

## Changes to previous information

During the global COVID-19 pandemic, we prioritised the health, wellbeing and safety of our students and staff.

As we start the new academic year, your health, wellbeing and safety remains our top priority. This means when we return to our campuses and buildings in September 2020 social distancing and other health and safety measures will be in place. This is to help keep you, and others around you, safe. We will respond to the requirements of vulnerable students regarding their personal safety on an individual basis.

We remain committed to delivering an outstanding education and student experience both on campus and online. Like most universities, we'll be providing a mix of on-site face-to-face and digital learning and teaching. The exact mix will vary between courses and course modules taking into account teaching requirements and other considerations such as meeting the safety of vulnerable staff.

It is important to emphasise that a face-to-face, on-site experience will be delivered within the Government and Public Health England guidance and providing there are no serious unforeseeable public health issues that result in the Government introducing further lockdown measures.

Our response to the pandemic means we may have made changes to your course. This is to take account of these important health and safety measures.

We ask you to read the information provided about course changes carefully. We detail what we include in our online prospectus and explain what has changed.

You should read our statement of changes alongside any information provided in videos, at open days or in other promotional materials. This is because the information may also have been affected by the changes we had to make. We are providing this information so you can make an informed choice about whether the course remains suitable for you.

When you register for your course, you will be asked to confirm you have read about our changes and you agree to them. It means that by choosing to continue with your application, and register with us, you accept these changes and are happy to study your course with us.

We really look forward to seeing you in the next academic year. In the meantime, if you want to find out more about University life from this September, and being part of our supportive and welcoming community, please visit our [September 2020 web pages](#).

Current published course related information		
Course title	Animal Science	
Award level	BSc - Single honours only	
How do you want to study?		
Start Date	Sept 2020	
Modes of study	Full-time Part-time	
Duration	3 years Full-time 6 years Part-time	
UCAS code	C300	
Location	Canterbury	
Partner institution	N/A	
Available with a Foundation Year	Yes	
Overview		
	<p>If you are passionate about animal welfare, health and behaviour, this course will help you develop the skills and knowledge needed for you to do well in the animal industry.</p> <p>You will learn about animal genetics, breeding, diseases and more, and will have the opportunity to work with a range of employers in the field by taking advantage of the University's Life Sciences Industry Liaison Lab at Discovery Park.</p>	<p>There will still be a focus on the development on practical skills in the laboratory but opportunities to work with employers will depend upon the current COVID-19 situation.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face contingency arrangements are planned to support student learning.</p>
Why study Animal Science?		
	<p>Recent changes in animal welfare laws in Britain have meant that there is now more control and regulation of all animal-based enterprises. This has resulted in a greater need for a scientific approach to animal management and welfare across all businesses that work with animals. These sectors require well-prepared animal scientists who are able to apply their knowledge to emerging management issues.</p>	<p>Please note that the running of the optional five day field trip and the optional 'Added Value' programmes will depend upon the situation with COVID-19.</p>

	<p>If you are passionate about a career in this important sector, our course will help you develop as a highly practical and knowledgeable animal scientist who is skilled to work in areas such as zoos and wildlife parks, pet shops, veterinary situations, farms and wildlife conservation.</p> <p>Throughout the course, you'll be challenged to apply your thinking to different scientific issues and you'll have the exciting opportunity to take part in a five-day field trip studying animal behaviour.</p> <p>As well as developing essential scientific knowledge and skills, you'll explore animal physiology and welfare in depth, looking at the diversity of life, pests and diseases, genetics and evolution.</p> <p>As part of our 'Added Value' programme, you will have the chance to gain further skills and collaborate with biotech companies through the Life Sciences Industry Liaison Lab and advisory companies in the industry.</p> <p>To help prepare you for employment, you'll also develop broad transferable skills so that you are a work-ready graduate set for a career in a wide range of animal care, welfare and management settings, and for further advanced study.</p>	
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Entry requirements	A typical offer would require between 88-112 UCAS tariff points. Of which 32 UCAS tariff points or equivalent (e.g. A level grade C or BTEC Subsidiary Diploma grade Merit) are in a science subject, for example, biology, chemistry.	
<b>About the course</b>		
	<p>You'll study animals in natural and man-made environments and you'll spend time in the labs learning a wide range of practical techniques related to microbiology and molecular biology.</p> <p>In Year 1, you'll gain a solid grounding in introductory biology, diversity of life, genetics and evolution, animals in the environment and biochemistry and scientific skills.</p> <p>As you progress to Years 2 and 3, you'll study in more depth modules related to animal physiology, animal disease, developmental biology and animal behaviour. In the final year, you'll carry out a practical research project, which could be out in the field, at a zoo or wildlife park or in the laboratory.</p> <p>You'll also have the opportunity to undertake a placement module and gain valuable experience to help build your CV.</p>	The running of the optional Work Placement module at level 5 and summer internship positions will depend upon the COVID-19 situation in the summer of 2021.
<b>Module information</b> Please note that the list of optional modules and their availability may be subject to change. We continually review and where appropriate, revise the range of modules on offer to reflect changes in the subject and ensure the best student experience. Modules will vary when studied in combination with another subject.		
<b>Core year 1</b>		
	<p>Animals in the Environment Core module - (20 Credits)</p> <p>In this module, you'll explore the interaction of humans with the environment and animals. You'll develop your understanding and appreciation of vertebrate and invertebrate animals and the role they play in selected habitats. You'll also study aspects of animal behaviour. The module involves a series of practical sessions and field trips to a series of animal-based</p>	<p>The practical and field trip sessions are now associated with this module are part of an intensive practical week. Visits to animal-based enterprises depends on the COVID-19 situation at the time.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19</p>

	enterprises.	interruptions, further face to face contingency arrangements are planned to support student learning.
	<p>Biochemistry Core module - (20 Credits)</p> <p>You will be introduced to the basic concepts and chemical foundations of biochemistry and cell biology to develop your understanding of structure and function of animals at the molecular level. You will be introduced to the basics of immunology and endocrinology and you'll undertake a number of practicals based on the theory you have learnt.</p>	<p>The practical sessions associated with this module are part of an intensive practical week.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face contingency arrangements are planned to support student learning.</p>
	<p>Diversity of Life Core module - (20 Credits)</p> <p>Life on earth is amazingly diverse, colourful and multifaceted. This module introduces you to this variety, tracing the tree of life from its roots to its branches. Beginning with simple, single-celled organisms like bacteria and protists, you'll discover the various forms of complex life that have evolved and how to classify them in a taxonomic system using characteristic features of each group. The module features a large number of practical sessions in which you'll engage with plants, animals and other organisms.</p>	<p>The practical sessions associated with this module are part of an intensive practical week.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face contingency arrangements are planned to support student learning.</p>
	<p>Genetics and Evolution Core module - (20 Credits)</p> <p>You will learn about key concepts in genetics and evolutionary biology, providing you with a broad knowledge of Mendelian genetics and the mechanism of evolution. You will undertake a number of practicals in cell biology and DNA methods and will utilise bioinformatics to access, evaluate and interpret genetic and phylogenetic data.</p>	<p>The practical sessions associated with this module are part of an intensive practical week.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face contingency arrangements are planned to support student learning.</p>
	<p>Microbiology Core module - (20 Credits)</p>	<p>The practical sessions associated with this module are part of an intensive practical week.</p>

	<p>This module will introduce you to principal taxonomic groups of microorganisms; you will examine their growth, physiology and culture, and their importance to humans and the biosphere. The module equips you with the necessary skills to carry out safe, aseptic practices with such organisms in a laboratory environment.</p>	<p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face contingency arrangements are planned to support student learning.</p>
	<p>Science Skills and Introduction to Statistics Core module - (20 Credits)</p> <p>You will develop the necessary background in science communication, skills and methods essential for a degree in life sciences. You will learn how to analyse quantitative biological data, including statistics and experiment design and how to understand scientific publications and write scientific papers.</p>	
Optional year 1		
	N/A	
Core year 2		
	<p>Animal Anatomy and Physiology Core module - (20 Credits)</p> <p>By examining mammalian anatomy and physiology and comparing these systems with those of a range of other animal groups, you will develop an integrated understanding of animal form and function. Throughout this module, communication, evolutionary history and homeostatic processes are used as unifying themes. You will investigate dysregulation of these systems and carry out a number of practical sessions based on the theory you have learnt in the lectures.</p>	
	<p>Animal Pests and Diseases Core module - (20 Credits)</p> <p>In this module, you'll study pests, parasites and pathogens which affect animals, and how they affect the wider world. You'll learn about the taxonomy and biology of these organisms, the economic impacts they have on societies around the world, and the ways in which animals have evolved to fight infection and infestation. You will</p>	

	then discuss and comment on the mechanisms by which humans have attempted to control pests, parasites and pathogens such as the use of antibiotics, pesticides, vaccination and biological control.	
	<p>Data Handling Core module - (20 Credits)</p> <p>In this module, you'll develop the techniques necessary to handle quantitative biological data analysis and you'll start to explore bioinformatics. You will be introduced to the powerful statistical programming language, R, which is critical to current approaches to handling/analysing data, particularly "big data".</p>	
	<p>Genetics of Animal Breeding Core module - (20 Credits)</p> <p>This module will provide you with an understanding of strategies employed for the genetic improvement of both livestock species and other domesticated animals, taking into consideration the associated ethical implications. You will develop a further understanding of key genetic principles and there will be a particular emphasis on the various applications of modern genetic techniques such as genome wide association studies, cloning and transgenesis.</p>	
	<p>Molecular Biology and Biotechnology Core module - (20 Credits)</p> <p>This module offers you a unique practical experience of diverse laboratory skills associated with the isolation, handling and manipulation of DNA and proteins. You will cover the main areas of theoretical molecular biology knowledge and its practical applications in current research.</p>	
<b>Optional year 2</b>		
	<p>Animal Behavioural Ecology Optional module - (20 Credits)</p> <p>In this module, you'll study the ecological side of animal behaviour. You will learn about the main influences on behaviour and how these can influence animal behaviour at an individual, group and species level.</p>	

	<p>After undertaking this module, you will be able to design and carry out animal behavioural studies in an ecological context.</p>	
	<p>Natural Product Chemistry Optional module - (20 Credits)</p> <p>In this module, you'll develop further understanding of the chemistry of natural products, building on the chemical knowledge in earlier modules. You'll explore the chemistry of natural products and the links between molecular structure and properties, establishing connections with the behaviour of these compounds in biological systems. You'll also learn about purification methods and different analytical methods that can be used in the isolation and identification of these compounds.</p>	
	<p>Work Placement Optional module - (20 Credits)</p> <p>This module gives you the opportunity to undertake a summer placement in a commercial environment to develop key skills and work experience. By the end of this module, you will be able to critically reflect and review your own competencies and development requirements.</p>	<p>This optional module may be available depending upon the COVID-19 situation in 2021.</p>
Core year 3		
	<p>Animal Health and Husbandry Core module - (20 Credits)</p> <p>The aims of the module are to explore the importance of animals in society and the scientific background to animal welfare issues. This includes the study and analysis of nutrition, good husbandry, disease control, pain perception, the ability of animals to cope with their environments and the physiological and behavioural aspects of welfare.</p>	
	<p>Animal Reproduction and Development Core module - (20 Credits)</p> <p>In this module, you'll examine the genetic and endocrine control of reproductive behaviour and other aspects of reproduction, embryological growth and subsequent ontogeny of selected vertebrates and invertebrates. You'll</p>	



	develop an understanding of how the processes underpinning animal reproduction and development function have evolved.	
	<p>Bioinformatics 1 Core module - (20 Credits)</p> <p>In this module, you'll develop a systematic understanding of the role of computing in biological research, the fundamentals of molecular biology and the key concepts and techniques in bioinformatics. A major focus will be on computer practicals to reinforce the theory within the interactive lectures.</p>	Computer practical sessions for this module will be online-based. Lectures will be pre-recorded and the theory will be reinforced using interactive online-interactive workshops.
	<p>Honours project Core module - (40 Credits)</p> <p>This module provides you with autonomy in your learning as you pursue in depth the study of a topic of your own choice within animal science. In doing so, you will gain practice at organising your thinking in a scientific context and will increase your confidence in dealing with scientific problems and issues. With a broad scope, this module allows you to work with external businesses and partners and to potentially produce work that can be either published as a peer reviewed article or that may be of real world value to a partner organisation.</p>	
Optional year 3		
	<p>Cancer Biology and Immunology Optional module - (20 Credits)</p> <p>In this module, you will obtain a comprehensive understanding of the biology and genetics of cancer and the role of the immune system in tumour development in humans and other animals. You'll explore a range of medical techniques used to diagnose cancer and you'll study the latest cutting-edge treatments and the molecular mechanism used by those treatments. You will participate in discussions on the impact cancer has on people's lives and how patients are cared for including end of life care.</p>	
	<p>Bioinformatics 2 Optional module - (20 Credits)</p>	Computer practical sessions for this module will be online-based. Lectures

	<p>This module provides a more in depth investigation of the techniques and analyses introduced in Bioinformatics 1 focusing on building the programming and computational skills to allow you to design and undertake complex analyses. You will build an understanding and ability to use various industry standard tools. A major focus will be computer practicals to reinforce the theory learnt.</p>	<p>will be pre-recorded and the theory will be reinforced using interactive online interactive workshops.</p>
	<p>Current Science Issues Optional module - (20 Credits)</p> <p>In this module, you will develop a wider understanding of how science influences and affects society. You will develop your independent research and analysis skills as you comment on important science issues. The weekly section research / visiting speaker lecture will be used as a base to discuss topics.</p>	

## How you'll learn

<p>Teaching</p>	<p>You will be taught through a combination of lectures, laboratory practicals, field trips, visits to employers, seminars, guest speaker lectures and practical workshops. You'll also benefit from tutorial sessions where you can discuss your work and progress with an individual personal tutor, and small group seminars focusing on specific topics.</p> <p>The course is designed to support you in becoming a confident, independent learner and some of your learning will be through experimentation and observation.</p> <p>In the first year, two thirds of each module are delivered as practical experimentation either in laboratories, IT labs or in the field. These sessions are supplemented by lectures, and seminars/workshops where you feedback from your structured independent study.</p> <p>In the second year, you'll continue laboratory and field based experimentation and you'll start analysing published research.</p> <p>In the final year the teaching will move into student-led workshops where you'll discuss published research papers.</p> <p>All teaching material is posted on the virtual learning environment.</p> <p>Your actual contact hours depend on the option modules you select.</p> <p>All courses are informed by the University's Learning and Teaching Strategy 2015-2022.</p>	<p>The practical component will be condensed into an intensive practical week rather than being spread across the semester and so minimise your time on campus due to the COVID-19 situation. We will use a "blended learning" approach in your studies that consists of a mix of timetabled face-to-face sessions and intensive practical weeks on campus, together with timetabled interactive workshops online. This will involve "flipped learning" approach, which means that it is essential that you read material, watch video content or undertake tasks in preparation for a session.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face contingency arrangements are planned to support student learning.</p>
<p>Independent study</p>	<p>When not attending lectures, seminars, workshops or other timetabled sessions you will continue learning through self-study. Typically, this involves reading journal articles and books, undertaking research in the library, working on projects, and preparing for coursework assignments/examinations, workshops and seminars. Your module director will direct you towards specific readings and/or activities to complete before class through</p>	

	<p>the virtual learning environment.</p> <p>For the 40 credit individual study in your final year, you will undertake independent research working under the supervision of a member of the teaching team who you will meet with regularly.</p>	
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<p>Overall workload</p>	<p>Each 20 credit module requires 200 hours of study which includes formal contact (lectures, practicals, tutorials, workshops), structured independent learning (prescribed reading and/or online exercises) and independent learning.</p> <p>Each module in Year 1 has 60 hours of formal contact, supplemented with 40 hours of structured independent learning. As you develop and become more independent, formal contact and structured learning reduces to 50 hours of contact and 30 hours of structured independent learning per module in Year 2 and 40 hours of contact and 20 hours of structured independent learning per module in Year 3.</p>	<p>Each 20 credit module requires 200 hours of study but the proportion and delivery methods will be more varied. At Level 4, each module will have 48 hours of face-to-face contact supplemented by structured independent learning. You will also receive an intensive week (30 hours) of practical laboratory sessions in each semester to give you the essential laboratory skills relevant to your modules.</p> <p>At Level 5, your sessions will be delivered as a blended learning mix of on-campus face-to-face sessions and online interactive class workshops. You will have 9 hours of face-to-face sessions on campus dedicated to your programme with 9 hours of interactive online class workshops. We will employ a “flipped learning” approach where we will expect you to prepare for the online class workshops by undertaking the directed study beforehand. You will also receive an intensive week (30 hours) of practical laboratory sessions each semester to give you the essential laboratory skills relevant to your modules.</p> <p>At level 6 Substantial elements of programme delivery will be interactive online delivery using the “flipped learning” approach. Each programme has a 3-hour programme specific session with each module consisting of 12 hours of online interactive workshops. In addition, your Honours Project module will have 96 hours timetabled in each semester to enable you to carry out your research.</p> <p>Practical work will be supported by supplementary online demonstrations of key laboratory techniques. In the event of further COVID 19 interruptions, further face to face</p>
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		contingency arrangements are planned to support student learning.
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<p>Academic input</p>	<p>The team consists of highly qualified academics with a range of expertise and experience. They are research-active and have experience in delivering research-informed teaching.</p> <p>All our core team members hold doctoral qualifications and most hold or are working toward postgraduate teaching qualifications. You can find out more about the current teaching on our Meet the Team web page.</p> <p>Postgraduate students sometimes assist in teaching and assessing some modules, however, experienced academics teach the vast majority of lectures and seminars.</p> <p>You should note that members of the teaching team might change.</p>	
<p>How you'll be assessed</p>		
	<p>Assessment is by both coursework and examination. The course provides you with opportunities to test your understanding of the subject informally before you complete the formal assessments that count towards your final mark. Each year you will be set formative assignments to go through with your tutor. There will also be 'formative' assessment within some of the modules. Practice assessments are developmental and any grades you receive for them do not count towards your module mark.</p> <p>There are also formal or 'summative' assessments. Assessment methods include written examinations and a range of coursework assessments such as essays, reports, portfolios, performance, presentations and your final year individual study project. The grades from formal assessments count towards your module mark.</p> <p>Coursework assessments permit you to develop key scientific and transferable skills and assignments include scientific lab/logbooks, written reports, written scientific papers, discursive essays, PowerPoint presentations and poster presentations. There is a maximum of two</p>	<p>Examinations may take the form of take-home online examinations.</p>

	<p>assessments per 20 credit module studied.</p> <p><b>Feedback</b> You will receive feedback on all practice assessments and on formal assessments undertaken by coursework. Feedback on examination performance is available upon request from the module leader. Feedback is intended to help you learn and you are encouraged to discuss it with your module tutor. We aim to provide you with feedback within 15 working days of hand-in.</p>	
Year 1	60% coursework 40% written exams	
Year 2	50% coursework 50% written exams	
Year 3	65% coursework 35% written exam	
<b>Fees</b>		
UK/EU	Full-time £9,250	
	Full-time - placement year £1,850	
	Part-time £4,625	
Overseas	Full-time £13,000	
	Full-time - placement year N/A	
	Part-time N/A	
<b>Course specific costs</b>		
	N/A	
Professional accreditation	N/A	
Industry links	The Life Sciences Industry Liaison Lab at Discovery Park in Sandwich, Kent was launched in March 2016. Discovery Park is a fabulous site with well over 100 companies now based there, many of which are active in the science sector.	
<b>Other important information</b>		
Related courses	<ul style="list-style-type: none"> <li>• Biology with Foundation Year</li> <li>• Ecology with Foundation Year</li> <li>• Plant Science with Foundation Year</li> </ul>	
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