Course overview

Our Geography and Oceanography BSc (Hons) programme explores how the Earth behaves as a result of interactions between the land, the oceans, and the atmosphere. If you’re interested in understanding complex issues such as climate change, rising sea levels, and environmental pollution, this is the course for you.

Introduction

Complex issues such as climate change, sea-level rise, and environmental pollution can only be fully understood if all the different facets of the Earth’s behaviour are considered. While the ocean sciences aspect deals with present-day and future climate change scenarios, the link to physical geography provides an understanding of changes in climate over the last several thousand years to provide context for recent climate change.

Your training will cover core topics in oceanography, physical geography, geology, and ecology as well as modules in IT and communication skills. There will be the opportunity to participate in fieldwork throughout your studies, as well as a full sea practical during your final year.

Fieldwork is carried out in a range of locations, ranging from inner city to coastal and mountainous environments. This includes local coastal waters and other locations across the UK.

Liverpool was the first UK university programme to combine land, ocean, and climate studies in one integrated programme of study. Our links with the campus-based National Oceanography Centre provide guest lectures and supervision of projects from their scientists.

A number of the School’s degree programmes involve laboratory and field
work. Fieldwork is carried out in various locations, ranging from inner city to coastal and mountainous environments. We consider applications from prospective disabled students on the same basis as all other students, and reasonable adjustments will be considered to address barriers to access.

**WHAT YOU’LL LEARN**

- Accredited by the Institute of Marine Engineering, Science and Technology
- Guest lectures and project supervision from scientists at National Oceanography Centre (NOC)
- Lectures and assignments are regularly updated with the latest research
- Fieldwork opportunities in local and UK waters
- Paid summer internships are offered working alongside academics at the University, NOC, or elsewhere
- Students without mathematics, physics or chemistry at A level are provided with remedial courses

**ACCREDITATION**

This course is accredited by the Institute of Marine Engineering, Science and Technology.
Course content
Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

YEAR ONE
The required modules in year one provide grounding in ocean science and physical geography, as well as developing essential and transferable skills that are required throughout your degree programme. ENVS117 is a compulsory module for those without A2 level maths or similar. Students with A level maths must choose either ENVS117 or PHYS107. ENVS153 is a compulsory module for those without A or AS level in chemistry.

Optional modules allow you to focus on areas of environmental sciences that interest you.

COMPULSORY MODULES

CLIMATE, ATMOSPHERE AND OCEANS (ENVS111)
Credits: 15 / Semester: semester 1
Climate, Atmosphere and Oceans provides an understanding of how the climate system operates. The module draws on basic scientific principles to understand how climate has evolved over the history of the planet and how the climate system is operating now. Attention is particularly paid to the structure and circulation of the atmosphere and ocean, and how they both interact. The course emphases acquiring mechanistic insight and drawing upon order of magnitude calculations. Students gain quantitative skills by completing a series of coursework exercises.

EXPERIMENTS IN PHYSICAL GEOGRAPHY (ENVS120)
Credits: 15 / Semester: semester 1
The module uses laboratory experiments to allow students to gain firsthand experience of some fundamental physical, biological and chemical processes underlying physical geography, aimed primarily at interactions between people and their physical environment. It is designed to provide a foundation for environmental modules in the second and third years.

This module comprises multiple whole-day practical sessions, each designed to give students first-hand experience of a topic important in understanding our changing environment. Dedicated computer practicals are also run to provide training in use of EXCEL, MINITAB, and basic inferential statistics. Students get formal feedback in each assessed week (1 poster per group). However, perhaps most valuable is the feedback obtained informally via discussions during the sessions.
LIVING WITH ENVIRONMENTAL CHANGE (ENVS119)

Credits: 15 / Semester: semester 1
This module examines a number of global scale challenges facing humans on the planet earth related to climate and environmental change.

MARINE ECOSYSTEMS: DIVERSITY, PROCESSES AND THREATS (ENVS122)

Credits: 15 / Semester: semester 2
This module introduces the range of diversity of marine ecosystems using example environments from around the world. Each week a new ecosystem will be covered, with the main organisms, key processes and human threats to the ecosystem described and explored. Central to this module are interactive discussion sessions that will build an understanding of how marine ecosystems are expected to respond to the human-induced changes of the 21st Century.

STUDY SKILLS (OCEAN SCIENCES) (ENVS103)

Credits: 15 / Semester: whole session
This module is designed to introduce students to key concepts and skills in Ocean Sciences (e.g. use of specific software, development of laboratory and analytical skills, fieldwork experience) as well as the development of generic skills, specifically communication skills, (through writing essay, technical reports, oral and poster presentations), teamwork and time management. The module also comprises introduction to academic integrity, how to access scientific literature or how to use a reference software. Biweekly (every 2 weeks) tutorials with an assigned individual tutor take place in groups of typically 6–7. These sessions can take place in-persons or on-line.

THEORY AND LABORATORY EXPERIMENTS IN EARTH SURFACE PROCESSES (ENVS165)

Credits: 15 / Semester: semester 2
The module uses a lecture and laboratory-based problem-solving approach to explore some of the fundamental physical and chemical processes underlying physical geography. It is designed to provide a foundation for environmental and physical geography modules in the second and third years.

OPTIONAL MODULES

ECOLOGY AND CONSERVATION (ENVS157)

Credits: 15 / Semester: semester 2
The zone of life on earth, or the ‘biosphere’, is a highly dynamic system responding to external pressures including changing human activities. The biosphere obeys a numbers of simple natural principles, but these often interact to create complex and sometimes unexpected responses. Using a wide range of examples we will explore these interactions between organisms and the environment. We will examine how species organise into communities, and how energy and other resources flow through ecosystems. We will explore how ecosystems respond to change, including gradual environmental shifts, sudden disturbance events and the effects of human activities. We will also learn how the key principles of ecology can be applied to conservation. We will assess the current state of the biosphere, and evaluate the major current threats. We will also look towards the future of ecosystems, including whether we can restore degraded habitats, and recreate ‘natural’ landscapes.

Teaching will be via synchronous and asynchronous lecture content. Assessment will be by open book class tests and a multiple choice exam.

**ENVIRONMENTAL CHEMISTRY (ENVS153)**

**Credits: 15 / Semester: semester 2**

This module will give students an understanding of the basics that control fundamental properties of elements and matter, either solid, liquid or gas. It will introduce the fundamentals of atomic structure, elements and molecules from simple inorganic to large organic ones and the bonding forces that held them together. It will look at the basics of chemical reactions with processes of oxidation and reduction, solubility of solids and gases, acid-base properties and thermo-chemistry. Students will learn how to make quantitative predictions on e.g. the amount of products that will be produced based on balanced chemical reactions and will see how basic chemistry can be used to explain many environmental properties.

**ESSENTIAL MATHEMATICAL SKILLS (ENVS117)**

**Credits: 15 / Semester: semester 1**

This module is designed to provide students without a background in mathematics and physics at A-level (or equivalent) with sufficient knowledge and skills in these subjects to pursue degree programmes in ocean sciences, geology, geography, environmental sciences and marine biology. It is taught by means of lectures and weekly practical workshops and assessed by means of a written examination. Additional material is provided via Canvas. Whilst many of the topics covered in the module may be covered in A-level maths and or physics, there will be a number of topics included which are unique.

Programme details and modules listed are illustrative only and subject to change.

**YEAR TWO**

Modules in year two will develop more specialist skills and knowledge in ocean sciences and physical geography. Optional modules provide further opportunities to
focus on topics of environmental sciences that interest you.

**COMPULSORY MODULES**

**CHANGING ENVIRONMENTS (ENVS214)**

**Credits: 15 / Semester: semester 1**

The Earth is subject to a myriad of threats and stresses, ranging from a changing global climate to unprecedented scales of human impacts on ecosystems, so that a new geological time period, the Anthropocene was created. Placing future change in freshwater and coastal wetlands and lakes into a long-term context is a critical science, and without it, society cannot constrain the ‘natural’ baseline against which future changes could be judged. This module will provide a critical insight into the global changes currently impacting the Earth over decades to millennial timescales. We will introduce a series of contemporary environmental concerns, and teach how we can reconstruct climatic and environmental conditions, the landscapes and vegetation of the past. We will explore a wide variety of archives (lakes, freshwater and coastal wetlands, oceans) and develop an understanding of the key techniques used to trace environmental conditions (physical properties, biogeochemistry, biological indicators). We will assess how the drivers behind these changes will affect future landscapes and ecosystems.

**CLIMATOLOGY (ENVS231)**

**Credits: 15 / Semester: semester 2**

The module has a balance between theory, processes, impacts, and hands on experimentation and data analysis. It cover energy balance and transfer processes at the surface, clouds, rain formation, weather forecasting, monsoons, tropical cyclones, weather in the mid latitudes, and the regional climates.

**GEOMORPHOLOGY: ICE, SEA AND AIR (ENVS252)**

**Credits: 15 / Semester: semester 2**

The module develops an understanding of these major geomorphic systems and how they create terrestrial landforms. It explores the basic processes that have helped shaping the geomorphology of Britain and investigates magnitude and frequency of events, as well as time and space scales over which the processes operate.

The module is divided into four components, each composed of 4 sessions: glacial systems, glacial geomorphology and environmental change, aeolian processes, and coastal geomorphology. Weekly face-to-face sessions are supported by access to online videos, power point presentations, lecture notes, reading lists and some selected web sites. Weekly timetabled sessions will be a combination of discussions around reading and Q&A on online content. Two days of field practicals form the basis of the summative assessment addressing set problems and questions. A formative GIS exercise is also delivered via timetabled support sessions.

**KEY SKILLS FOR ENVIRONMENTAL DATA ANALYSIS (ENVS202)**
Credits: 15 / Semester: semester 1
The module provides a generic training in manipulating environmental data sets using the industry-standard Matlab software. Skills are provided in reading in data, manipulating and plotting the data, and interpreting the data signals. The assumption is that students have little or no experience in programming. The module begins with an introduction to Matlab – what it is, what it can do, how to operate it – and then develops a series of programming skills, each week using data collected in the staffs’ own research to provide real-world examples of the use of Matlab. The aim is to provide students with sufficient grasp of programming in Matlab to enable its use in subsequent project work, as well as providing the foundations in one of the key tools used in science and industry.

SAMPLING THE OCEAN (ENVS220)
Credits: 15 / Semester: semester 2
This module provides some of the fundamental skills required for surveying and sampling the ocean, either for research or for commercial environmental surveying work.

The module covers the methods and skills used in oceanography for:
Navigation and survey design.
The measurement of physical parameters, such as temperature, salinity and currents.
The measurement of biogeochemical parameters such as nutrients, phytoplankton, dissolved oxygen and particles.
The importance of assessing data quality and instrument calibration, metadata and data banking.

Laboratory work develops skills in the analyses for key oceanographic parameters (e.g. salinity, chlorophyll, dissolved oxygen and nutrients).

Computer laboratories develop skills in sensor calibration, data quality control and data analysis.

These components are all relevant to the subsequent planning and sampling as part of the ENVS349 Sea Practical.

Assessment is by coursework.

OCEANOGRAPHY, PLANKTON AND CLIMATE (ENVS245)
Credits: 15 / Semester: semester 1
The tiny plankton are the base of marine food chains and also affect the Earth's climate. If you want to understand how and where these organisms live in the ocean, you need to step out of your own experience as a terrestrial animal. In this module we will get you to think about how the viscosity and flow of water control the different sizes of plants and animals by determining how they can acquire light, nutrients and food. For instance, a copepod zooplankton needs to detect, grab and hold on to tiny food particles in what, to the copepod, feels like a very sticky fluid environment. For us it would be a little like trying to swim through thick honey and reaching out to grab a ping-pong ball. On much larger scales the physics of ocean circulation and mixing controls the distributions and diversity of different plankton species and the availability of the nutrients that they need. Plankton play a key role in Earth's climate, but this can depend on the plankton species. Plankton also respond to changes in Earth's climate, with important shifts in species distributions currently being caused by our warming climate. In this module we take you from the micron scales of the tiniest plankton up to the scale of the open ocean to illustrate the fundamental links between the ocean's physical and biogeochemical processes, plankton communities and Earth's climate.

**RESEARCH AND CAREER SKILLS (ENVS204)**

**Credits: 15 / Semester: whole session**

This module aims to develop the specific skills required by marine biologists, ocean scientists and environmental scientists as they prepare for their final year of study and the next steps in their careers.

In semester one, through a series of lectures, workshops and tutorials, students will learn how to write a research report. Students will analyse and synthesise a real scientific data set, create professional display items and write a research report in standard scientific format. This will be assessed through a written research report.

In semester two students will focus on developing skills in critiquing and reading the scientific literature. Lectures and tutorials will guide students in developing these skills. This will be assessed through a literature review essay.

Students will also develop knowledge of careers in their field and enhance their employability through a series of lectures, SOES careers week, an assessment centre exercise and job video interview. The video interview will be assessed.

**OPTIONAL MODULES**

**CATCHMENT HYDROLOGY (ENVS217)**

**Credits: 15 / Semester: semester 1**
The study of catchment hydrology is concerned with water above and below the land surface, its various forms, and its circulation and distribution in time and space within drainage catchments; it is based on fundamental knowledge of the hydrological cycle and its governing factors. Understanding the hydrological cycle is fundamental to physical geography. All life is supported by water and all earth systems incorporate fluxes of water to some extent. The module covers the main hydrological processes operating in drainage catchments in terms of their measurement, operation and controlling factors. The module provide ‘hands-on’ experience of both observing hydrology and modelling hydrological systems, with an emphasis on applied learning, which might be useful in a vocational sense in the future. The module will aim to deliver excellent training in the knowledge required to work in a wide variety of environmentally-facing careers, including those with the EA, Natural England or DEFRA, as well as Environmental Consultancies.

MARINE POLLUTION (ENVS232)

Credits: 15 / Semester: semester 2

Marine systems are changing with globally increasing temperatures and increasing carbon dioxide concentrations in the atmosphere, which are affecting the chemistry, physics and ultimately biology of the marine systems at unprecedented rates. These changes are expected to accelerate in the coming decades. Localised anthropogenic stressors such as excess nutrients, plastic debris, trace metals (e.g. mercury, copper), marine heatwaves and/or other emerging contaminants are affecting our coastal and open ocean waters. This module focuses on the processes and recent scientific evidence about a range of marine pollution issues.

Programme details and modules listed are illustrative only and subject to change.

YEAR THREE

Year three provides the opportunity to conduct an independent research project in oceanography/geography and to engage in sampling activities at sea during a three-day research cruise. Optional modules are available in physical geography, oceanography and environmental sciences.

COMPULSORY MODULES

CONTEMPORARY ISSUES IN OCEAN AND CLIMATE SCIENCES (ENVS366)

Credits: 15 / Semester: semester 2
This research-led module aims to promote interest, awareness and understanding of current important and emerging research topic areas within Ocean and Climate Sciences. It also aims to develop generic skills such as team working and communication skills. The module has the following components:
- Presentations given by research staff on currently funded research programs of international importance;
- Attendance at research seminars that are on-going mostly within the Ocean Sciences group, the National Oceanographic Centre and other seminar of interests.
- Individual presentations of recent research papers or research topic of interest to the students;
- Group presentations (typically 4 students per group) on a research topic of current importance (e.g. as highlighted in the latest IPCC report).

**SEA PRACTICAL (ENVS349)**

**Credits: 30 / Semester: semester 1**

Measurements made at sea are a key activity in oceanographic research and this module provides an introduction to the collection of data and samples there. These cover position, meteorological parameters, temperature and salinity, currents, dissolved oxygen, nutrients, chlorophyll, and plankton. This year, we will use the Field Studies Council Site at Millport in Scotland. The laboratory phase will take place in Millport and in the Central Teaching Laboratories in Liverpool. The module is assessed by (1) a group presentation on components of the data analysis and quality, and (2) a scientific report/paper addressing a key question (the students have a choice from a range of 3 or 4 questions). The Sea Practical introduces students to the way in which professional ocean scientists work. It involves collecting data and samples at sea, analysing samples in the laboratory, processing and analysing data using computer software, assessing and reporting on the data and its quality, and finally presenting the methods, results and interpretation in an accurate and comprehensive report. By following professional ways of working it provides students with both subject specific and generic employability skills.

**OCEAN SCIENCES RESEARCH PROJECT (ENVS377)**

**Credits: 30 / Semester: whole session**

In this module year three students have the opportunity to work with our world leading researchers on an independent research project.

**OPTIONAL MODULES**

**GEOGRAPHIC DATA SCIENCE (ENVS363)**

**Credits: 15 / Semester: semester 1**
This module will introduce students to the nascent field of Geographic Data Science (GDS), a discipline established at the intersection between Geographic Information Science (GIS) and Data Science. The course covers how the modern GIS toolkit can be integrated with Data Science tools to solve practical real-world problems. Core to the set of employable skills to be taught in this course is an introduction to programming tools for GDS – specifically the programming language 'Python', which is the only scripting language officially supported by the industry-leading GIS packages ‘Arc/GIS’ and ‘QGIS’. The programme of lectures, guided practical classes and independent study illustrate how and why GDS is useful for social science applications.

GLOBAL CARBON CYCLE (ENVS335)
Credits: 15 / Semester: semester 2

Increasing amounts of carbon dioxide in the atmosphere are having a profound impact on our Earth system. This module will introduce students to the fundamental theory behind the global carbon cycle. It will evaluate how carbon is partitioned between the atmosphere, land and ocean in the contemporary and past system, why the ocean stores 50 times more carbon than the atmosphere and considers the impact of increasing carbon dioxide on the organisms living on land and in the ocean.

INTRODUCTION TO QUATERNARY MICROPALAEONTOLOGY (ENVS342)
Credits: 15 / Semester: semester 2

This module intends to give a holistic insight of a number of marine and terrestrial microfossils that are conventionally used for reconstructing past environmental conditions for the Quaternary period, including recent past. Microfossils are biological indicators that can help to either qualitatively and/or quantitatively estimate environmental conditions such as atmospheric temperature and precipitation (pollen), sea-surface conditions (foraminifera, diatoms, radiolarians, dinoflagellate cysts), salinity (ostracods, diatom), pH (diatoms), sea-ice cover (diatoms, dinoflagellate cysts), etc. These conditions are of paramount importance for modelling past climate conditions and the data derived from microfossil assemblages enable to better calibrate models, which in turn, are essential to forecast future climate. In addition, microfossil assemblages help to understand the natural evolution of our environment as well as measuring the amplitude of human activities over time.

OCEAN DYNAMICS (ENVS332)
Credits: 15 / Semester: semester 1

Ocean dynamics addresses how the ocean and atmosphere circulate. Fundamental questions are addressed, such as how heat, salt, and dissolved substances are transported, how jets and weather systems emerge on our planet, why there are western boundary currents in the ocean, and how seafloor topography shapes the ocean circulation.
Students will improve their understanding of how the ocean and atmosphere behave, including comparing the importance of different physical processes in the climate system. The module is delivered via lectures and formative workshops to gain skills at problem solving. There is significant mathematical content, requiring familiarity with calculus and algebra. The module is assessed through two online tests (25% each) and an essay (50%).

**FLUVIAL ENVIRONMENTS (ENVS372)**

**Credits: 15 / Semester: semester 2**

Fluvial processes are found all over the world and are some of the most important in sculpting the Earth's surface and producing landforms. This module examines fundamental concepts and recent ideas relating to fluvial geomorphology, building on study throughout your educational career. A key point about studying fluvial environments is to understand how the system functions, its links and interactions. It is important to look at all the main components of the system, to understand the dynamics and controls on water and sediment flux and how these produce different types of landforms. The amounts of water and sediment can vary with the environmental conditions and thus study of the drivers of these systems such as climate and human activities and how they have changed over time is essential for being able to interpret the current landscape. Understanding of the present functioning of fluvial systems is essential for any environmental management since rain and runoff are ubiquitous and floods are a major natural hazard.

**COASTAL ENVIRONMENTS: SPATIAL AND TEMPORAL CHANGE (ENVS376)**

**Credits: 15 / Semester: semester 1**

This module considers the evolution and response of coastal environments to marine and riverine processes and their variations in relation to past, present and future climate change. Attention is given to physical processes and inter-relationships acting along coastlines and coastal changes in response to sea level rise, variations in storms activity, wave climate and sediment supply. Consideration is also given to coastal management and climate change adaptation & mitigation measures. Topics will be investigated through a combination of lectures, virtual field trips, and development of a project aimed at identifying optimum coastal protection schemes for real case studies.

**CARBON, NUTRIENTS AND CLIMATE CHANGE MITIGATION (ENVS381)**

**Credits: 15 / Semester: semester 1**

The module will involve both individual and group work, workshops, group presentations/debates, and engagement with the most current scientific literature and social media and science communication. This module is open to all students, but those taking this module must be willing to engage in quantitative analyses of carbon and nutrient cycling and its importance to climate mitigation strategies.

*Programme details and modules listed are illustrative only and subject to change.*
HOW YOU'LL LEARN
Teaching takes place through lectures, practicals, workshops, seminars, tutorials and computer based learning, with an emphasis on learning through doing. The award-winning £23 million Central Teaching Laboratories provides a state-of-the-art facility for undergraduate practical work.

Students value the learning opportunities provided by field classes, including the rapid feedback on performance. You will typically receive at least 15 hours of formal teaching each week. Between 30 and 100 hours of fieldwork and hands-on activities are provided each year depending on the discipline.

A typical module might involve two or three one-hour lectures each week, and often a three-hour laboratory or computer-based practical as well. Tutorials typically involve groups of 4–7 students meeting with a member of staff at least every two weeks in year one and two. In year three, you will undertake an honours project, which is a piece of independent research (field, laboratory, or data analysis) on a topic of your choice, supervised by a member of staff. In years three and four students meet with their project supervisor on a weekly or more frequent basis. As you progress through your degree, you will be increasingly challenged to engage with current debates, think critically, and study independently.

A number of the School’s degree programmes involve laboratory and fieldwork. The fieldwork is carried out in various locations, ranging from inner city to coastal and mountainous environments. We consider applications from prospective students with disabilities on the same basis as all other students, and reasonable adjustments will be considered to address barriers to access.

HOW YOU'RE ASSESSED
Assessment matches the learning objectives for each module and may take the form of written exams, coursework submissions in the form of essays, scientific papers, briefing notes or lab/field notebooks, oral and poster presentations and contributions to group projects.

LIVERPOOL HALLMARKS
We have a distinctive approach to education, the Liverpool Curriculum Framework, which focuses on research-connected teaching, active learning, and authentic assessment to ensure our students graduate as digitally fluent and confident global citizens.
Careers and employability

Geography and Ocean Sciences students will graduate with a range of transferable skills, making your degree a great foundation for an exciting career. Our training is designed to provide you with the skills needed to work in the environment sector, as identified by employer surveys run by the Natural Environment Research Council. Thanks to our strong employability focus, you can find our graduates working across many sectors in the UK and abroad.

With the environmental challenges facing our planet, there has never been a better time to study Geography and Oceanography. Our course will help you to understand the drivers of climate change, how the oceans and land are responding to our warming climate, why and where sea level is rising, and how these changes are affecting ecosystems on land and in the ocean. Your degree will provide you with the skills to tackle these global environmental challenges.

WORK EXPERIENCE OPPORTUNITIES

We have competitive bursaries to support 4-6 week summer placements for students in years two and three. Placements can be based with staff within our Oceans group, with researchers from the National Oceanography Centre, or elsewhere. These placements are great opportunities to gain practical experience and work on a specific research project.

Many graduates move on to have careers in areas such as:
- Government agencies (Environment Agency, Met Office)
- Environmental consultancy and management
- Renewable energy industries
- Climate research
- Accountancy and insurance brokers
- Education

POSTGRADUATE OPPORTUNITIES

More than 40% of our students go on to further study on master’s or PhD programmes in the UK and abroad. We offer postgraduate opportunities in Ocean Sciences via our four-year integrated master’s programme (F710), and PhD research opportunities are available through our joint training programme with the National Oceanography Centre and the University of Manchester.

PREPARING YOU FOR FUTURE SUCCESS

At Liverpool, our goal is to support you to build your intellectual, social, and cultural capital so that you graduate as a socially-conscious global citizen who is prepared
for future success. We achieve this by:

- Embedding employability within your curriculum, through the modules you take and the opportunities to gain real-world experience offered by many of our courses.
- Providing you with opportunities to gain experience and develop connections with people and organisations, including student and graduate employers as well as our global alumni.
- Providing you with the latest tools and skills to thrive in a competitive world, including access to Handshake, a platform which allows you to create your personalised job shortlist and apply with ease.
- Supporting you through our peer-to-peer led Careers Studio, where our career coaches provide you with tailored advice and support.
Fees and funding
Your tuition fees, funding your studies, and other costs to consider.

TUITION FEES
Tuition fees cover the cost of your teaching and assessment, operating facilities such as libraries, IT equipment, and access to academic and personal support. Learn more about tuition fees, funding and student finance.

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<th>UK fees</th>
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<tr>
<td>Full-time place, per year</td>
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<td>Year in industry fee</td>
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<td>Year abroad fee</td>
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<th>International fees</th>
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<td>Full-time place, per year</td>
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Fees stated are for the 2022-23 academic year and may rise for 2023-24.

ADDITIONAL COSTS
We understand that budgeting for your time at university is important, and we want to make sure you understand any course-related costs that are not covered by your tuition fee. This includes the cost of a lab coat, food and drink during compulsory field courses, and dissertation expenses.
Find out more about the additional study costs that may apply to this course.

SCHOLARSHIPS AND BURSARIES
We offer a range of scholarships and bursaries to help cover tuition fees and help with living expenses while at university.
Scholarships and bursaries you can apply for from the United Kingdom

Select your country or region for more scholarships and bursaries.
## Entry requirements

The qualifications and exam results you’ll need to apply for this course.

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<th>Your qualification</th>
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<td>About our typical entry requirements</td>
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<td>ABB Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is BBB with an A in the EPQ. Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is BBC with A in the EPQ. You may automatically qualify for reduced entry requirements through our contextual offers scheme.</td>
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<td>A levels</td>
<td>If you don’t meet the entry requirements, you may be able to complete a foundation year which would allow you to progress to this course. Available foundation years: • Earth Sciences entry route leading to BSc (Hons) (4 year route including a Foundation Year at Carmel College) • Geography BSc (Hons) (4 year route including a foundation year at Carmel College) BSc (Hons)</td>
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<td>GCSE</td>
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### Your qualification | Requirements
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**Subject requirements** | Including two sciences. Acceptable sciences: Mathematics, Further Mathematics, Physics, Chemistry, Biology, Geology, Geography, Applied Science, Environmental Science, Psychology, Marine Science. For applicants from England: where a science has been taken at A level (Chemistry, Physics or Biology), a pass in the science practical of each subject will be required.

**BTEC Level 3 National Extended Diploma** | D*DD in relevant diploma

**International Baccalaureate** | 33 points including 5 at Higher Level in two science subjects, no score below 4.

**Irish Leaving Certificate** | H1, H2, H2, H2, H3, H3 including H2 or above in two sciences

**Scottish Higher/Advanced Higher** | Not accepted without Advanced Highers at ABB including two sciences

**Welsh Baccalaureate Advanced** | Accepted at Grade B with AB at two science A levels

**Access** | Applications considered. 45 Level 3 credits in graded units, including 30 at Distinction and a further 15 with at least Merit. 15 Distinctions are required in each of two sciences. GCSE Mathematics and English grade C / 4 also required
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**International qualifications**

Select your country or region to view specific entry requirements.

Many countries have a different education system to that of the UK, meaning your qualifications may not meet our entry requirements. Completing your Foundation Certificate, such as that offered by the University of Liverpool International College, means you're guaranteed a place on your chosen course.

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**ALTERNATIVE ENTRY REQUIREMENTS**

- If your qualification isn't listed here, or you're taking a combination of qualifications, [contact us](#) for advice.
- Applications from mature students are welcome.

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**THE ORIGINAL REDBRICK**