition and Metabolism				●
Observations and Experiments in Animal Behaviour	●			
Physical Chemistry		●	●	
Plants and People	●	●		
Practical Skills in Field Ecology	●			
Professional Development Experience				●
Quantitative Research Methods				C
Research Skills and Bioethics	C	C	C	C
Strength and Conditioning Physiology				●
Structure and Reactivity of Organic Compounds II		C	C	
Wild Behaviour	●			

MODULES IN EXETER CONTINUED

Year 3 Modules

Module Name	BSc Biological Sciences	BSc Biochemistry	BSc Biological and Medicinal Chemistry	BSc Human Biosciences	Module Name	BSc Biological Sciences	BSc Biochemistry	BSc Biological and Medicinal Chemistry	BSc Human Biosciences
Animal Developmental Biology	●				Frontiers in Molecular Cell Biology	●	●	●	●
Bioinformatics	●	●	●	●	Horizons of Biochemical Research	●	●	●	
Biomechanical Analysis of Human Movement				●	Integrated Physiology and Adaption to Physical (in)Activity				●
Cell Biology of Disease	●	●	●	●	Mammalian Biology	●			
Cellular Basis of Immunity	●	●	●	●	Microbial Effectors of Disease	●	●	●	●
Clinical Exercise Prescription				●	Molecular Basis of Infection	●	●	●	●
Current Issues in Marine Biology	●				Organic Synthesis and Drug Design		●	●	
Biosciences Research Project	●	●	●	●	Paediatric Exercise Physiology				●
Ecology of Environmental Change	●				Pharmacology and Medicinal Chemistry	●	●	●	
Ecotoxicology	●				Physiological Determinants of Exercise Performance				●
Employability and Career Development				●	Professional Development Experience				●
Energy Metabolism	●	●			Psychology Applied to Health	●			
Environmental Microbiology	●				Science Communication	●	●	●	●
Food Security: Plants, Disease and the Environment	●	●			Secondary Metabolites	●	●	●	
					Specialist Topics in Chemical Sciences		●	●	
					Sports Nutrition and Metabolism				●



Year 1

Animals	You will explore the essential features of vertebrates and invertebrates and how their anatomy relates to physiological function. Particular emphasis is placed on structure and how this relates to function, especially physiology, lifestyle and habitat.
Biochemistry	This is an introductory module providing the essential biochemical knowledge for understanding all living processes. You will study protein structure, enzyme kinetics and basic metabolism so that you can understand how each of these processes function and shape the living cell. Practical sessions offer you vital hands-on experience with key biochemical techniques and how to apply them.
Bioenergetics	Considering the biological and chemical mechanisms that sustain and support life, this module builds an understanding which forms the foundation of exercise physiology.
Cells	This module takes you on a trip around the fundamental unit of life: the cell. We emphasise its dynamic nature, and use examples from bacteria to plants to animals, to teach you how cells use membranes and proteins to organise themselves, and how they communicate both internally and with the external environment. You will also study the guiding principles that govern formation of a multicellular organism, including cell division and tissue development.
Ecology	In this module you study the key concepts, knowledge, and unanswered questions in the ecology of populations, communities and ecosystems. We look at some important historical figures and their legacies, and consider the various approaches to ecological science, description, experiments, and theoretical models. Wherever feasible, we will look at how a general predictive theory can emerge. In the laboratory, you will undertake experiments and also undergo some circuit training in the 'ecology gym'.
Fundamental Inorganic and Physical Chemistry	You will learn the fundamental concepts of inorganic and physical chemistry, and then apply them to biological and biochemical processes. You learn how to use the laws of thermodynamics to predict the position of chemical equilibrium and how theories of reaction kinetics can help interpret experimental data for reaction rates. You will also learn the basic principles of spectroscopy (for example UV-vis and infra-red) for molecular analysis.
Fundamental Principles for Bioscientists	You will learn the underlying concepts required for scientific investigation, including modern laboratory techniques, experimental design, and presenting scientific data. Team development training and small-group tutorial work are features of this module. Particular emphasis is given to learning the quantitative skills required to analyse experimental results.
Genetics	Life is controlled by genetic information. In this module you will gain an understanding of how information is stored and inherited in living organisms. Modern techniques in DNA sequencing and the exploration of gene diversity will be introduced, with examples from humans and other organisms.

Integrated Practical Chemistry

You will develop your practical chemistry skills and improve your knowledge and understanding of aspects of organic, inorganic and physical chemistry. You will use synthetic chemistry techniques such as distillation, chromatography and crystallisation. You will carry out qualitative and quantitative characterisation, and gain experience with NMR, IR, UV/visible spectroscopies and quantitative techniques such as titration. You will also learn to follow the course of a reaction using standard kinetics experiments.

Microbiology

This module focuses on the microbiological world, covering bacteria, fungi and protists. Topics including evolution, structure and function and the impact of micro-organisms are covered, with an emphasis on their practical applications. You will continue to build on your practical techniques, developing microscopy and microbiological skills.

Plants

Life as we know it is dependent on plants. This module will equip you with a basic understanding of plant science, from the evolution and function of their unique structures, biochemistries and life strategies, through their responses to the environment and other organisms, to their exploitation by humankind as a source of food, materials and energy.

Structure and Reactivity of Organic Compounds I

This module begins to explore the structure and reactivity of organic compounds, starting with an examination of bonding before using a mechanistic approach to study the reactivity of the common functional groups. You will explore fundamental aspects of 3D molecular structure (stereochemistry) and the basics of addition, substitution and elimination reactions. Laboratory experiments will give hands-on experience studying these topics empirically.

Year 2

Advanced Cell Biology

This module builds on the first year *Cells* module, focusing on processes such as maintenance of cell shape, cell division, cell motility and autophagy, and the regulation of these processes. You will gain an understanding of the complex spatio-temporal organisation required for cell function.

Animal Ecophysiology

This module explores the major physiological processes in animals and how these relate to ecological niche. You will cover metabolism, respiration, endocrinology, reproduction and osmoregulation.

Coral Reef Field Course

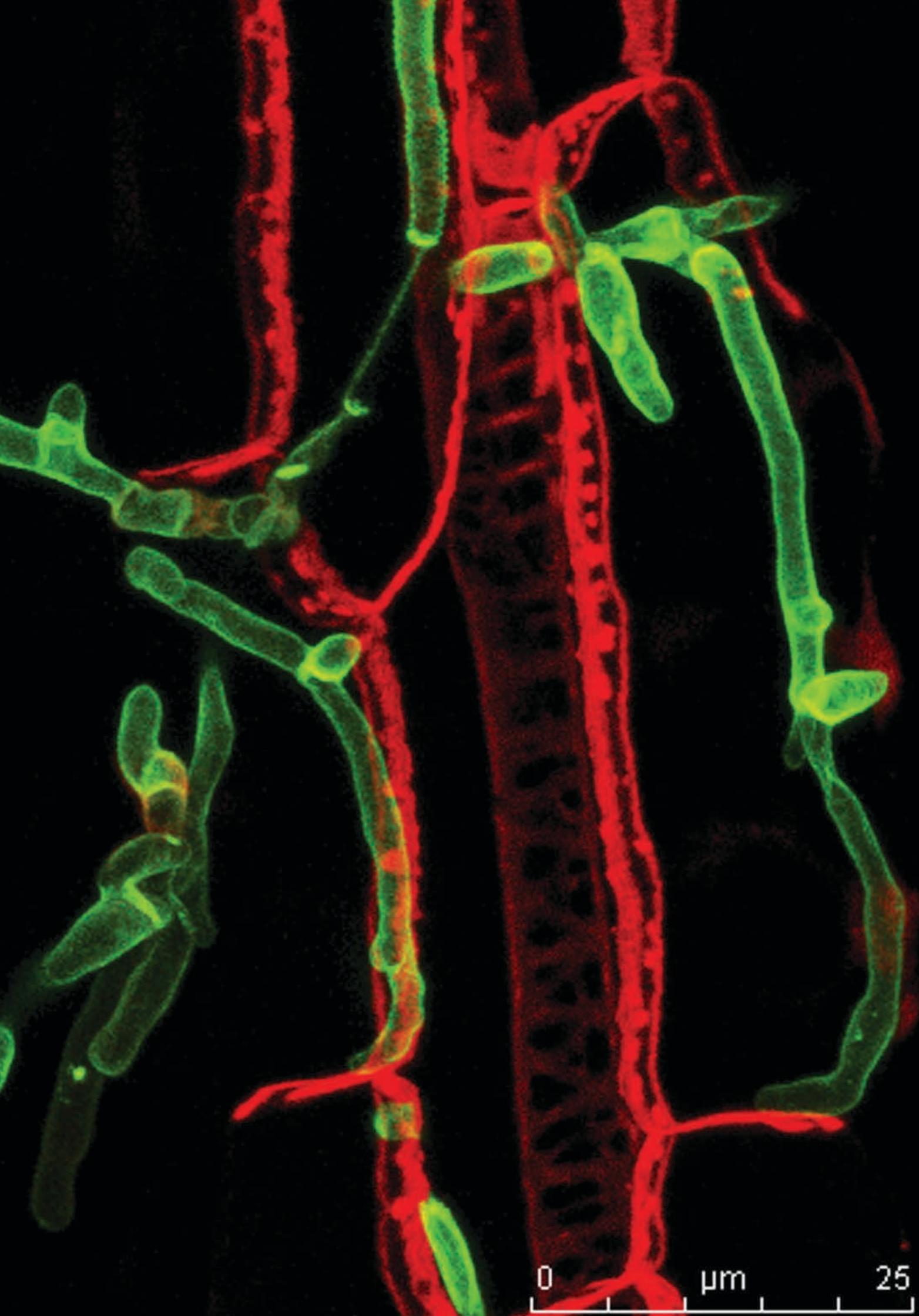
This entirely field-based module, held at a research centre in Bahamas, introduces you to the ecology of coral reefs and associated ecosystems (seagrass beds and mangroves). You will explore fieldwork techniques in tropical marine ecology and will carry out a series of individual research projects in a range of marine habitats.

Ecology and Environment

Develops your understanding of some of the fundamental concepts, methods and results in the scientific study of ecology, biodiversity and the environment. The module uses examples from both terrestrial and aquatic systems and is a valuable complement to some of our ecology field courses.

MODULES IN EXETER CONTINUED

Exercise Physiology	You will learn about the body's physiological responses to exercise, studying topics such as the assessment and interpretation of aerobic and anaerobic fitness and performance, blood lactate, lactate and ventilatory thresholds, and cardiovascular control during exercise.	Food Security: Plants, Disease and the Environment	Global food security is challenged by the increasing world population and changing environmental conditions. Our major food crops face numerous yield-lowering perils, including attack by fungi, oomycetes, nematodes, bacteria and viruses. You will study plant disease biology, host-pathogen interactions, epidemiology, and consider current disease control practices and future mitigation strategies and look at the effects of abiotic stresses on plants.
Genomics and Introductory Bioinformatics	We focus on state-of-the-art technology for analysis of genomes and gene expression and critically discuss their use in biological research and biotechnology. Practical classes consolidate use of internet-based genomics tools and provide a platform to critically discuss case studies.	Frontiers in Molecular Cell Biology	In this module we will explore selected topics at the forefront of cell biology and you will be introduced to the range of experimental techniques that are used to investigate how cells function.
Medical and General Microbiology	You will discuss modern approaches to pathogen detection and the challenges posed by the spread of antibiotic resistance.	Horizons of Biochemical Research	Biochemistry, the study of chemical processes in biological systems, is a broad discipline, encompassing biological aspects of chemistry, study of biological macromolecules, and the many ways in which chemicals are synthesised and degraded in organisms. In this module you will engage with recent research in diverse areas of biochemistry, giving an insight into the progress that has been made, the range of areas being explored, and the challenges for the next generation of scientists.
Molecular Biology of the Gene	This module covers a range of molecular biology topics, examining cellular structure and organisation, replication, and expression of the genome. You will also learn about protein modification and targeting.	Mammalian Biology	Examines key characteristics of mammals including reproductive biology, parental care, endothermy, concepts of behaviour and ecology. Topics will be illustrated by case studies of wild mammals.
Structure and Reactivity of Organic Compounds II	Starting with an extension of the chemistry of carbonyl compounds studied in the first year, this module will add key reactions that are used in constructing complex molecular frameworks. The reactions of aromatic compounds are used to explain the chemistry of aromatic heterocycles, the most abundant compounds in nature and pharmaceuticals. Modern spectroscopic methods will be applied to determine the structure of compounds that you will prepare in the laboratory.	Organic Synthesis and Drug Design	In this module we show how the basic reactions covered in the first and second years can be applied to the synthesis of biologically important molecules such as pharmaceuticals. Methods for designing synthetic routes to these compounds will also be explained using case studies.
Year 3 Bioinformatics	Research in the biological sciences is increasingly dependent on large datasets such as those generated by DNA sequencing and microarrays. This is also true for diagnostics and medicine. Analysis of these datasets requires a range of skills and knowledge drawn from computer science, physical sciences and mathematics and statistics as well as biological sciences. Bioinformatics is the discipline that integrates algorithms and methods from these disciplines to model biological systems and infer patterns hidden in complex data.	Science Communication	You will gain an understanding of how science is communicated to governments, politicians and policy makers through a variety of techniques. You will examine good and bad strategies for communicating science to various audiences and how science information and misinformation can be used to change public perception.
Biosciences Research Project	The <i>Biosciences Research Project</i> gives you the opportunity to undertake your own independent and original research under the supervision of a staff member. You may be based in the field or laboratory and will explore questions and issues at the cutting edge of the discipline.		
Environmental Microbiology	You will learn how bacteria survive in the environment, including in extreme environments, and investigate the impact of climate change on pathogen dispersal and survival.		





LEARNING AND TEACHING

You will experience a combination of lectures, tutorials, seminars, fieldwork, laboratory sessions and independent study. Over the course of your degree, you will participate in a mix of larger lectures and smaller, focused sessions based around the latest research topics. In the teaching laboratory you will develop the necessary skills to become a professional biologist; you will then put these to use while undertaking your independent research project. We encourage students to publish their results in the scientific literature and make a real contribution to the fields of Biosciences.

Our academics have close links with a wide range of industrial, medical, and conservation organisations, with whom there may be the opportunity to collaborate. Many of our students work with these organisations during their vacations and others build experience through one of our four-year programmes with industrial experience.

We frequently introduce new methods of learning and teaching, including increasing use of interactive computer-based approaches to learning through our virtual learning environment, where the details of all modules are stored in an easily navigable website. You can access detailed information about modules and learning outcomes and interact through activities such as the discussion forums.

Research-inspired teaching

We believe every student benefits from working closely with our world-class academics and becoming an active participant in Exeter's research culture. You will discuss the very latest ideas in seminars and tutorials and, in appropriate degree programmes, become an active member of a research team.

Lectures and practicals frequently incorporate data that have been collected by our academics during the course of their research projects. Students also have opportunities to collect data that contribute to studies that are published in peer-reviewed academic literature.

The complementary expertise of our staff ensures a vibrant, collaborative research culture within our research groups, made up of researchers at all stages, from Masters to Post-doc.

Assessment

Your first year does not count towards your final degree classification, but you do have to pass it in order to progress. All marks after your first year count towards your final classification.

Modules are assessed using a variety of methods including essays, exams, presentations, laboratory reports and a dissertation.

Academic support

As well as more than 15 hours per week of direct contact time with their lecturers, all students have a personal tutor who is available for advice and support throughout their studies. There are also a number of services on campus where you can get advice and information, including the Students' Guild Advice Unit.

Taking modules outside of your programme

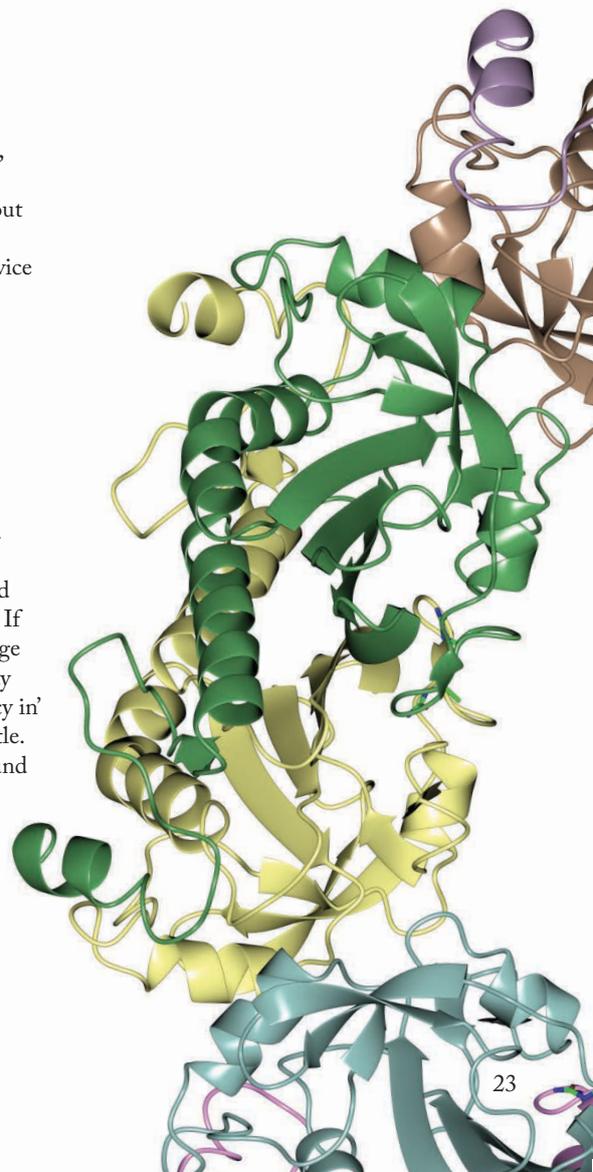
Depending on your programme you may take up to 30 credits in another subject (subject to academic approval and timetabling), for instance a language or business module, to develop career-related skills or widen your intellectual horizons. If you achieve at least 60 credits in a language via our Foreign Language Centre you may be able to have the words 'with proficiency in' and the language added to your degree title. Further details about the FLC can be found at www.exeter.ac.uk/flc

Study Abroad

All of our three-year Single Honours degrees have a four-year variant that includes a year of study in one of our partner institutions in Europe, North America and the Asian-Pacific rim.

In addition to gaining skills such as problem-solving, confidence, and decision-making, you will study unique modules in a different research environment, benefiting from the local research expertise.

You must apply directly through UCAS for the four-year 'with Study Abroad' degree programmes and there are higher entry requirements compared with our three-year degrees. There are also strict progression criteria through each year: you must attain an overall Upper Second Class result in both your first year and second year to meet the progression criteria in Exeter and the entrance criteria of the host institution.



CAREERS

Skills development is integrated throughout all our undergraduate programmes, ensuring you graduate with the transferable skills that employers value – including analytical problem solving, teamwork, and organising and communicating information. Group learning, peer level assessment and key vocational skills, such as advanced laboratory training within molecular biology, also enhance the employability of our students. This ensures that you are ideally suited to a wide range of careers.

Should you choose to continue with further study or employment within a biosciences field, your degree will equip you with a comprehensive understanding of the very latest developments within biosciences, and how they form a central part of global thinking on a wide range of topics. All of our Biosciences undergraduate programmes are recognised or accredited by the Royal Society of Biology.

For further information about what the careers service offers at the University of Exeter, please visit www.exeter.ac.uk/ug/biosciences/careers

Examples of the destinations of our recent graduates:

Occupations

Genetic Analyst // Research Analyst // Wildlife Health Research Officer // Turtle Husbandry Assistant // Clinical Research Scientist // Healthcare Technical Officer // Conservation Worker // Fertility Technician // Microbiologist // Assistant Marine Specialist // Environmental Consultant // Medical Sales Representative // Medical Research Technician // Bioinformatics Officer // Biomedical Support Officer // Field Ecologist // Computational Ecologist // Cardiac Scientist

Employers

AstraZeneca // Medical Research Council // Plasticell Ltd // Phillips // NHS // Food and Environment Research Agency // Shell Global Solutions // Quotient Bio Research // Wildfowl and Wetlands Trust // Eli Lilly & Co // KPMG // First Data Bank Europe // University of Oxford // Munroe and Forster // Environment Agency Abu Dhabi // The Carbon Trust // Environment Agency // Rothamsted Research // National Biodiversity Data Centre // Biotrack Ltd

Examples of further study followed by our graduates:

- Environmental Management
- Behavioural and Evolutionary Ecology
- Food Security and Sustainable Agriculture
- Biological Science
- Nanoprobes
- Renewable Energy Development
- Managing the Environment
- Toxicology
- Medicine
- PGCE Biology
- Animal Behaviour
- Conservation and Diversity
- Medicinal Chemistry
- Immunogenetics



Studying a Biosciences degree at the Penryn Campus in Cornwall is like being in a living laboratory and learning through practical experiences is the best way to engage with biology. The enthusiasm of our lecturers in their own research and teaching means that course content is always new and offers opportunities to pursue your individual interests within the course itself.

Miranda Walter, BSc Conservation Biology and Ecology, Penryn Campus



ABOUT THE UNIVERSITY OF EXETER

Top 1% of universities worldwide (*Times Higher Education*)

9th in *The Times* and *The Sunday Times Good University Guide 2017*

Six months after graduation, 94% of our first degree graduates were in employment or further study (*HESA 2014/15*)

Our teaching is inspired by our research, 98% of which is of international quality (*2014 Research Excellence Framework*)

We have 21,000 students from 181 countries, and they are the most satisfied in the Russell Group (*NSS*)

VISIT US TO FIND OUT MORE

Open Days

You can register your interest now for our Open Days and receive priority access to book your place*; visit www.exeter.ac.uk/opendays

* Pre-registration only guarantees priority access to the booking system and is not an absolute guarantee of a place at any of our Open Days. Booking is essential and is on a first-come, first-served basis.

Exeter campuses:

Friday 2 June 2017

Saturday 3 June 2017

Saturday 2 September 2017

Penryn Campus, Cornwall:

Saturday 10 June 2017

Saturday 23 September 2017

Campus Tours

We run campus tours at the Streatham Campus each weekday, at the St Luke's Campus on Tuesdays and Fridays, and at the Penryn Campus on Wednesday and Friday afternoons, during term time. You'll be shown round by a current student, who'll give you a first-hand account of what it's like to live and study at the University.

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www.exeter.ac.uk/ug/biosciences



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