





# Graduate School for the Environment

Joined-up thinking for a better Master's

Master's degrees and doctoral research 2023/24







# **Top 10**

Lancaster is ranked top 10 in the Complete University Guide (2024). It was also named University of the Year in the 2023 Educate North Awards



# **World-Leading**

Our research is ranked 5th in the UK for 'research power' with 96% of research rated 'world-leading or 'internationally excellent' **REF 2021** 



Sustainability is at the heart of Lancaster University. We are now ranked 7th in the UK and joint 26th in the world in the new QS World University Rankings: Sustainability (2023)

# **Pioneering World Leaders**

Combining the expertise, resources and connections of Lancaster Environment Centre, Rothamsted Research and the UK Centre for Ecology & Hydrology, the Graduate School for the Environment is an exciting collaboration of three world leaders in environmental research and practice. We believe that environmental issues and challenges do not confine themselves to one country, that they cannot simply be addressed by one scientific discipline, and that solutions cannot be found by researchers, governments and businesses working in isolation. Instead, we advocate an international, interdisciplinary and inter-agency approach.

The Graduate School for the Environment is a world-leading academic centre with a truly global outlook and a similarly global network of real-world contacts. It is a place where you will become part of a broad community of like-minded researchers, academics, scientists, agencies and businesses to develop the skills and expertise for a successful career.



# World-class resources

The Graduate School for the Environment has the size, scope and infrastructure to offer you an unrivalled level of support, accommodating almost every imaginable environmental research interest.

We can call on a collective pool of hundreds of experts, provide you with access to cutting-edge facilities and can curate the kind of long-term, national-scale data that fuels the most impactful research programmes.

# Flexible and engaging degrees

Our programmes have been designed to make the most of our broad range of natural and social sciences expertise – with the opportunity for you to work in collaboration with staff across our sites.

On our taught programmes, you will have the opportunity to tailor your module choices to suit your particular interests and a particular highlight is the wide array of research opportunities for your dissertation project. Working with research-active academics, using stat-of-the-art facilities or conducting fieldwork, you will enjoy access to a network of global research institutes and business partnerships.

# Interdisciplinary excellence

Environmental challenges can only be properly addressed when scientists, researchers, government agencies and businesses come together to pool their ideas and devise practical solutions. So it's no coincidence that our community is comprised of researchers from across the natural and social sciences who are leading the international research agenda in key areas. These same experts are the ones who will teach and supervise you.





# Global outlook and impact

The Graduate School for the Environment has a strong international focus, which informs everything we do. This means you could find yourself engaged in research work in any corner of the globe.

Our outward-looking focus makes us better placed to tackle environmental issues at an international level. It also provides you with a world of opportunity, giving you the kind of global perspective that is valued by employers and a network of contacts in the UK and overseas.

# Career gateway

When you leave the Graduate School for the Environment, you will take with you the kind of skills and practical experience, an extensive network of contacts and a qualification tailor-made to secure the career you want.

We work with a wide range of organisations from research institutes to small and medium-sized enterprises – every one of which could prove to be a potential employer. What's more, our Enterprise and Business Partnership team at Lancaster aims to get you working with one of these during your studies.

# Real-world focus

Everything we do at the Graduate School for the Environment is driven by the realities of the outside world.

We will encourage you to look outwards and engage with the global environmental community. That might mean conducting fieldwork either in the UK or overseas, taking up a placement with one of our research partners or pursuing a company-based project in a particular industry.



Lancaster Environment Centre, Rothamsted Research and the UK Centre for Ecology & Hydrology all provide excellent facilities for research. Together, as the Graduate School for the Environment, we offer you a wonderful range of opportunities.





# State-of-the-art laboratories

We have a broad array of laboratories, specially equipped and staffed so that you can perform highly focused and effective experimental and analytical work.

# Leading research facilities

From glasshouses to insectaries, biomolecular analysis to mass spectrometry, we offer a wide range of specialist facilities to our postgraduate students.

# Widespread field sites

You will be able to conduct fieldwork of all types about the UK and overseas, and we can also offer a broad range of desk- and lab-based studies as an alternative to travel.

# Cutting-edge technologies

Whether in the laboratory or the field, our researchers have access to specialist equipment that can transform the effectiveness and scope of their work.

## Rich data resources

You can gain access to a truly unique set of large-scale long-maintained data sets and take advantage of our powerful analytical, modelling and statistical capabilities.

# Equipped for achievement





# **MSc Conservation and Biodiversity**

### Duration:

Full-time 12 months OR Part-time 24 months

Our MSc Conservation and Biodiversity course offers great flexibility, with a wide choice of study topics from across disciplines, enabling you to construct a programme that suits your individual interests and career ambitions in this increasingly important field. You will have the opportunity to gain a solid foundation in the key theoretical issues, such as wildlife population dynamics and conservation biology, and learn how these are applied to real-world problems, such as managing habitats or dealing with wildlife-human conflicts. Additionally, you will gain and develop the key skills that are valued by employers, such as field skills on species identification, GIS sampling and monitoring and more generic skills in problem solving, report writing, data analysis and presentation.

You will complete six taught modules, giving you the opportunity to interact with a wide range of expert specialists, including conservation biologists, terrestrial, marine and lake ecologists, food security biologists and Earth observation geographers. Several of these modules include field excursions to the beautiful and



topographically varied countryside around Lancaster, and beyond.

If you wish to travel further afield, we have research projects and partners across the globe that provide exiting opportunities when it comes to selecting your dissertation project. This project forms a substantial part of your degree. It will enhance your practical and analytical skills and give you the opportunity to apply your learning to a real-world challenge.

Graduates have gone on to successful careers in the environmental and conservation sectors, as well as further study for a PhD.

# Core modules:

- + Dissertation Project
- + Habitat Management
- + Independent Planning and Research
- + Wildlife Monitoring Techniques

# **Optional modules:**

- + Conservation Biology
- + Data Collection and Analysis
- + Environmental Governance and Management
- + Environmental Impact Assessment
- + Food Security, Agriculture and Climate Change
- + Geoinformatics
- + Lake Ecology
- + Numerical Skills
- + Soil Science
- + Wildlife Population Ecology

Further information can be found at www.lancaster.ac.uk/gse/conservation-and-biodiversity



# **MSc Environmental Management**

### Duration

Full-time 12 months OR Part-time 24 months

The Earth's resources are under strain from a growing population. Now, more than ever, we need to monitor, manage and maintain our environment. This vocationally relevant degree provides you with an in-depth critical understanding of today's major environmental challenges. You can keep your learning broad or you can specialise in one of four areas: ecology, energy, food security or pollution.

Several modules include field excursions to the area around Lancaster and beyond. Additionally, you will undertake a dissertation project, which will enhance your practical and analytical skills and give you the chance to apply your learning to a real-world challenge. Our many research projects and partners across the globe provide exciting possibilities when you are choosing your dissertation subject. As an alternative to a traditional dissertation, you could instead choose to complete a research placement with a private sector company, government body or voluntary sector organisation.

This very popular course will equip you to pursue a broad range of careers including environmental monitoring, resource management and consultancy



# Core modules:

- + Dissertation Project
- + Environmental Governance and Management
- + Environmental Impact Assessment
- + Independent Planning and Research

# **Optional modules:**

- + Climate Change and Society
- + Conservation Biology
- + Data Analysis and Programming Skills
- + Data Collect and Analysis
- + Energy Conversion
- + Environmental Law
- + Geoinformatics
- + Geological Hazards
- + Global Change and the Earth System
- + Habitat Management
- + Modelling Environmental Processes
- + Numerical Skills
- + Perspectives on Environment and Development
- + Physical Volcanology
- + Political Ecology of International Development
- + Pollution Microbiology
- + Research Methods in the Social Sciences
- + Wildlife Population Ecology
- + Wildlife Monitoring Techniques

Further information can be found at www.lancaster.ac.uk/gse/environmental-management



# **MSc Environment and Development**

### **Duration:**

Full-time 12 months OR Part-time 24 months

The need for sustainable development is a global concern. This flexible degree prepares you to address the challenges faced in safeguarding the planet's ecosystems in a fast developing world and is ideal if you want to pursue a career in the environmental field, in the private, public, or not-for-profit sectors.

You will complete six taught modules and a dissertation research project, with individual supervision from a research active expert. We offer great flexibility with modules spanning the natural and social sciences from sustainable

soil management and conservation biology to environmental law and globalisation. This enables you to construct a degree that fits your interests and career ambitions and to apply your learning in a wider cultural context.

You will gain a solid foundation in the key theoretical issues around environment and development whilst gaining the practical problem solving skills valued by employers. There are also opportunities to gain work experience through one of our many business and research partners and to carry out fieldwork in the UK and internationally.

Your dissertation project forms a substantial part of your degree; it will enhance your practical and analytical skills and give you the opportunity to apply your learning to a real-world challenge. Dissertation topics are available in both environment and development themes with our many research projects and partners across the globe providing exciting possibilities.

## Core modules:

- + Dissertation Project
- + Independent Planning and Research
- + Perspectives on Environment and Development

## Optional modules:

- + Climate Change and Society
- + Contaminated Land and Remediation
- + Environmental Governance and Management
- + Environmental Sampling and Analysis for Trace Organics
- + Food Security, Agriculture and Climate Change
- + Global Change and the Earth System
- + Globalisation: Its Meanings, Causes and Consequences
- + Groundwater Resources and Protection
- + International Human Rights Law
- + Major Approaches to the Study of International Relations
- + Political Ecology of International Development
- + Theory and Concepts in Diplomacy and Foreign Policy

Further information can be found at www.lancaster.ac.uk/gse/environment-and-

66 I love how diverse, and yet highly interconnected, the content is within my course with a mixture of natural and social science, as well as having the opportunity to take law and maths modules. I think this provides the perfect background for going into a career facing global environmental issues."

Susannah Yielding, MSc Environment and Development



# **MSc Flood and Coastal Risk Management**

## **Duration:**

Part-time 24 months

The UK is currently experiencing a greater number of rainstorms than previously. Society is recognising the importance of understanding and managing resultant flood risk in the face of this increased frequency of extreme weather and climate change.

In partnership with JBA Consulting, a leading flood risk management consultancy, we deliver accredited training for water and environmental practitioners focused on the application of technical skills and best practice techniques. The objective is to strengthen your knowledge and career development prospects in the flood and coastal risk management sector.

The course provides essential practical skills for practitioners within organisations including:

- Local Authorities with flood risk management responsibilities
- Infrastructure, network utilities and asset
- Environmental and engineering consultancies
- Catchment managers, Rivers Trusts and environmental NGOs
- National agencies such as SEPA, EA, NRW and **Dfl Rivers**

Your research dissertation is an important part of your training. You may undertake this research with your current employer or as part of our ongoing research work with our wide range of partners in the water sector. Throughout you will be supported by specialist supervision.

# Core modules:

- + Catchment Protection Fieldcourse
- + Coastal Erosion and Flood Risk Management
- + Forecasting and Extreme Event Response
- + Groundwater Resources and Protection
- + Integrated Systems for Sustainable Surface Water Management
- + River Hydraulics: Processes, Structures and Modelling
- + Sustainable Floodplain Management and Restoration
- + Independent Planning and Research
- + Dissertation Project

# Optional modules:

- + Groundwater Resources and Protection
- + Catchment Protection (field course)
- + Geoinformatics

Further information can be found at www.lancaster.ac.uk/lec/floodrisk

# **CIWEM** accredited course

The programme is fully accredited by the Chartered Institution of Water and Environmental Management (CIWEM)

This course is designed for part-time study and can be taken over a period of two to five years.

You may begin your studies with us at the Postgraduate Certificate or Postgraduate Diploma level and later transfer to the MSc programme (see page 17 for more information). You may start your chosen Flood and Coastal Risk Management programme at any point in the year.



# MSc Food Security Distance-learning course

### **Duration:**

Full-time 12 months OR Part-time 24 months

Our Master's in Food Security is a distancelearning programme designed for people with an interest in the global food system and for professionals in the food supply industry. It will equip you with the specialist skills and knowledge to engage with one of the most significant challenges currently facing a growing human population: making and supplying enough food for all to sustain an active healthy lifestyle. The course is highly flexible so that you can fit study around your day job. Teaching is done largely online; all materials are supplied and you can work through them at your own pace. You will also have the opportunity to meet tutors and fellow students at short workshops during the year. This course is designed for parttime and full-time study and can be taken over a period of one year full-time or 2 years part-time.

The programme starts with an introductory module, which covers a broad range of issues related to food security. After that, you will develop a breadth of knowledge and depth of expertise by studying an additional seven modules. These modules allow you to develop specialist knowledge of the factors impacting upon food security and environmental effects on food production. Finally, you will cement your learning and put theory into practice in a major research project. Your dissertation will be guided by a supervisor from Lancaster and will often include an industry partner.

Upon graduation, you will have a range of specialist skills, advanced knowledge, and experience, allowing you to engage with and tackle the food challenges of the 21st century.

# Core modules:

- + Food Challenges for the 21st Century the impending storm
- + Literature Review
- + Data Collection and Analysis
- + Dissertation Project

# Optional modules:

- + Crop Biotechnology
- + Crop Production Science I
- + Environmental Stress and Crop Production
- + Ethical Food Systems
- + Postharvest Physiology
- + Post Harvest and Physiology
- + Soil Science

Further information can be found at www.lancaster.ac.uk/lec/foodchallenges

You can also study Food Security as a Postgraduate Certificate or Postgraduate Diploma. See page 17 for more information.





# **MSc Sustainable Water Management**

### Duration:

Full-time 12 months OR Part-time 24 months

# **CIWEM** accredited course

With a strong emphasis on practical study, you will be taught by both Graduate School for the Environment staff and industry professionals, and will gain the key skills and professional training required for a rewarding career as a practitioner or researcher.

You will study six modules and complete a dissertation project. The core modules have been professionally accredited by the Chartered Institution of Water and Environmental Management (CIWEM) and will provide you with the key skills of a water professional by addressing the principles of catchment hydrology, sustainable surface water management, groundwater assessment, methods of catchment protection, principles of lake ecology, managing coastal flooding, flood forecasting, the design of river structures and the restoration of river channels.

Practical work is an important component of the programme, with modules including challenging fieldwork in Cumbrian and Lancashire catchments, and laboratory work involving the use of flumes, water quality analyses and computer models. We encourage you to undertake your dissertation project with an external partner in the water sector or as an integral part of our ongoing research activities in water resources, and you will be supervised by one of our active researchers with relevant expertise.

## Core modules:

- + Catchment Hydrologyand Assessment
- + Catchment Protection Field course
- + Coastal Erosion and Flood Risk Management
- + Dissertation Project
- + Forecasting and Extreme Event Response
- + Groundwater Resources and Protection
- + Independent Planning and Research
- + Integrated Systems for Sustainable SurfaceWater Management
- + Lake Ecology

# Optional modules:

- + Behaviour of Pollutants in the Environment
- + Contaminated Land and Remediation
- + Data Assimilation and Integration
- + Environmental Governance and Management
- + Environmental Sampling and Analysis for Trace Organics
- + Geoinformatics
- + International Environmental Law
- + Modelling Environmental Processes
- + Numerical Skills
- + Perspectives on Environment and Development
- + Pollution Microbiology

Further information can be found at www.lancaster.ac.uk/gse/sustainable-watermanagement



# MSc Volcanology and the Environment

## **Duration:**

Full-time 12 months OR Part-time 24 months

Geological hazards, such as volcanic activity, threaten millions of people worldwide, and occur within the context of complex environmental challenges. Therefore improved hazard mitigation is a high priority. Our well-established course allows you to study alongside leading volcanologists in one of the largest groups of environmental scientists in the UK.

You will study six taught modules which include the core module in physical volcanology, plus optional modules which provide broader learning and practical skills in areas or particular benefit to aspiring volcanologists and environmental experts. As well as gaining a strong theoretical grounding, you will spend time in the laboratory and in the field. We offer a field excursion to study volcanic rocks in the nearby Lake District as well as a highly popular field course to Mount Etna in Italy.

You will join our active volcanology group and conduct an independent dissertation research project under supervision from an internationally recognised researcher, taking advantage of our well-equipped experimental and geochemical laboratories. Within the group, there are additional opportunities to participate in seminars, workshops and discussions.

This course is ideal preparation for PhD research or work in the environment sector, and is suitable for students with a wide range of first degrees including Geography, Geology, Environmental Science and Physics.

# Core modules:

- + Dissertation Project
- + Planning Independent Research
- + Physical Volcanology

# Optional modules:

- + Approaches in Environmental Data Analytics
- + Climate Change and Society
- + Contaminated Land and Remediation
- + Data Assimilation and Integration
- + Environmental Governance and Management
- + Geoinformatics
- + Geological Hazards
- + Global Change and the Earth System
- + Groundwater Resources and Protection
- + Modelling Environmental Processes
- + Numerical Skills
- + Volcanic Process Field Course

Further information can be found at www.lancaster.ac.uk/gse/volcanology

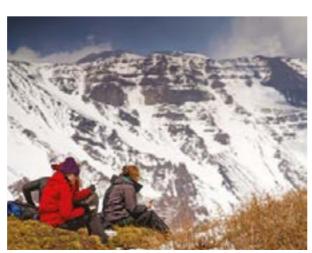


Photo: Steve Lane



# **MA Political Ecology**

### **Duration:**

Part-time 24 months

The Earth is facing unprecedented environmental challenges. These challenges, ranging from biodiversity to climate change, demand both critical thought and action if we are to understand and live with a changing planet. Yet environmental issues are simultaneously political, technological and cultural, and produce profound inequalities in how wealth, power and justice are realised. The MA in Political Ecology offers the conceptual tools and practical skills to ask the difficult questions of humanenvironment relations, to critique the status quo uncritically, and to drive transformative action.

By taking the MA Political Ecology at Lancaster you will be working with and learning from one of the largest political ecology research groups in the country. Political Ecology is a field of many perspectives and disciplines. In this degree we embrace this plurality, working with students to analyse various approaches, spaces and practices, and their manifestation form, from local to global scales. We focus on a range of themes including the politics of resource extraction, water, climate politics and the green economy. To do this, we believe passionately that learning isn't just about lectures. We offer novel approaches to our teaching, engaging our students in creative classes that provide the necessary means to understand a complex planet and the challenges of living with it.

## Core modules:

- + Approaches to Political Ecology
- + Dissertation Project
- + Encountering Political Ecology
- + Perspectives on Environment and Development
- + Research Methods in the Social Sciences

# Optional modules:

- + Climate Change and Society
- + Environment and Society
- + Environmental Justice
- + Globalisation: Its Meanings, Causes and Consequences
- + International Human Rights Law
- + Corporations and Sustainable Development
- + Environment and Culture
- + The Rights of Peoples

Further information can be found at www.lancaster.ac.uk/gse/political-ecology

# Master's by Research

A Master's by Research degree is for those who would prefer to carry out an in-depth research project without specific taught modular components.



Our Master's by Research programmes offer you a good preparation for PhD study, they are a postgraduate qualification in their own right and they provide excellent preparation for research careers in the public and private sectors. They will allow you to immerse yourself in a subject and benefit from the kind of specific skills training you need to be able to investigate it. You will be expected to conduct innovative, original research and then to write up an extended thesis with a view to submitting it for publication.

If you are interested in pursuing this route, we will work with you to help design the most appropriate research project for you – making sure that you benefit from all the Graduate School for the Environment has to offer.

As a Master's by Research student, you may also be co-supervised by an external research, policy or business partner.

Further information can be found at: www.lancaster.ac.uk/lec/research-masters

We offer the following **Master's by Research** degrees:

Ecology by Research | Environmental Science by Research | Plant Sciences by Research

# PhD study

As part of our vibrant community of PhD students, you will make a direct contribution to the world-class research output of the Graduate School for the Environment and develop the skills you need to enjoy a rewarding career in your chosen field.

Whatever your field of interest in relation to the environment – whether in the natural or social sciences – the size and scope of the Graduate School for the Environment means that you are guaranteed to find a suitably stimulating project to work on

# Support structure

You will immediately become a valued member of cone of which is led cone of which is led cone of which is led cone of our internationally respected academics and supported by an array of postdoctoral research associates and technicians.

You will make your personal contribution to the group and be taught the research skills you need – under the guidance of one or more supervisors specifically chosen to suit your area of interest. It is with the support of your supervisors and your research group colleagues that you will be able to extract full value from your time at the Graduate School for the Environment.

Our research community is made up of a series of groups set up to address specific areas of environmental research:

- Atmosphere, Climate and Pollution
- Critical Geographies
- Earth Science
- Ecology and Conservation
- Environmental and Biogeochemistry
- Geospatial Data Science
- Plant and Crop Science
- Political Ecology
- Soil, Plant and Land Systems
- Water Science



We offer the following **PhD** degrees:

Biological Science | Environmental Science | Geography

# Doctoral training centres

# NorthWestBio

The NWB DTP is a new BBSRC-funded Doctoral Training Partnership (DTP) delivered between the Universities of Glasgow, Lancaster, Queen's Belfast and Strathclyde. Each partner has proven expertise in research that addresses global challenges and provides access to outstanding research facilities and infrastructure. The programme is further enriched through our associated partners iBioIC, the Moredun Research Institute and the James Hutton Institute, expanding the collaborative options for joint PhD projects, industrial connectivity and entrepreneurship and placements.



# Envision

Led from Lancaster, but with university and business links across Britain, Envision is a government-funded £4.9 million initiative designed to create the next generation of environmental scientists. As a successful candidate, you will receive the doctoral training and real-world employment experience you need to launch you on a successful career in the environmental sector.

Further information can be found at: www.lancaster.ac.uk/lec/graduate-school/phd/doctoral-training-centres/



# Professional *training*

Our professional training programmes are organised on a flexible module-by-module basis, which makes it easier for you to fit your studies around your work. Some are taught online, with additional face-to-face workshops. Others are taught in residential blocks of two-to-three days.



Each module is worth a certain number of credits, which can count towards a postgraduate qualification. You may wish to start by studying a Postgraduate Certificate level, which requires a total of 60 credits. You can then progress to a Postgraduate Diploma, which requires 120 credits, and if you complete an additional supervised research project you can be awarded Master's degree. Alternatively, it may also be possible to take a single module for the purpose of continued professional development.

Further information can be found at: www.lancaster.ac.uk/lec/graduate-school/professional-training/



# **Graduate School for the Environment**

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## You can also follow us on:

Facebook: @LancasterEnvironmentCentre
Instagram: @lancaster\_environment and @LancsUniLECPG
Twitter: #GradSchEnv

Further information about Rothamsted Research and the UK Centre for Ecology & Hydrology can be found at:

www.rothamsted.ac.uk

### Disclaimer

The information in this leaflet relates primarily to 2024/25 entry to the University and every effort has been taken to ensure the information is correct at the time of printing in June 2023. The University will use all reasonable effort to deliver the course as described but the University reserves the right to make changes after going to print. You are advised to consult our website at www.lancaster.ac.uk/study for upto-date information before you submit your application.Further legal information may be found at:

www.lancaster.ac.uk/compliance/legalnotice

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