Lancaster Environment Centre | LANCASTER UNIVERSITY

Environmental Sciences

Undergraduate Prospectus

Environmental Sciences at Lancaster Environment Centre

Contents

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Welcome to **Lancaster**

Environmental Sciences Undergraduate Students and Staff

Choosing Lancaster University and the Lancaster Environment Centre means that you will join a department that has been ranked 3rd in the UK** and 23rd in the world* for Environmental Sciences. Lancaster University itself is placed in the top one percent of universities globally. Our degrees will inspire you to understand the fascinating fields of environmental and earth sciences, whilst providing you with the skills and experience to follow the 95% of our graduates from 2012 who were in employment or further study six months after completing their degree.

The excellence of the environment-focussed degrees we offer at Lancaster is built upon:

- **The flexibility of our schemes.** Select from modules across the Lancaster Environment Centre and wider to create a degree scheme that matches your interests and career aspirations.
- **The employability of our graduates.** The percentage of our graduates in employment has been within the the top 10 of 93 Physical Geography and Environmental Science institutions for the last four years.
- **The quality of our teaching.** We received the highest possible score of 'Full Confidence' in the latest University teaching assessment. Our staff are highly dedicated and experienced, are sympathetic to student needs and appreciate the wide range of skills and experience of the students who join us.
- **Our links to business and industry.** Work with organisations outside the University during your degree through our Enterprise and Business Partnerships team, for example as part of your dissertation project.
- **Our study abroad options.** Spend the second year of your degree working at a partner University in North America, Australasia or Iceland, gaining exciting and valuable experience of a different social and academic environment.
- **The emphasis given to practical study.** We are fortunate to be able to run regular field visits to sites of outstanding natural beauty and scientific interest on our doorstep, including the Lake District, Yorkshire Dales, Morecambe Bay and the Forest of Bowland. In addition, we offer optional fieldcourses such as Geology on the Isle of Mull, Hydrology in Devon and Volcanic Processes on Mount Etna in Sicily.

** The Guardian University Guide 2013
*QS World University Rankings 2012

Science and the **Environment**

Awareness and concern about major global challenges, including climate change, water and soil pollution, food production and the management of hazards such as flooding or volcanic eruptions, are mounting. The Environmental Sciences uniquely equip you to address such challenges, by applying your understanding and practical experience from across the geological, geographical, physical, chemical, biological and social sciences. For example, to address the dangers of a pollutant it is necessary to understand the chemical and physical processes that lead to its formation and possible destruction, its transport around the Earth and its biological and human health impacts. Environmental science graduates are strongly positioned to deal with this and other key challenges facing society. Our Department offered the first Environmental Science degree in the country in the 1960s. Since then, our staff have helped to shape this rapidly evolving subject, both within the UK and internationally. The Environmental Science degrees on offer to you at Lancaster combine a long track record of excellence with new teaching approaches and material, delivered by staff who work at the cutting edge of this field.

Sediment sampling from the bottom of lakes in the Lake District

Our world-leading staff teach:

- volcanology
- water quality
- hydrology
- groundwater
- atmospheric chemistry
- oceanography
- lake and river ecology
- environmental radioactivity
- meteorology
- climatology
- modelling natural and man-made systems
- environmental pollution
- bioremediation
- ecotoxicology
- soil science and soil erosion
- environmental hazards
- environmental management
- geochronology
- tectonics and sedimentation
- planetary studies
- remote sensing
- geophysics
- glaciology

Environmental Sciences at the **Lancaster Environment Centre**

Environmental Sciences at Lancaster is part of the Lancaster Environment Centre (LEC), an internationally recognised centre for teaching and research related to the environment. By bringing together Environmental Science, Geography and Biological Sciences, LEC provides greater flexibility and choice for our students, for example in the range of optional modules available to you to study as part of your degree.

LEC also houses the Enterprise and Business Partnerships team, including over 20 environment-focussed businesses and their office space. This offers our students direct experience of translating research into practical solutions, for example by working in partnership with a business as part of your dissertation project. The Centre for Ecology and Hydrology, a government-funded research institute, is also located within LEC, providing experience for our students of the links between research and the development of policy and practice related to management of the environment.

Our research and teaching are closely linked within LEC. The Lancaster Environment Centre was rated highly in the UK for research in Earth Systems and Environmental Science in the 2008 national Research Assessment Exercise (RAE), alongside Durham, Edinburgh and Leeds. The high quality of the research conducted by our staff means that our students learn material that is at the cutting-edge of the field. There are also opportunities for students to work on our research projects, for example during your dissertation project.

‘90% of research at LEC is world-leading or internationally significant.’ **2008 RAE**

The Degree Programmes

Our undergraduate degree programmes offer a complete range of subjects relating to the environmental and earth sciences with a range of 3 and 4-year courses. So, whatever your specific interests, there is a degree course suitable for you. Even within the individual degrees, optional courses provide a great deal of flexibility in subject content.

The Lancaster Environment Centre offers three main environment-focussed degrees:

- **BSc Environmental Science**
- **BSc/MSci Earth & Environmental Science**
- **BSc/MSci Environmental Science & Technology**

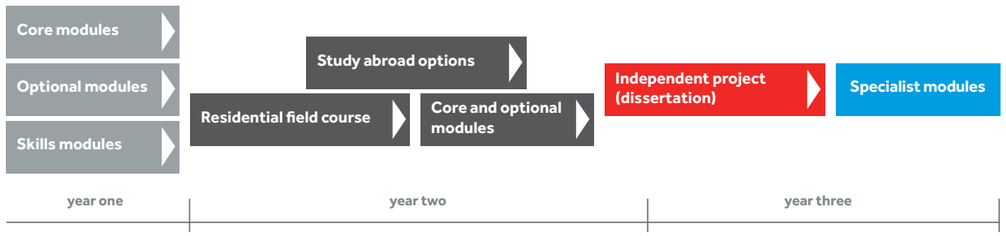
Our Environmental Science and Earth & Environmental Science degrees are offered with a North American, Australasian or Icelandic option (depending on the degree you choose), where the second year is spent in a partner university. These international options are still 3-year courses, with marks from the year abroad counting towards your final degree – so this is not an additional year, but one which offers exciting academic and social opportunities within a 3-year scheme. There are also potential financial advantages associated with spending a year studying abroad. For further details of the financial arrangements for study abroad students, see page 14.

We run four-year Master of Science (MSci) programmes for our Earth & Environmental Science and Environmental Science & Technology degree schemes. These are extended versions of the BSc programmes that allow more in-depth study of your chosen topics. Students may also enrol on a BSc/MChem Environmental Chemistry degree, offered by our Chemistry Department, or a BSc Environmental Mathematics degree, offered by our Mathematics and Statistics Department. Please see inside back cover for contact details for these departments.

We also offer a wide range of Masters programmes that allow you to build on your undergraduate degree. For details see:

http://www.lancaster.ac.uk/lec/postgraduate/

BSc Degree Structure



Optional modules are available for you to select from other degree schemes across LEC & the University:

Ecology/Biology
Geography
Engineering
Mathematics
Physics
Chemistry

Photo, J Jennings

Teaching and Learning

Degree courses at Lancaster are highly flexible and adaptable. One feature that students find attractive is the possibility of changing their choice of degree course at the end of first year. The range of degrees that will be open to you depends on the modules taken during the year.

At Lancaster you can explore and enjoy a diversity of subjects (from philosophy to French), or focus on Environmental Science from day one. Of the 15 modules you take in first year, you can study up to 14 in Environmental Science. You can also change your module choices as the year progresses and you understand more about the subjects you are studying.

We ensure that all students have a sound knowledge of relevant areas of the environmental sciences by the time they finish the first year. Our first year modules in subjects like environmental management, geological processes and climate change, are carefully designed for students from a wide range of backgrounds and experience. We teach modules designed specifically for students who do not have maths or chemistry beyond GCSE. Communicating your science is of vital importance, and to ensure you can do this we run a series of communication modules in the first and second years.

We also teach skills modules linked to other academic courses. For example, the residential field course to the Lake District at the beginning of the second year is linked to a Project Skills module back in Lancaster. The skills module uses the data collected in the field to cover methods of data analysis and presentation, working in small groups and producing a poster. The module provides ideal training for your dissertation project.

Throughout the three or four years of your course, practical sessions are designed to complement lectures. These can be 'hands-on' laboratory classes, computer-based sessions or field trips. Field trips include practical experience of taking environmental measurements, for example, water sampling on Windermere in the Lake District or measuring stream discharge in caves in the Yorkshire Dales.

Assessments vary but include laboratory reports, essays, independent project reports, group presentations and multiple-choice tests. Our strong emphasis on continuous assessment ensures that you receive regular feedback on your performance. Equally importantly, it relieves pressure on you when modules are examined at the end of each year.

A module:
Most 'teaching courses' last 5 weeks, and we refer to each of these as a **module**. Each module is self-contained, and consists of a combination of lectures (typically 12-15); practical sessions (a maximum of five 3-hour sessions); and fieldwork. Your learning is also supported by a small group tutorial system from the start of your degree.

Student using an electromagnetic device to survey the electrical conductivity below the bed of Ringkøbing Fjord, Denmark.

Environmental Science

BSc Environmental Science/Study Abroad (F754)
BSc Environmental Science (F750)

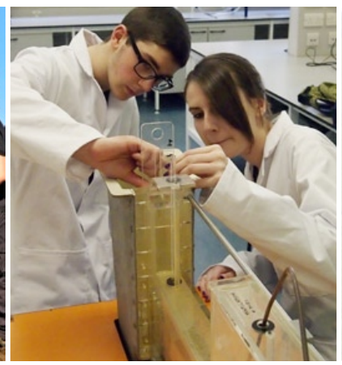
The Environmental Science degree is the longest running course of its kind in the UK and is one of our most popular degrees. The course is interdisciplinary and covers both natural and man-made environments with the aims of understanding:

- how the Earth has evolved to its current state;
- the main factors and processes controlling today's environment;
- how environmental conditions may change in the future.

You also learn how to apply this knowledge to practical problems, such as in pollution control and hazard mitigation. In common with all our degrees, you will be trained in communication skills, information technology, data handling and environmental sampling and analysis. Considerable weight is placed upon such transferable skills by potential employers.

The Environmental Science degree is suitable for students with a wide range of backgrounds, but at least one A-level science subject is required. However, we run a range of maths and chemistry modules in the first year to ensure that students without these subjects have a solid foundation for the rest of the degree. These are user friendly modules and cover topics on a need-to-know basis.

The degree offers choice and flexibility allowing you to take a wide range of modules or to specialise in a particular area of Environmental Science that interests you. This specialisation can be advantageous if you want to undertake postgraduate study or are interested in a specific career path.

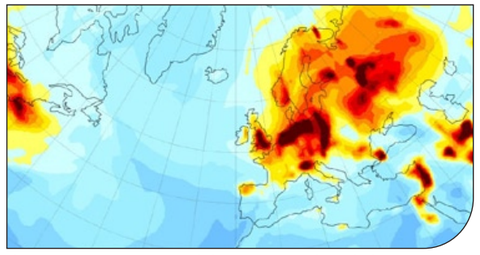


Using mini-helicopters as aerial platforms from which to monitor land use within a catchment.

Photo courtesy of NASA

Key topics that you will cover:

- Global climate change: past and future environments; natural and man-made factors affecting climate change; the Greenhouse Effect.
- Earth's surface: the effect of wind, rain, rivers, ice and Man on the landscape.
- Earth's interior: plate tectonics; the Earth's core and geomagnetism; the formation of ocean basins and continents.
- Environmental risk and management: making decisions in an uncertain environment.
- Hydrology: the water cycle from clouds through rivers to the oceans, and back again.
- Biogeochemistry: how chemical and biological processes govern the flow of matter, energy and chemical elements through the different compartments of the Earth system.



Atmospheric carbon monoxide concentration over Europe and the N. Atlantic.
Warm colours show areas of higher concentration.

- The atmosphere: atmospheric circulation and weather; dispersion of industrial and volcanic plumes into the atmosphere; the Ozone Hole; El Niño.
- Predicting the future: introducing the concepts of dynamic modelling of environmental systems such as river catchments at risk from flooding and contamination by pollutants.
- Effects of environmental pollution: the behaviour of heavy metals, pesticides and radioactivity in soil, air and water.

Modules

Year 1, Core
Environmental Issues for the 21st Century
Environmental Processes and Systems
Interdisciplinary Skills
Geological Processes
Earth's Internal Processes
Biogeochemical Processes
Hydrological Processes
Atmosphere, Weather & Climate
Natural Hazards

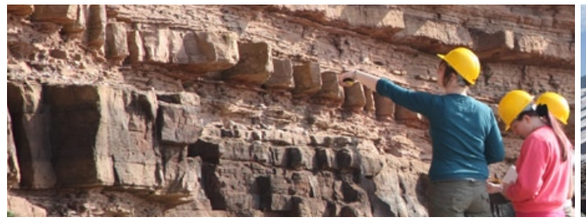
Optional/Skills
Numerical Skills I
Introduction to Environmental Chemistry
Numerical Skills II
...plus choice across the university

Year 2, Core
Environmental Field Course (Carrock Fell)
Project Skills
Catchment Hydrology
Aquatic Biogeochemistry
Atmosphere, Weather & Climate II
Environmental Data Visualisation and Analysis

Optional
Geological Methods
Ecosystem Services & Society
Populations to Ecosystems
Investigating Mediterranean Environments Fieldcourse
Soil Science
Composition of the Earth's Atmosphere
Enterprise for the Environment
Principles of Biodiversity Conservation

Year 3
Examples of Options
Hydrological Processes Fieldcourse
Hydrogeology
Air Quality and Climate
Hydrology: From Process to Models
Dynamic Earth
Environmental Radioactivity
Water Resource Management
Geological Hazards
Introduction to Geophysical Techniques
Climate and Society
Environmental Applications of Isotope Geochemistry
Processing Impact and Remediation of Environmental Pollutants
Global Change Biology: Challenges and Solutions
Glacial Systems
Coastal Processes

(Modules may change)



Earth science fieldwork in the Yorkshire Dales, on Mount Etna, Sicily and the Isle of Mull.

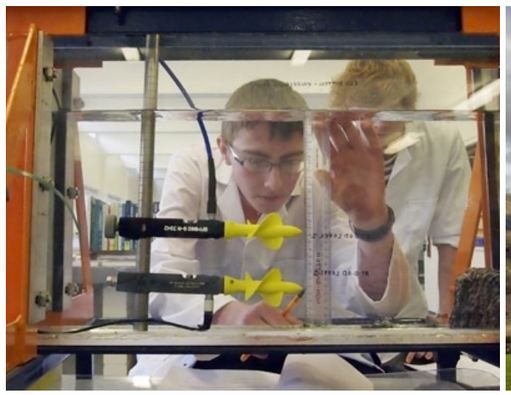
Earth & Environmental Science

BSc Earth & Environmental Science/Study Abroad (FF6V)
BSc Earth & Environmental Science (FF68)
MSci Earth & Environmental Science (4R71)

The Earth & Environmental Science degree focuses on earth processes and emphasis is placed on fieldwork and hands-on learning. It covers areas as diverse as geological mapping, atmospheric processes and tectonics & sedimentation. This degree draws on the considerable expertise of a number of our staff who specialise in earth sciences and includes volcanologists, geophysicists, hydrogeologists and planetary scientists. Many of the components of the Environmental Science degree will be open to you, but as you progress into your second and third years you will be able to study specialist earth science modules. Those continuing on the MSci programme have the opportunity for further, in-depth study in their fourth year.

For Earth & Environmental Science, we run a number of field-based modules that include residential field courses. An overseas trip is the volcanic processes field course to Mount Etna in Sicily that studies volcanic phenomena, and how these are managed by the local population. We take full of advantage of Lancaster's location at the heart of the fells and dales of NW England and hold both day trips and residential field courses in the Lake District, Yorkshire Dales, Islay and Isle of Mull.

We run modules to equip you with necessary transferable skills, such as scientific writing, IT and presentation skills. For the earth sciences, you will also learn computer-based skills, which are central for understanding, predicting and testing geophysical and environmental systems. We run modules in computer-based programming and you can also use specialised modelling software. We also provide you with the skills required for data handling and processing, particularly relevant for the large quantities of digital data generated through satellite imagery for example.




Modules

Year 1, Core
Environmental Issues for the 21st Century
Environmental Processes and Systems
Interdisciplinary Skills
Geological Processes
Earth's Internal Processes
Biogeochemical Processes
Hydrological Processes
Atmosphere, Weather & Climate
Natural Hazards

Plus a range of optional and skills modules

Year 2, Core
Environmental Field Course (Carrock Fell)
Project Skills
Geological Methods
Soil Science
Earth Science Field Skills
Geologic Mapping

Optional
Catchment Hydrology
Aquatic Biogeochemistry
Investigating Mediterranean Environments Fieldcourse
Atmosphere, Weather & Climate II
Composition of the Earth's Atmosphere
Enterprise for the Environment
Principles of Biodiversity Conservation
Environmental Data Visualisation and Analysis

Year 3, Core
Dynamic Earth
Introduction to Geophysical Techniques
Environmental Applications of Isotope Geochemistry

Examples of Options
Hydrological Processes Fieldcourse
Hydrogeology
Air Quality and Climate
Hydrology: From Process to Models
Environmental Radioactivity
Water Resource Management
Geological Hazards
Climate and Society
Volcanic Processes Field Course
Metamorphism: Process and Product
Global Change Biology: Challenges and Solutions
Glacial Systems
Coastal Processes

Year 4 (MSci only)
Physical Volcanology
Dissertation Project
A choice of masters-level modules

(Modules may change)

Environmental Science & Technology

BSc Environmental Science & Technology (F751)
MSci Environmental Science & Technology (Professional Experience) (7Y53)

New for October 2014, our Environmental Science & Technology degree is an interdisciplinary course which focuses on globally important environmental management challenges and solutions to environmental problems. The degree is designed to benefit UK and overseas students who seek experience of environmental processes and technologies, and who are interested in employment in the wider environmental sector in fields such as water and energy. The degree focuses on the innovative pathways with business that are necessary in order to provide sustainable global solutions. A key feature of the course is an internship with an environmental technology company based in the UK or abroad. The course combines study of core environmental science disciplines with those of either chemistry or mechanical or electrical engineering to provide a firm foundation for the application of environmental principles.

You will begin your degree studying modules such as Environmental Issues for the 21st Century, Environmental Processes & Systems and Hydrological Processes. You may take an engineering pathway, supplementing your study with modules in mechanical or electrical engineering, or if you have taken Chemistry to A-level or equivalent you may follow a chemistry pathway. You will then move on to more specialist second year modules such as Energy Technologies and Enterprise for the Environment. In your third year you will complete a research project linked to an environmental technology company and choose from the wide range of modules such as Water Resource Management, Environmental Radioactivity and Hydrogeology.

Our MSci in Environmental Science and Technology (Professional Experience) builds on the three-year BSc degree by providing a fourth year of masters-level study and industrial experience. In this fourth year you will continue by studying masters-level modules such as Pollution Microbiology and Chemical Risk Assessment. You will also undertake a dissertation and a ten-week placement with an environmental technology company. The internship will be generated by Lancaster Environment Centre's unique in-house business unit who accommodate over 20 companies and have relationships with companies of all sizes around the world, and it will provide valuable first-hand experience of work in the environmental sector.

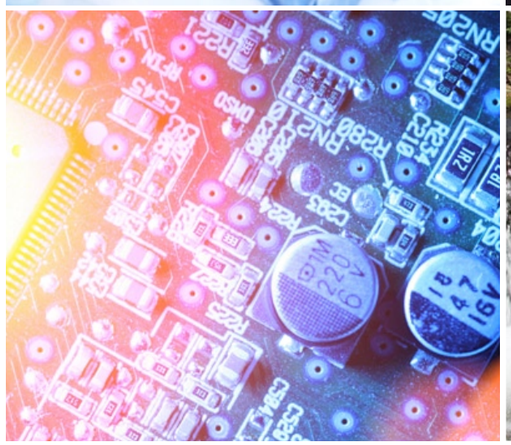


Photo above, Dr. Nick Chappell ©

Modules

Year 1, Core
Environmental Issues for the 21st Century
Environmental Processes and Systems
Interdisciplinary Skills
Earth's Internal Processes
Biogeochemical Processes
Hydrological Processes
Atmosphere, Weather & Climate
Natural Hazards

Chemistry pathway
Introduction to Organic Chemistry
Physical Chemistry for Life Sciences
Introduction to Spectroscopy
Analytical Chemistry
Inorganic Chemistry

Engineering pathway
Transport technology
Energy, Chemical and Sustainable Engineering

Mechanical/Electrical Options:
Strength and Materials
The World of Manufacture
Design, Innovation and 3-D Thinking
Electrical and Electronics Fundamentals
Sensing and Signals
The Digital Domain

Year 2, Core
Environmental Field Course (Carrock Fell)
Enterprise for the Environment
Environmental Data Visualisation and Analysis
Earth's Natural Resources
Energy Technologies
Project Skills

Optional
Catchment Hydrology
Atmosphere, Weather and Climate
Business Development Project
Decommissioning and Sustainability
... plus a range of chemistry/engineering options

Year 3, Core
Dissertation with Work Placement
Biotechnology
Energy

Optional
Water Resource Management
Environmental Radioactivity
Hydrogeology
Biological Sensors
... plus a wide range of optional modules

Year 4 (MSci only)
Industrial Placement
Research Project

Optional
Pollution Microbiology
Chemical Risk Assessment
Risk Assessment and Management
Environmental Toxicology
Modelling Environmental Processes
Environmental Impact Assessment
Contaminated Land Remediation
Environmental Aspects of Renewable Energy
... plus a range of master-levels modules

Fieldwork: UK & Beyond...

Students gauging the discharge of rivers in the Lake District

Water quality sampling at Slapton Sands, Devon

Fieldwork is an essential part of all our degree courses. It gives students first hand experience of data gathering and problem solving in an outdoor setting well away from the confines of a lecture hall or laboratory. We make the most of our superb location with trips to the nearby Lake District and the Yorkshire Dales. In addition to visiting the beautiful countryside surrounding Lancaster, there are visits to other sites of environmental significance, such as the impressive nuclear reprocessing plant at Sellafield.

All our degrees include residential courses, where there is uninterrupted focus on fieldwork for a week. Importantly, fieldwork is also timeout from the more formal University setting. These trips are designed to be fun and stimulating with time for relaxation after a day in the field. Indeed, many a close friendship has been forged in a Lakeland pub!

Carrock Fell

One of the most popular residential courses is the week spent at Carrock Fell, located in the remote Northeast Lake District. Students are often surprised to see the other side of the Environmental Science staff as international experts and practical guides. Several post-graduate students come along to provide additional guidance in the field. This relaxed contact allows students to gain informal insight into current Environmental Science research and options for higher degrees.

In both second and third year, students may embark on several residential courses similar to Carrock Fell, but focussed on a single subject. These include a hydrology field course at Slapton, Devon and geology field courses in the Yorkshire Dales, Lake District, Islay and the Isle of Mull. Earth Science students may also have the option of a volcanology trip to the active Mount Etna in Sicily.

Dissertation Project

For many students, the independent dissertation project that is selected in the middle of the second year is a major turning point. This is an opportunity to work on a subject that really interests you. Some projects are carried out in our research laboratories, whilst others involve computer-based modelling. Many students select projects with a substantial fieldwork component, either in the UK or abroad. For example, Earth & Environmental Science students, James Tolley, Lisa White and Georgia Phillipson have conducted projects in the Himalayas on mountain-belt tectonics, while Ben Thorne, Chris Dixon and Hayley Geldart (Environmental Science) have conducted their projects at the Utila Centre for marine ecology in Honduras as part of Operation Wallacea. Other students, for example Sam Dickinson, have studied rain forest hydrology in Borneo.

Lancaster students on Svinafelljokull, Southern Iceland

Skogafoss, Southern Iceland

Studying Abroad



We offer our students lots of opportunities to study abroad. It helps to broaden their academic horizons and enhance their job prospects, as well as giving them an exciting social experience!

The Study Abroad Programme

You can spend your second year at university abroad, studying similar courses to those offered at Lancaster, and still complete your BSc in just three years. We offer placements at world-class universities in the USA, Canada, Australia, New Zealand, Hong Kong and Iceland. The choice of destinations varies a little from year to year and depends on the degree programme that you take. For example, Earth Science students (FF6V) have the choice of a year at the University of Iceland in Reykjavik - a fantastic opportunity for anyone interested in volcanic or glacial processes.

The Erasmus Programme (Mainland Europe)

We run Erasmus exchanges with universities in Switzerland (ETH Zurich), the Czech Republic (Masaryk University), Croatia (University of Zagreb) and the Netherlands (Wageningen University). You can spend three months abroad at the end of your second year, undertaking your dissertation project with an English-speaking research group - so you don't need to speak a foreign language.

Will it cost more to study abroad?

During a year spent abroad, Lancaster tuition fees are reduced to 15% and there are no additional accommodation or tuition fees. Nevertheless, there can be some specific expenses to consider, including flights, insurance, obtaining a visa, and purchasing text books. Financial help is available in the form of Government travel grants and a bigger loan from the Student Loans Company. Erasmus students (including those spending a whole year in Iceland) are eligible for a grant of around £200 per month. We have a dedicated International Office and a study abroad adviser in the Lancaster Environment Centre to help you with all aspects of studying abroad.

BSc Environmental Science/Study Abroad (F754)

BSc Earth & Environmental Science/Study Abroad (FF6V)

There is no special UCAS code for 3-month Erasmus exchanges - they are organised on an individual basis during your second year at Lancaster.

Mature & International Students

Life-long learning is an emerging theme today and many people now decide to broaden their experience in between leaving school and coming to university. If the break in formal education is many years, we find that mature students are well motivated by the Lancaster experience and are successful in their studies.

Mature students don't have to meet the standard entry requirements for our courses since we appreciate that you will already have a wealth of experience gained elsewhere. Instead we look at a combination of factors on a case-by-case basis.

Whether renting or buying a house, accommodation and the cost of living are affordable which increases your flexibility whilst studying.

For those with dependents, there is a subsidised preschool facility at the university and Lancashire's primary and secondary education in the surrounding area are second to none.

The University has excellent support services, including a dedicated Mature Students Adviser and special events in Freshers' Week.

Lancaster and the surrounding region, including the Lakes and Dales, is quite simply a very attractive place to live and work.

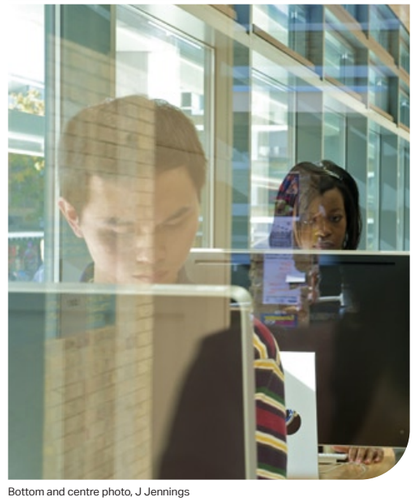
International Students

Overseas students make up 18% of our total student population at Lancaster University. That's 1800 people coming from over 100 countries. The reason why we have one of the highest proportions of overseas students of any British university is that our reputation for high quality teaching and research is truly international.

Lancaster University has an International Office that is dedicated to making your time here as productive as possible, both academically and socially. In addition to those overseas students choosing to do their full degree with the Lancaster Environment Centre, we operate a student exchange programme for students from North America, Hong Kong, Singapore and Australia.

The minimum English requirement for all students who don't have English as their first language is an IELTS score of 6.0 or TOEFL score of 83 points.





Bottom and centre photo, J Jennings

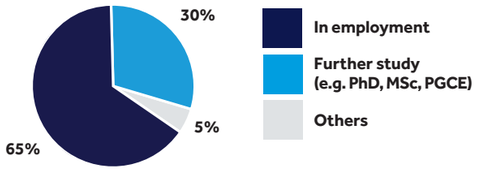
Careers & Further Study

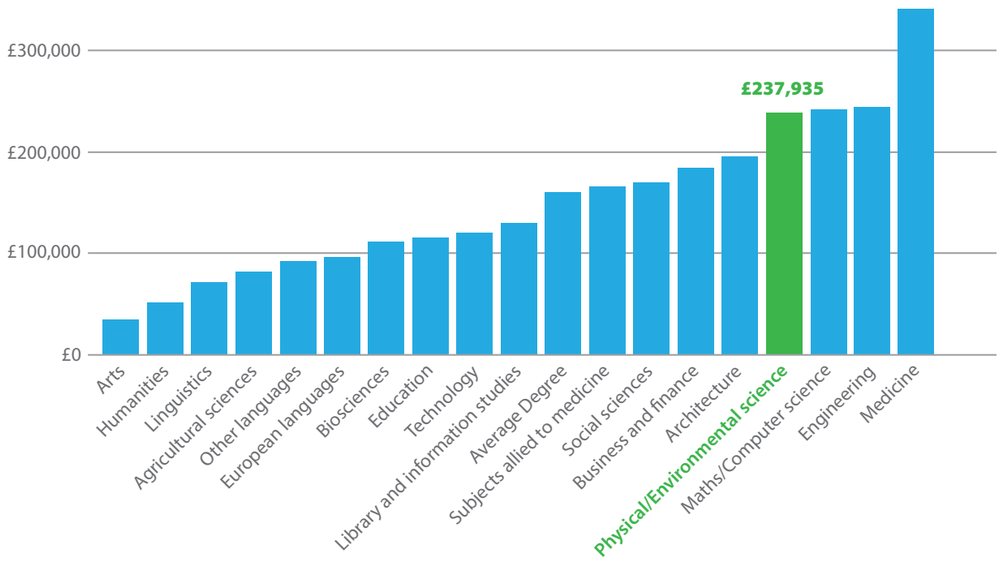
Many of our graduates continue in further education. There are a wide range of M.Sc. courses available to you once you graduate, including opportunities to stay at Lancaster, and many Ph.D. projects are also offered each year across the Lancaster Environment Centre.

Our adaptable degree courses are designed to provide you with both the core knowledge required by employers in the environmental and earth science field, and the literacy, numeracy, IT, and problem solving skills desired by almost every profession. You can tailor your degree to suit the environmental occupation you wish to pursue, whilst also gaining the flexibility and transferable skills necessary for a career completely outside the environmental sector.

Our graduates move into careers with a wide range of employers. For example, many of our graduates are sought after by the privatised water companies, the Environment Agency and international water resource consultancies. Alternatively, those graduates who focussed their studies towards modelling and forecasting, for instance, work for the insurance industry looking at environmental risk prediction. Many of our graduates establish environmental careers with local and regional councils. With increasing UK, European and global environmental regulation, most employers whose activities have environmental implications employ specialist environmental advisors. The international nature of many environmental problems means that your degree training is of relevant interest worldwide and you will be desirable to many international employers.

First Destination Statistics for our 2012 Graduates





Gross additional lifetime earnings by degree subject studied compared to two or more GCE A-levels.
(Source: PricewaterhouseCoopers, "Economic Benefits of a degree", UUK, 2007 (pooled labour force survey 2000—05)

All UK graduates are surveyed 6 months after graduation to find out what they are doing. This survey is used to produce First Destination Statistics (FDS) that can be used to compare across subject areas and universities. These data are available to all via the Unistats web site (http://unistats.com) and are used in the calculations for most league tables.

In recent years, with the increase in graduate numbers and declining economic opportunities, a greater proportion of graduates choose to progress to further study. 30% of our 2012 graduates chose this option, with many now taking Masters degrees at Lancaster and other institutions across the world. You can find out more about Lancaster Masters degree courses at http://www.lancaster.ac.uk/lec/postgraduate/

65% of our 2012 graduates did not continue into further study but instead were in employment six months after graduation, of whom 70% were in professional or managerial jobs. The remaining 5% of our 2012 graduates include those taking a year off to travel, graduates returning to their home countries, and those still waiting for employment. Year after year, our graduates are highly successful at winning places on further study courses and in gaining graduate level employment.

The lifetime value of a degree was quantified in 2007 by Pricewaterhouse Coopers (see Figure on page 16), who found that the environmental sciences at degree level were highly effective at improving lifetime earnings over those with two or more GCE A-levels.

Enterprise & Business Partnership

The Lancaster Environment Centre also houses the Enterprise and Business Partnership (EBP) team where over 20 environmental companies have offices on site (http://www.lancaster.ac.uk/lec/business/). The EBP has contacts with over 500 companies across the UK and this experience is used to guide training of our undergraduate students. EBP run a number of taught modules studying the links between enterprise and the environment, as well as offering dissertation projects linked with specific businesses to provide students with embedded work experience at graduate level. Combining these opportunities with employability training provided throughout your Lancaster degree gives you the best possible start on graduation.

Science Research Assistant, Stopford Projects, Ltd

Lois Ricketts

After graduating in Environmental Science, Lois began work as a research assistant with Stopford Projects Ltd, a multidisciplinary engineering, environment and project management consultancy with offices based within the EBP. Lois's work involves investigating novel controlled-release mechanisms for the delivery of agrochemicals in horticulture and combines laboratory work (skills developed during her dissertation project investigating chemical pollutants), desk-based research and project meetings with clients.



The University

Lancaster is one of Britain's top universities. It is consistently ranked amongst the leading universities in terms of both teaching and research out of over 100 higher education institutes in the UK. Set in 250 acres of beautiful parkland on the southern outskirts of the city, we are just 3 hours from London by train and less than 40 minutes away from the Lake District and Yorkshire Dales National Parks.

Some 12000 students from over 100 countries are currently enrolled at the University to experience an exciting learning and social environment. Our excellence in both teaching and research means you can expect the highest possible standards, and extensive new library and computing facilities have been created to further enhance your learning experience.

Lancaster retained the **"Best University Halls"** award in the **National Student Housing Survey 2013** for the fourth consecutive year. It provides comfortable on site accommodation, which is among the cheapest in the country, and there are extensive shopping facilities, bars, cafes, and restaurants for your day-to-day needs. Perhaps you might join one of the hundreds of clubs run by students, or make use of the full range of indoor and outdoor leisure facilities on offer.

At Lancaster the college and department systems combine to give you the best possible opportunity to achieve your potential. The staff to student ratio is high, with an emphasis placed on small group teaching throughout your degree. The colleges operate a mentoring system, and our welfare service for special needs students has been awarded the Queen's Anniversary Prize. According to a recent survey conducted by the Heads of Public Schools, the campus is the safest in the UK.

New Sports Centre





Photo, J Jennings

For Details of our new sports centre please visit: - **sportscentrelancaster.co.uk/**





Lancaster and the Local Area

Lancaster is a vibrant cultural and economic centre offering an excellent range of leisure and other facilities, all within a friendly, historic city-centre setting. Whether you are after the big name high street retailers or something from the multitude of back street shops and market stalls, Lancaster has it.

The city boasts numerous bars, pubs and night-clubs, whilst the students' union warehouse venue, The Sugarhouse, receives bands on tour and regular comedy nights, see http://thesugarhouse.co.uk/

Each summer the city council sponsors music and drama festivals that take over the city centre attracting up and coming artists, including a major annual festival of world music. A number of bars have weekly blues, folk and jazz nights, culminating in the Lancaster Jazz festival. In addition, the University hosts an annual concert series of classical music that is often featured on Radio 3. During 'Extravaganza week', traditionally held in the last week of the summer term, each college holds a party with many top acts and entertainers visiting the campus.

The Dukes Theatre in Lancaster and the Nuffield Theatre at the University both lay on high quality cinema, drama, dance and comedy. The Dukes also produces the nationally renowned Promenade Plays in Williamson Park each summer. There are also large, multi-screen cinema complexes situated in both Lancaster ('Vue') and Morecambe ('Apollo'). There are two museums and a number of small galleries presenting work of regional artists. The University houses the Peter Scott Gallery and the Ruskin Collection, and each year the city stages a literature festival.

Lancaster's restaurants offer you a wide range of styles including French, Indian, Italian, Thai and vegetarian, with traditional pubs selling good food and offering a wide selection of beers. Those wishing to live in Lancaster will find that both accommodation and the cost of living are affordable. If you are looking to get away into the great outdoors, then Lancaster is just 5 miles from both the Forest of Bowland and the coast, whilst the Lake District and Yorkshire Dales National Parks are less than 40 minutes by train or car with the best walking, climbing, caving and mountain biking terrain in England.


The Sugarhouse

Admission Details

TYPICAL REQUIREMENTS

All BSc degree schemes in this booklet without a study abroad option:

A-levels: ABB, candidates will normally be expected to have at least one science at A-level. For Environmental Science and Technology, candidates need Maths, and Chemistry is required to take the Chemistry Pathway.

Scottish Highers: BBBBB

International Bacc: 32 pts overall with 16 from best three HL courses

BTEC: Overall grades of DDM with distinctions in 3 modules

HNC/HND: Pass

Mature students: Enquiries welcome; students on Access to Science courses are encouraged to apply.

For definitive details see http://www.lancaster.ac.uk/lec/

All BSc degree schemes with a study abroad option and all MSci degree schemes in this booklet:

A-levels: AAB, candidates will normally be expected to have at least one science at A-level. For Environmental Science and Technology, candidates need Maths, and Chemistry is required to take the Chemistry Pathway.

Scottish Highers: ABBBB

International Bacc: 35 pts overall with 16 from best three HL courses

BTEC: Overall grades of DDD/DDM with distinction in 9 modules

HNC/HND: Pass

Mature students: Enquiries welcome; students on Access to Science courses are encouraged to apply.

For definitive details see http://www.lancaster.ac.uk/lec/

A-LEVELS and SCOTTISH HIGHERS

We require students to have at least one A-level or Higher in a science subject, which could include:

Biology
Chemistry
Environmental Science
Geography
Geology
Maths
Physics
Psychology
Statistics
Also, applicants must have GCSE (or equivalent)
Maths (B) and English (C)

This does not mean that other subjects are precluded, but we require applicants with at least one science.

Environmental Science & Technology requires Maths, and Chemistry is needed for the optional Chemistry pathway.

OTHER QUALIFICATIONS

We welcome applications from students with nonstandard qualifications. Mature students should contact us directly to discuss their circumstances. All types of previous training and experience will be taken into account, including 'Access to Science' courses. Students taking BTEC should have merits in all relevant subjects. International students are normally required to have appropriate International Baccalaureate qualifications or equivalent. If in doubt about anything, please get in touch with us.

OpenPlus

The Open University

If you do not meet these entry requirements you may be able to join the OpenPlus scheme we are running with the Open University (OU). The scheme involves part-time study, with the OU, followed by two years' full-time study with us to complete degree programmes in:

BSc Environmental Science (F750)
BSc Earth & Environmental Science (FF68)
2 years study with the OU:
S104 Exploring Science
S151 Maths for Science
S206 Environmental Science
SS001 Laboratory Skills for Science
Years 2 and 3 of Lancaster degree

Applications to OpenPlus are not made through UCAS, but directly through Lancaster and the Open University. Visit http://www.open.ac.uk/openplus for more details on how to apply or contact us at Lancaster.

Applications

Applications for all of our undergraduate degree programmes must be made through the Universities and Colleges Admissions Service (UCAS), using the online service via: **http://www.ucas.ac.uk**

Mature and overseas applicants

We welcome applications from mature or overseas students or those offering relevant subjects such as BTEC, Diplomas or other awards. Your application will be considered individually on its merits and in relation to the University's guidance on equivalence to A levels.

Tuition Fees and Financial Support

For all undergraduate degree programmes at Lancaster, the tuition fee for 2013 entry is £9000 per year for students from the UK and the European Union (different rates apply to Islands and Overseas students). Please see our University web pages for further information on the financial packages available to you:

http://www.lancaster.ac.uk/study/undergraduate/fees-and-funding

Details of 2014 fees will be posted on this web site as soon as they are available.

Bursaries and Scholarships

Lancaster University has an extensive programme of financial support and funding for students that consists of:

Bursaries for life, living and learning

All students from England, with a household income of more than £25,000 but less than £42,600, will be awarded a **Lancaster Bursary** of **£1,000** for each year of their studies. In addition, as part of the National Scholarship Programme, students from England with a household income of less than £25,000 will receive a **£1,000** Bursary a **£1,000 Fee Waiver** and a **£1,000 Accommodation Discount** in the first year of study, plus a Lancaster Bursary of £1,000 in subsequent years

Students from England eligible for a bursary package will also be awarded our Academic Scholarship and/or Access Scholarship if they meet the criteria detailed above.

For up-to-date details of tuition fees, financial support, further guidance and information, please look at the Lancaster University Undergraduate Fees & Finance web page at:

www.lancaster.ac.uk/study/undergraduate/fees-and-funding

Scholarships recognising academic talent

Our **Academic Scholarship** is designed to reward the hard work and natural ability of full-time UK students applying to study with us regardless of their household income. Students achieving: A*, A* & A in their A-level examinations (or equivalent academic qualifications), and who place Lancaster as their firm choice, will be awarded a **£2,000** Lancaster Scholarship during their first year of undergraduate studies.

Our **Access Scholarship** is to support students with household incomes of less than £42,600, who achieve excellent A level grades of A*, A, A, or the equivalent academic qualifications. They will be awarded a **£1,000** Access Scholarship for each year of their studies.

Lancaster University's priority is to support every student to make the most of their life and education. For students starting their study with us in 2014, over 600 each year will be entitled to bursaries and/or scholarships to help them with the cost of fees and/or living expenses.

Virtual Campus Tours

To take a virtual campus tour please visit: - http://www.lancaster.ac.uk/campustour/index.htm

What do Our Graduates Think?

Samantha France,
Earth and Environmental Science
BSc Hons, **2012**

The Earth and Environmental Science degree here at Lancaster allowed me to gain extensive knowledge across a wide range of disciplines; I feel this was a huge advantage to me as starting out as a first year I had no idea what I was interested in or would like to pursue in the future. The degree is a mix of both lecture and field based learning which I feel is essential to such a degree; the vast number of field courses makes the whole experience of learning much more enjoyable. The Mount Etna field course was an unforgettable trip and definitely the highlight of my three years at Lancaster and should not be turned down by anybody who has the chance to go. I believe that both the practical skills and knowledge I have acquired during my degree have fully prepared me for life after university and has made my decision to continue to study at a higher level much easier.

Alex Pilling,
Earth and Environmental Science
BSc Hons, **2012**

During my undergraduate degree at Lancaster I enjoyed studying a variety of Earth Science topics from Volcanology to Sedimentology. All the field courses were excellent, especially the one to Mount Etna! I also had the fantastic opportunity to do my geological mapping dissertation in New Zealand! This was a wonderful experience which supported and furthered my interest in geology. It was a real privilege and pleasure to work with such wonderful staff and to study the subject I really love at Lancaster University.

Anna England,
Environmental Science
BSc Hons, **2011**

The course is really well structured, as in your first year you do all your core modules. This helps you to pick your choices for the third year and decide what you would like to specialise in. The quality of teaching is truly excellent and the lecturers really couldn't be any more friendly and supportive. If you have a problem, be it academic or not, they are always willing to help. I loved Lancaster campus from the moment I arrived on a visit day, which is why I lived on campus for two of my three years. It also makes getting to lectures that bit more convenient, as you really can't complain about a 3-minute walk to your 9am's!

Steven Jackson,
Environmental Science
BSc Hons (with study abroad), **2011**

I completed the (BSc) Environmental Science degree at Lancaster University, which provided me with a wide range of skills and experiences which will be essential for a career in the environment sector. During my BSc I got the opportunity to study abroad at the University of Colorado, Boulder. The study abroad scheme provided by Lancaster University was a fantastic opportunity for me to further develop skills whilst also enhancing my job opportunities for the future.

Visiting Us

Visiting the University

Lancaster is very well served by road, rail and air networks (see map). Annual Visit Days take place in July and August of each year for anyone thinking of applying to Lancaster. These are an excellent opportunity for students considering Higher Education entry to visit Lancaster and find out about degree programmes, talk to our staff and go on a campus tour. Alternatively, Campus Visits take place on the first and third Wednesday of every month, apart from August. There are tours of the University and its facilities and you will see student accommodation in a College. If you want to attend an annual visit day or would like to join a conducted tour, please visit the University's website to book a place or e-mail:- **visitus@lancaster.ac.uk** Telephone enquiries can be made to UK Student Recruitment and Outreach Team on:- **01524 593724**.

If you would like to visit the University informally, you are welcome to do so at any time. You do not have to advise us of your visit; the campus is like a small town and you are welcome to use the shops, Sports Centre, bars and restaurants and to visit the Library. Please contact the Environmental Sciences admissions secretary for a map of the University campus.

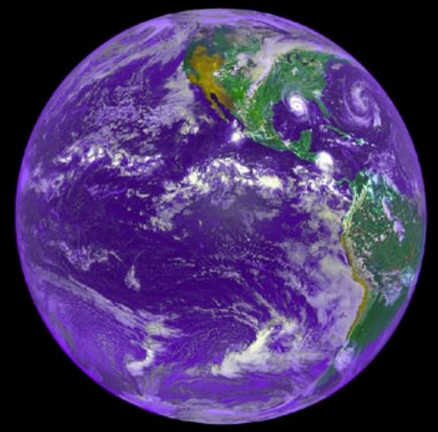
Visiting Environmental Sciences at Lancaster

We have open days for potential Lancaster students - several Open Days are held between December and March. The open days are designed to allow you to get a taste of being an undergraduate in Environmental Science at Lancaster. You will be able to talk to Admissions and subject tutors, participate in some of our activities, join a conducted tour of the campus, and find out about the first-rate facilities at Lancaster. Parents are welcome to come to the Open Day. While here, parents can attend a special question and answer session to discuss issues such as accommodation, finance, life on campus, and are taken on their own campus tour.

Approximate Travel Times (By Train)

Lancaster — London	2.5 hours
Lancaster — Liverpool	1.5 hours
Lancaster — Manchester	1 hour

Notes



Disclaimer

The information in this brochure has been compiled with great care and attention to detail. All the information is correct at the time of going to press (November 2013). It is important to understand that the provision of courses, facilities and all other arrangements detailed here are reviewed on a regular basis and that they may be subject to some change. This brochure does not form part of any contract between any person and the University.

All Earth photographs courtesy of NASA.

Contact Addresses

For further information about any of the degree courses offered please contact the appropriate person as shown below.

ALL ENVIRONMENTAL SCIENCE DEGREE COURSES

Contact person: **Elaine Stokes**
Email: **lec.ug@lancaster.ac.uk**
Telephone: **01524 510286**
Web site: **www.lancaster.ac.uk/lec/**

POSTAL ADDRESS:

Undergraduate Admissions,
Lancaster Environment Centre,
Lancaster University, LA1 4YQ
United Kingdom

ENVIRONMENTAL MATHEMATICS

Contact person: Niels Laustsen
Email: n.laustsen@lancaster.ac.uk
Telephone: 01524 594617
Web site: www.lancaster.ac.uk/fas/maths/

ENVIRONMENTAL CHEMISTRY

Contact person: Keith Davidson
Email: chemistry@lancaster.ac.uk
Telephone: 01524 593728
Web site: www.chemistry.lancs.ac.uk

Further information about the University in general, accommodation or the city of Lancaster may be found in the University's Undergraduate Prospectus. Paper copies are available via:

www.lancaster.ac.uk/prospectus

OTHER WEB SITES

Lancaster University home page
www.lancaster.ac.uk/

Lancaster University Student Union
www.lusu.co.uk

Lancaster University International Office
www.lancaster.ac.uk/study/international-students/

Environmental Sciences




www.lancaster.ac.uk/lec/undergraduate