Discover your world

Ecology and Conservation

Lancaster Environment Centre
Lancaster University
Explore our biodiverse planet

Develop the real-world skills required to tackle some of the biggest challenges facing our planet at a time of rapid environmental change, whether it’s helping to protect endangered species or trying to develop sustainable systems for feeding the world.

Our degrees will equip you with a comprehensive grounding in the key principles of ecology and conservation where you will gain fascinating insights into the complexity of the natural world.

We will teach you how to examine different biological ecosystems in which organisms are locked in complex interactions with one another and their environment. It’s a diverse field and your degree will focus on areas including animal behaviour, evolution and global change biology.

Our natural surroundings create amazing opportunities for you to take part in hands-on fieldwork at a wide range of ecological, environmental and social situations in the local area, or to travel further afield on our exciting field trips that will place your studies in the context of real-world issues.

The expertise of our staff spans global change biology, evolution, biodiversity conservation and sustainable resource management in agriculture. This means we can offer you a diverse range of module choices to suit your particular interests. You will be exposed to cutting-edge research through our teaching, and this makes Lancaster a really exciting learning environment.
Made for learning

There has never been a better time to study ecology and conservation. At Lancaster, you will become part of an internationally recognised environment centre where you will be taught by leading experts in ecology and conservation biology. Our multidisciplinary team will provide you with a fundamental understanding and hands-on experience of these research areas giving you the key skills required for a career in ecological research or industry.

Flexible and interdisciplinary
We believe that you will excel in your degree when given the opportunity to explore in depth the areas of ecology and conservation that interest you the most. Your first year of study will give you the foundation, knowledge and skills you need before specialising in your second and third years.

What’s more, studying in a multidisciplinary department gives you the unique opportunity to expand the breadth of your degree by taking complementary modules in environmental science or geography.

Practical study
You won’t just learn in lecture theatres at Lancaster! We believe that ecology and conservation are best appreciated through hands-on practical experience, whether that is in the field or in our new teaching labs. Practical learning enables you to put theory into practice, providing a deeper understanding of the subject, whilst also developing skills which will be of use throughout your degree and future career.

Industrial links
We give you the opportunity to enhance your CV throughout your degree, which is crucial for standing out in the graduate jobs market.

Our in-house Enterprise and Business Partnerships team engages with hundreds of different businesses and organisations, giving you fantastic opportunities to work alongside these partners through internships or even during your dissertation project.

#4
in the UK for Biosciences
(The Guardian University League Tables 2020)

93%
students were satisfied overall
(National Student Survey 2018)

#5
in the UK for teaching quality in Biological Sciences
(The Times and Sunday Times Good University Guide 2019)
Lancaster Environment Centre is the University’s largest department, with newly enhanced facilities, teaching rooms, laboratories and social spaces.

Equipped for achievement

Field and laboratory facilities
We provide you with access to our study sites and cutting-edge field and laboratory equipment. We even have our own field station just a kilometre away at Hazelrigg, where high quality weather measurements have been made daily since 1966.

Making connections
You can take advantage of our shared facilities (laboratories and offices) with the Environment Agency and 26 businesses in our purpose-built Gordon Manley Building, a facility to encourage commercial sector partnerships. We are also home to one of the Government’s top environmental research laboratories, run by the Natural Environment Research Council’s Centre for Ecology and Hydrology, and that partnership feeds into teaching and research, providing additional expertise and facilities.

Environmental community
The newly refurbished atrium at the heart of Lancaster Environment Centre forms a home for our community of high-achieving students, world-class environmental researchers, government scientists and enterprises working together to address today’s biggest environmental challenges. The eco-friendly design of this space extends from the 100% recycled flooring, to the glazed roof, designed to reduce the need for lighting within this communal space.

State-of-the-art laboratories
Spread over two floors in a new £4m building, our teaching laboratories can house over 200 students and are the location for many practical classes. These will provide you with hands-on experience that puts theory into practice. You can also use this facility as part of your dissertation project, for example undertaking controlled experiments or processing field samples.
Abbie Pilkington
BSc Ecology and Conservation

When did you know that Lancaster was the university for you?
Lancaster was one of the first universities I visited and I loved everything about it, as I still do! I just had this feeling when I was researching it, when I visited an Open Day and when I returned for an Applicant Visit Day that Lancaster was the place for me, and I was right.

My course at Lancaster University is like no other and it has everything I want from a degree. I am able to study topics in my first year that I have touched upon before whilst discovering new things every day, sparking my passion, curiosity and drive to know more about subjects I love.

What stood out about your course?
My course ticked all the boxes for me; there are so many interesting modules with opportunities during my degree to specialise in my area of interest, which means the scope of my learning is forever growing in the direction I want it to.

The really great thing about my course is the wide range of subject areas we study, such as evolution, aquatic ecology, zoology and so much more, allowing me to develop my knowledge of the topics underpinning ecology and conservation. I have always loved learning about coral reef systems and the conservation of marine life in particular, and my course allows me to delve deeper into the subjects I love.

Do you get opportunities to put your skills into practice?
Fieldwork expeditions are one of many opportunities we get at Lancaster, which allows us to contextualise our studies and learn for ourselves how our degree feeds back into real work environments.

The best thing about undertaking fieldwork is how hands-on it allows me to get, which ties in with really well with my studies and brings it to life in the field. The University’s close connections with the Lake District has allowed me to take a trip to Silverdale to learn more about glacial movement; it’s amazing to be able to visualise your learning and it’s definitely a real advantage to be right on the Lake District’s doorstep.

A place for Abbie
When it comes to understanding ecology and conservation, there is no substitute for fieldwork. You will gain hands-on experience of a wide range of ecological, environmental and social situations in the local area and overseas.

Local field excursions
Nestled between the Lake District World Heritage site, Yorkshire Dales National Park and several Areas of Outstanding Natural Beauty, Lancaster is perfectly placed for studying ecological processes and conservation in action.

Scotland
The island of Mull is a unique place to experience some amazing landscapes, from mountains to coasts, and to learn about the ecology of key animal and plant species. Each day you will visit a variety of habitats with the aim of understanding the landscape, key species within it, and the conservation and management issues they face. You will also get to know the spectacular flora and fauna of the region, with a great chance of encountering red deer, otters, golden and white-tailed eagles and a variety of seabirds.

Local nature reserves
Develop your understanding of how conservation theory is put into practice with visits to the Forest of Bowland, Leighton Moss RSPB and Warton Crag.

Silverdale
We’re just a stone’s throw away from the Arnside & Silverdale Area of Outstanding Natural Beauty, where you will learn about rare local species and habitats and how to protect them.

Kingsdale
Learn how the climate and environmental conditions have changed over the past 500 million years, whilst developing your field and observational skills, during a trip to Kingsdale in the Yorkshire Dales.

Learning on location
We take full advantage of our natural surroundings to create amazing fieldwork experiences in addition to providing opportunities to travel the world with residential overseas field trips.
Kenya
Based in the beautiful Rift Valley, you will explore the staggering biodiversity of local aquatic and terrestrial ecosystems, at the same time considering how best to monitor and protect it. Working with experts in African ecology, you will gain first-hand experience of the ecological processes and conservation issues common to the tropics. Together, we will evaluate the challenging balance between tropical conservation and human activity.

Spain
Home to over 1500 species of plants, 400 species of birds and 50 terrestrial mammals, Doñana National Park is one of the most important biodiversity hotspots in Europe. You will explore the diversity of the species and habitats in the area, and gain an understanding of the role of the National Park in conservation. You will also gain practical experience of identification, critical observation and the accurate recording of plants, invertebrates and birds.

Switzerland
This is an intensive week-long residential field trip to southwest Switzerland. You will select from one of six interconnected study themes to explore in depth, spanning: alpine climate and hydrology; glacial processes; alpine rivers; streams; soils; and ecosystems. Through the collection of significant amounts of field data on your chosen theme you will gain an in depth understanding of a particular thematic focus of alpine environments.

The Brazilian Amazon
The Amazon is a fascinating place to explore the conservation and development challenges facing tropical forests. Based in the lower Rio Negro region, you will see a range of beautiful tropical wildlife and visit people’s homes and agricultural plots to understand the challenges faced by local people. This is a unique opportunity to work alongside experts and understand the challenges of pursuing biodiversity conservation whilst reducing poverty.
The place for the researcher

Renowned experts, at the forefront of their fields, are shaping our understanding of the world. Their work feeds into our degree programmes, ensuring that your education is informed by cutting-edge thinking. During your degree you’ll conduct your own independent research project where you’ll benefit from the research experience of our internationally renowned staff and be exposed to the latest technology used in a cutting-edge research laboratory.

Time is running out in the tropics

A study led by Professor Jos Barlow contributed to the first high-level report on the state of the world’s most diverse tropical ecosystems such as tropical forests, savannahs, lakes and rivers, and coral reefs.

The tropics, which cover 40% of the planet, are home to more than three-quarters of all species, including almost all shallow-water corals and more than 90% of the world’s bird species. Most of these species aren’t found anywhere else and millions more are yet unknown to science.

However, our research has shown that a global biodiversity collapse is imminent unless we take urgent, concerted action to reverse species loss in the tropics.

We are already familiar with the impact of climate change on the Polar regions, and it is now vital that we are aware of the consequences of this across the tropics, as it also threatens the well-being of millions of people across the planet.

Our research has outlined the actions needed to revive the health of our ecosystems to help avoid the loss of tropical diversity, as many species face a double jeopardy of being harmed by local human pressures, such as overfishing or selective logging, and droughts or heatwaves linked to climate change.

Professor Jos Barlow’s work, alongside our researchers, concluded that the best way forward to revive the health of ecosystems is to call for a step-change solution to support sustainable development, conserving and restoring tropical habitats.

Trees for bees

A study led by Dr Philip Donkersley identified that planting more hedgerows and trees holds the key to boosting the UK’s bee population with the help of artificial intelligence.

Our research suggests that artificial intelligence could be used as a tool to design landscapes so that trees, hedgerows and wildflowers are planted in the right location and the right numbers to ensure bees and other important insects have enough food to play their vital role in pollinating plants and crops.

These insects face a long-term decline across Europe, believed to be accelerated by modern farming practices destroying any suitable habitats for the pollinators. Dr Philip Donkersley proposes the creation of new artificial intelligent algorithms to help redesign the landscape, which informs farmers and other landowners where to most efficiently, and cost-effectively, plant trees and hedgerows, along with wildflowers, to provide plentiful food and landmarks for the pollinators to thrive.

Trees are preferred by bees and other pollinators due to their greater food density; there are more flowers within a small area on a blooming tree in comparison to a flower meadow. They also act as a physical landmark, which pollinators use to navigate their way across the landscape from their hive to foraging grounds.

Rats and coral reefs

Professor Nick Graham and our researchers are working to protect threatened environments from invasive predators, such as rats. They are having a damaging impact on the coral reefs that encircle and protect many remote tropical islands.

The research has shown that the rats, by feeding on bird eggs, chicks and even adult birds, have decimated seabird populations in 90% of the world’s temperate and tropical island groups, but these seabirds are important to these kinds of islands due to the nutrients in their droppings.

Our researchers were able to study the effects that rats have on the ecosystem of the Chagos islands in the central Indian Ocean. This was a perfect ‘laboratory’ setting due to some of the islands being rat-free, while black rats infest the others. This unusual situation enabled the researchers to show that the rats were harming not only the ecology of the islands, but the surrounding sea and adjacent coral reefs as well.

Not only did the rats have a detrimental effect on the fish life and algae, but also the way that the islands’ vulnerable ecosystems function. The results of the study showed that rat eradication should be a high priority on oceanic islands and could tip the balance for the future survival of coral reefs and their ecosystems.
Our academics are leaders in their fields of research and deliver enthusiastic and engaging teaching through a range of methods.

Lectures
Lectures provide an introduction to the key issues and findings in each topic and are delivered by an expert in that particular field. They usually last either one or two hours, and should be complemented by further independent study by reading relevant literature on the topic. We provide online reading lists, suggesting suitable books and journals that are available either digitally or in print from our library.

Tutorials
Tutorials are usually one-hour sessions where you will be encouraged to discuss your learning with a small group of fellow students, under the guidance of a tutor. During these in depth study sessions, you will become used to speaking out, listening to others and learning to increasingly present yourself with confidence. You’ll become experienced in being part of a team and explore the topics under study together.

Practical classes
These are designed to help you discover the key principles underpinning the topic of study, whilst also developing your skills which you will be able to put to use throughout your degree and future career. Practical classes could range from computer-modelling sessions, through fieldwork, to the opportunity to conduct experiments in our laboratories.

Assessment
The assessment process varies across modules, but includes laboratory reports, essays, independent project reports, group presentations, multiple-choice tests and exams. Assessment is an on going process, rather than being left solely until the end of the degree. This means we are able to offer feedback to you throughout your degree and, equally as important, it relieves pressure on you when modules are examined at the end of each year.

Academic support
We foster a highly supportive learning environment, making sure that you are fully supported to achieve your full academic potential. This includes access to our Student Learning Developers, who offer workshops and advice on improving your academic skills, and also assigning you an Academic Tutor who you will meet with regularly throughout your degree to discuss your progress.

Placement year
Taking our Placement variant provides the opportunity to spend your third year working in a professional role as a full-time employee in the type of organisation that you might aspire to join when you graduate. Being able to demonstrate professional experience of working on a range of important and interesting projects, where you get to apply the theory you’ve learned in your first and second year, is invaluable when competing in the job market. It’s also a great way to work out what you do, or don’t, want to do once you complete your studies!

Finding and securing a placement opportunity is down to you, just as it would be when applying for a graduate vacancy. However we will provide you with plenty of support and guidance in preparing you for interviews, writing your CV, applying for positions and even taking part in assessment centres.

We also have well established and long-standing links with industry which means that we’ll have a number of placement opportunities just for Lancaster students.

Professional experience
Our MSci Ecology and Conservation (Professional Experience) degree allows you to undertake a ten-week placement with a graduate employer gaining valuable real-world experience. This advanced qualification may also give you a competitive edge in the graduate jobs market by equipping you with the extra experience, knowledge and skills that come with studying Masters-level modules and carrying out a second dissertation.

Environmental volunteering
Our Green Lancaster scheme provides you with plenty of opportunities to become more sustainable and promote positive environmental choices, and the many nearby nature reserves offer volunteering opportunities.

Eco-innovation
Eco-innovation is the development of new products, processes or services that support business growth with a positive environmental impact. This second year module will not only provide you with a knowledge of eco-innovation and how the concept relates to business opportunities, but you’ll also acquire the knowledge and skillset required to understand how organisations apply eco-innovation into their business planning. As a part of the module, you will learn how to create proposals for eco-innovation and prepare presentations for a panel of experts.

Gain real-world experience
Discover your world beyond borders

Enhance your studies, boost your self-confidence and immerse yourself in the culture of another country as part of our exciting opportunities to study overseas.

Study abroad
Broaden your academic horizons by spending second year studying in either North America or Australasia. You’ll study similar modules to those available at Lancaster whilst gaining an understanding of a different culture and society. The year abroad is not an addition to your degree but instead fully integrated into the standard timeframe of three years.

Europe scheme
Through the Europe scheme*, you can spend three months abroad at the end of your second year, undertaking a research project in Switzerland, Croatia or the Czech Republic. Alternatively, you could study modules taught in English for four months at a university in the Netherlands at the start of your third year. Whatever you choose, it will be an unforgettable experience and a unique addition to your degree.

Student support
Studying on the other side of the world can be a daunting prospect. In addition to having a dedicated advisor, who will help you decide where to go and what to study, you’ll also have the opportunity to network with students who have studied abroad previously and can provide you with a wealth of practical tips. Additionally, our International Office is on hand to help you with application forms and the financial and legal aspects of studying abroad.

Fees and funding
Studying abroad might be cheaper than you think! Those undertaking a Europe scheme placement will continue paying tuition fees to Lancaster and will not have to pay any tuition costs to the host university. If you are studying overseas for a year, we will waive 85%** of your tuition fees for your year abroad and you may also receive an increased maintenance loan.

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* Subject to continuation of the Europe scheme beyond academic year 2020/21
** Subject to change. For more information about studying abroad, please visit www.lancaster.ac.uk/study-abroad
Hello Future

You can pursue a wide range of careers with the skills and experience you gain from any of our degree programmes. Our recent graduates have progressed onto a diverse range of roles, from Ecological Consultant for international project management organisations to Research Scientist for the British Antarctic Survey.

Career development

We offer you a wealth of opportunities to enhance your employability and help you develop the skills to succeed in the workplace.

Internships

Relevant work experience is crucial to achieving a good graduate job, and through our internship programme, you’ll have the opportunity to apply your knowledge to real-world situations whilst developing transferable skills.

Dissertation with external partner

Our in-house enterprise team engages with hundreds of businesses and organisations, giving you the unique opportunity to research environmental solutions to real-world problems.*

Working in the community

Lancaster has a thriving volunteer culture and our Students’ Union provides opportunities to work with schools, charities or other local organisations. This is a great way to enhance your CV whilst making a positive difference in the local community.

Further study

You may wish to study for a Masters or a PhD to enhance your career prospects. We have a range of programmes and research opportunities for when you graduate.

An example of the types of career you may choose to pursue

- Ecological Consultant
- Ecological Researcher
- Ecologist
- Environmental Consultant
- Environmental Planning Assistant
- Reserve Manager
- Resource Management Scientist
- Science Teacher
- Trainee Accountant
- University Lecturer
- University Professor

Whatever your career aspirations may be, or even if you’re still not quite sure, we’re here to support you to reach your goals.

You will undertake a module in employability skills, giving you excellent preparation for applying to graduate-level jobs and graduate scheme, and our dedicated Careers Service are here to assist you every step of the way. From helping you make a lasting impression with your CV to ensuring you are well prepared for interviews and assessment centres, they are able to offer you tailored and personalised support. What’s more, they provide lifelong careers support to our graduates so, if you need us, we will always be here to help.

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95% of our graduates were in full-time employment and/or undertaking further study six months after finishing their degree (DLHE 2014-2017)

*Not available to students on a Study Abroad degree scheme
Entry requirements for
BSc Ecology and Conservation
and BSc Ecology and
Conservation (Placement Year)
A levels
ABB to include two science subjects
BTEC
DDM¹
International Baccalaureate
32 points overall with 16 points from the best 3 Higher Level subjects including two science subjects at HL grade 6.

We offer you the flexibility to switch between these programmes subject to achieving the appropriate grades.

Required subjects
+ 2 science A levels from the following: Biology, Chemistry, Computing, Environmental Science, Geography, Geology, Human Biology, Mathematics, Physics or Psychology
+ GCSE Mathematics grade B or 5
+ GCSE English Language grade C or 4

We welcome applications from students with combined or other internationally recognised qualifications. For more information, please contact the Admissions Office directly on +44 (0)1524 592028 or ugadmissions@lancaster.ac.uk

¹Must include sufficient science and we require Distinctions in the majority of relevant science units. Please contact the Admissions Team for further advice.
**Degree overview**

Explore how organisms interact with each other and their environment, and discover the impact of human activity, including through a series of exciting field-based and lab-taught modules.

Our renowned researchers deliver an exceptional training programme that provides a thorough grounding in ecological theory and practice, combining lectures, practicals, fieldwork and small-group tutorials. You will gain a deep understanding and hands-on experience of how these principles are applied in the study and conservation of species and the ecosystems in which they live.

Throughout your degree, you will have the opportunity to experience a range of inspiring fieldwork modules and residential courses in the UK and overseas.

Your first year will begin with a rounded introduction to ecology and conservation biology. You will participate in a field course in southern Spain, and you will study a series of modules in animal and plant ecology, evolutionary biology and conservation.

Specialisation from the second year onwards allows you to choose topics that match your interests. A diverse range of modules will equip you with key practical skills and expose you to cutting-edge research, and you can choose from a selection of optional modules such as Evolution and Environmental Physiology.

In the third year, you will carry out an independent research project. Module choices include Animal Behaviour, Coral Reef Ecology and Conservation in Practice.

During your degree you’ll conduct your own independent research project where you’ll benefit from the research experience of our internationally renowned staff. You also have the option of applying to undertake your project in conjunction with a commercial partner or external organisation in a related sector. This opportunity is continued in our MSci degree, in which the fourth year includes an extended project and a work placement with an external partner together with Masters-level modules.

### Year 1

**Core modules**
- Aquatic Ecology
- Biodiversity & Conservation
- Environmental Processes & Systems
- Evolutionary Biology
- Global Change Biology
- Global Environmental Challenges
- Spanish-Danish Field Trip
- Zoology
- Placement Preparation (Placement Year only)

**Optional and skills modules**
- Numerical Skills I
- Up to 5 further optional modules in another science subject

### Year 2

**Core modules**
- Experimental Design & Analysis
- Field Biology
- Populations to Ecosystems
- Principles of Biodiversity Conservation
- Research Design & Delivery
- Work Based Learning Preparation (Placement Year only)

**Optional modules**
- Environmental Physiology
- Evolution
- Genetics
- Interacting Landscapes: Biogeography & Geomorphology
- Introduction to Eco-Innovation
- Soil Science
- Spatial Analysis and Geographic Information
- Vertebrate Biology

### Year 3

**Core modules**
- Dissertation OR Dissertation with Work Placement*

**Optional modules**
- Alpine Environmental Processes Field Course
- Animal Behaviour
- Climate & Society
- Conservation & Sustainable Development in the Brazilian Amazon (Amazon Field Trip)
- Coral Reef Ecology
- Environment, Politics & Society in Amazonia
- Environmental Plant Biology
- Environmental Remote Sensing & Image Processing
- Food and Agriculture in the 21st Century
- Global Change Biology: Challenges & Solutions
- Host-Parasite Interactions
- Issues in Conservation Biology
- Lakes, Rivers and Estuaries
- Quaternary Environmental Change
- Scotland Field Trip
- Sustainable Agriculture
- Tropical Biology & Conservation (Kenya Field Trip)
- Water Resources Management

### Year 4

For Placement Year students
- The core and optional modules described in Year 3
- Work Based Learning Reflection

For Professional Experience students
- Professional Experience Dissertation
- Professional Experience Placement

**Core modules**
- Professional Experience

**Optional modules**
- Conservation Biology
- Contaminated Land & Remediation
- Data Assimilation & Integration
- Ecology, Conservation and Culture
- Environmental Aspects of Renewable Energy
- Habitat Management
- Sustainable Soil Management
- Using the National Vegetation Classification

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* Depending on whether you have GCSE Mathematics grade A/7 or above, you will be required to take a numerical skills module in order to ensure you have the necessary knowledge to succeed in year two and beyond.

* Dissertation with Work Placement available to C180 and D448 students only.
Open Days
Join us at one of our Open Days to experience what life as a student at Lancaster is like. You will have the opportunity to see what facilities are available and explore our beautiful 560 acre campus including our award-winning accommodation, newly refurbished library, the Students’ Union and sport facilities. You can also visit Lancaster Environment Centre where you have the opportunity to chat with current staff and students about studying ecology and conservation.

Campus Tours
We organise regular campus tours to give you a flavour of life at Lancaster. The tour is designed to acquaint you with our friendly campus, showing you our award-winning student accommodation, social venues, library and a lot more.

You can book onto Open Days and Campus Tours at www.lancaster.ac.uk/visitus

Applicant Visit Days
If you are offered a place on one of our degrees, you will be invited to visit us again in February or March. You’ll have the opportunity to tour our scenic campus, take part in interactive activities and spend the day with staff and students. Applicant Visit Days are lively and informative events, designed to give you a taste of what it is like to be a student here. Parents are also welcome to attend these events.

Visiting us
Lancaster is very well served by road, rail and air networks and is nearby to major cities such as Manchester and Liverpool. More information about visiting the University can be found at www.lancaster.ac.uk/travel

Disclaimer
The information provided in this brochure is correct at the time of publication (June 2019) but this may be subject to change as we constantly review and update our degree programmes. This brochure does not guarantee the availability of any module and does not form part of any contract between any person and Lancaster University.

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Many of the photographs in this brochure were taken during fieldwork or on campus. Thanks to our students and staff who took these photographs and appear in them.