UNIVERSITY OF LIVERPOOL

Ocean Sciences BSc (Hons)

COURSE DETAILS

- A level requirements: ABB
- UCAS code: F700
- Study mode: Full-time
- Length: 3 years

KEY DATES

- Apply by: 29 January 2025
- Starts: 22 September 2025

Course overview

Our Ocean Sciences programme takes an interdisciplinary approach to understanding the ocean environment. With fieldwork opportunities embedded in each year of the course and our strong links to the National Oceanography Centre, Liverpool is an excellent place to study Ocean Sciences.

INTRODUCTION

The ocean plays a central role in the Earth's climate system by regulating the transfer of heat and carbon over the globe. The effect of the ocean on Earth's climate and on life can only be fully understood by addressing the fundamental biological, physical and chemical processes operating in the environment. This degree route takes a multidisciplinary approach to developing an understanding of the ocean and climate system.

We have strong links with scientists from the National Oceanography Centre in Liverpool, who provide guest lectures and supervision of projects.

On the Ocean Science programme you will acquire a broad interdisciplinary understanding of the ocean environment from a physical, chemical and biological perspective. The oceanography route is suitable if you don't have a strong background in mathematics, physics or chemistry as remedial courses are provided.

This programme has an important focus on practical aspects of marine science and will provide grounding in hands-on quantitative studies of biological, chemical and physical marine science. There will be the opportunity to participate in field/project work throughout the course of your studies, as well as a full sea practical during year three. You will undertake a major research project in your final year. The degree in Ocean Sciences at Liverpool is accredited by the Institute of Marine Engineering, Science and Technology.

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

- How the atmosphere and the oceans transport heat
- How the climate is changing
- How nutrients and carbon are cycled over the globe
- The effects of ocean acidification
- How life operates in the dynamic ocean environment

ACCREDITATION

The degree in Ocean Sciences at Liverpool 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

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 emphasises acquiring mechanistic insight and drawing upon order of magnitude calculations. By the end of the module students will understand how the oceans and atmosphere combine to shape Earth's climate. Students gain quantitative skills by completing a series of coursework exercises and a final exam. Students address the Net Zero carbon goal via group work involving digital storytelling.

MARINE ECOSYSTEMS: DIVERSITY, PROCESSES AND THREATS (ENVS122)

Credits: 15 / Semester: semester 1

This module is designed to deliver an introduction to the diversity of marine ecosystems across the globe. Each week during in person lectures you will be introduced to a new ecosystem and will learn about this habitat, specifically the main organisms, key processes, and human threats to each ecosystem described and explored. Central to this module are interactive discussion sessions (workshops) that will build an understanding of how marine ecosystems are expected to respond to the human-induced changes of the anthropocene. During these workshops you will learn to critique a piece of scientific research in small group discussions guided by academics. Your knowledge and understanding will be assessed via open-book online tests, and a group project in which you will create an infographic outlining the threats a particular ecosystem faces.

STUDY SKILLS (OCEAN AND CLIMATE SCIENCES) (ENVS103)

Credits: 15 / Semester: semester 2

This module is designed to introduce students to key concepts and skills in ocean and climate sciences, for instance key software tools for data analysis and illustration and fieldwork experience. Students will also develop more generic skills, particularly in communication through essay writing and oral and poster presentations. The module also introduces students to academic integrity and shows students how to access scientific literature and how to use bibliographic software. All students are assigned to a tutorial group with one of the academic staff as their tutor. Teaching is carried out both to the whole year group and also during tutorial group meetings. The module is assessed via a series of coursework assignments.

THEORY AND LABORATORY EXPERIMENTS IN EARTH SURFACES PROCESSES (ENVS165)

Credits: 15 / Semester: semester 1

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 year. 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. Students get formal feedback in each assessed week (one poster per group). However, perhaps most valuable is the feedback obtained informally via discussions during the sessions.

OPTIONAL MODULES

ECOLOGY AND CONSERVATION (ENVS157)

Credits: 15 / Semester: semester 1

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.

ENVIRONMENTAL CHEMISTRY (ENVS153)

Credits: 15 / Semester: semester 1

This module will give students an understanding of the fundamental properties of elements and matter, either solid, liquid or gas, in the context of the environmental sciences. It will introduce the fundamentals of atomic structure, elements and molecules from simple inorganic to large organic ones and the bonding forces that hold them together. It will look at the basics of chemical reactions such as the processes of oxidation and reduction, the solubility of solids and gases in water and acid-base properties. Students will learn how to make quantitative predictions, for instance on 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. The module is taught through lectures, tutorial sessions and online formative quizzes with automated feedback. Assessment is through online tests and an open book final exam. This module is largely an introduction to chemistry and might therefore not be well suited for students who did A-level chemistry or equivalent.

SEDIMENTARY ROCKS AND FOSSILS (ENVS118)

Credits: 15 / Semester: semester 1

This module provides a basic introduction to sedimentology and palaeontology. Students learn about the origin of sediment, sedimentary processes and structures and the ways in which sediments are converted into solid rock. The course outlines the importance of sedimentary rocks for hydrocarbons, water and as construction materials. Students learn how to describe and interpret sedimentary deposits. The palaeontology component introduces students to the major fossil groups and to the ways in which organisms can be preserved as fossils. It covers the importance of fossils for the study of evolution, environmental change and Earth history. Students learn how to describe fossils and how observations contribute to a broader understanding. Students will be assessed by means of two practical tests and a theory examination.

LIFE IN THE SEAS AND OCEANS (ENVS121)

Credits: 15 / Semester: semester 1

This module is designed to deliver an introduction to the diversity of life in the marine environment. You will be introduced to the range of living organisms in the oceans from microscopic plants and bacteria to whales through a blended learning approach that combines e-lectures with a series of interactive workshops, practical activities and field visits. You will have the opportunity to examine marine organisms in our award-winning teaching facilities and during field visits, which will allow you to explore some of the diverse adaptations marine organisms have adopted to meet the challenge of survival in the marine environment. Your knowledge and understanding will be assessed via online tests, a group project in which you will create a guide to a specific group of marine organisms, and a practical workbook.

ESSENTIAL MATHEMATICAL SKILLS (ENVS117)

Credits: 15 / Semester: semester 1

This module is designed to provide students without a A-Level GCE level (or equivalent) background in mathematics a foundation to their degree programme. The module covers pure maths, maths mechanics and statistics developing the required knowledge and skills to be able complete degree programmes in Ocean Sciences, Earth Sciences, Geography, Environmental Science and Marine Biology. The module is taught as weekly lectures following a ten-chapter book developed for the module by world leading experts in the fields. Lectures are supplemented with workshops where concepts can be discussed and skills improved. The module is assessed though online pop-quizzes and a formal written exam.

MATHEMATICS FOR PHYSICISTS I (PHYS107)

Credits: 15 / Semester: semester 1

This module aims to provide all students with a common foundation in mathematics, necessary for studying the physical sciences and maths courses in later semesters. All topics will begin "from the ground up" by revising ideas which may be familiar from A-level before building on these concepts. In particular, the basic principles of differentiation and integration will be practised, before extending to functions of more than one variable. Basic matrix manipulation will be covered as well as vector algebra and an understanding of eigenvectors and eigenvalues.

INTRODUCTION TO CLIMATE CHANGE AND MITIGATION (ENVS189)

Credits: 15 / Semester: semester 1

This module will introduce you to the concept of Earth System interactions as a framework for understanding the causes and consequences of climate change. The module will cover the key features of the earth, atmosphere and ocean, and their interactions. alongside the drivers and consequences for perturbing part of the Earth System. Past, contemporary and projections of climate change will be discussed, as well as the toolkit tools deployed by environmental scientists to detect climate change and show attribute it to be a consequence of human activities. The module will discuss also measures to mitigate against climate change, drawing on the United Nations Framework Convention on Climate Change (UNFCC) efforts .

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

YEAR TWO

COMPULSORY MODULES

KEY SKILLS FOR ENVIRONMENTAL DATA ANALYSIS (ENVS202)

Credits: 15 / Semester: semester 1

The module provides a generic training in manipulating environmental datasets 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 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 staff's 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. The module is assessed by both coursework and a short final exam.

MARINE ECOPHYSIOLOGY, ECOLOGY AND EXPLOITATION (ENVS251)

Credits: 15 / Semester: semester 2

The marine environment presents a particular set of challenges for the organisms which inhabit it and these conditions are constantly changing as a result of human interventions. This module will provide a solid grounding in a number of topics, concepts and issues in the marine environment relating to the physiology and ecology of marine organisms and how they are affected by the activities of humans. Module content will be delivered primarily through interactive lectures supported by computer-based practical exercises and assessed by examination and coursework. Students will be guided to specific sections of textbooks, online resources and scientific papers to shape their learning.

MARINE POLLUTION (ENVS232)

Credits: 15 / Semester: semester 2

Students are taught how marine systems are changing due to globally increasing water 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 affecting coastal and open ocean waters are covered. Students will gain an understanding of the causes and processes that drive marine pollution issues as well as techniques used to monitor, remediate and/or regulate those issues. Assessment is done through group work, coursework and a final in-person exam.

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, and the measurement of biogeochemical parameters such as nutrients, phytoplankton and dissolved oxygen. Students are taught 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), and computer laboratories develop skills in sensor calibration, data quality control and data analysis. The module components are all relevant to the subsequent planning and sampling as part of the ENVS349 Sea Practical. Assessment is by two pieces of coursework.

RESEARCH AND CAREER SKILLS (ENVS204)

Credits: 15 / Semester: semester 3

This module aims to develop research and careers skills required by marine biologists, ocean scientists and environmental scientists as they prepare for their final year of study. These aims are achieved through blended learning approach including: interactive tutorials, workshops, and the School of Environmental Sciences careers week. Students will focus on developing skills in critiquing and reading the scientific literature, assessed through a literature review essay. Students will also be introduced to the process of scientific research, learning how to analyse and synthesise real scientific data, create professional display items and write a research report, which is assessed, in standard scientific format. Students will develop knowledge of careers in their field and enhance their employability taking part in an assessment centre exercise and job video interview, which is assessed.

OCEANOGRAPHY, PLANKTON AND CLIMATE (ENVS245)

Credits: 15 / Semester: semester 1

The ocean is a vital part of how Earth's climate works, absorbing, storing and transporting heat and carbon dioxide from the atmosphere. Microscopic plants and animals in the ocean, known as the plankton, are key to how the ocean works in Earth's climate system. From the tropics to the poles, we will look at how the ocean currents and tides are formed and how they control where and how much the plankton grow. Larger plankton are better at removing carbon from the atmosphere to the ocean depths, and we will consider why some regions of the ocean are better at supporting the plankton communities that are most efficient at removing atmospheric carbon dioxide. Processes that we will investigate include the formation of the major ocean gyres and tides, the effects of seasons and weather and how these change at different latitudes, oxygen and carbon dioxide exchange between the atmosphere and ocean and the fate of these gases in the sea, the sources of light and nutrients that the plankton need, and the importance of seasonal stratification and turbulence in controlling how and where the plankton can grow. You will learn how to analyse and report on ocean data that we have collected in our research, from the sub-tropical Atlantic to the polar seas. You will use simple computer simulations to investigate how the growth of plankton might change as our climate heats up. We will take a multidisciplinary approach to learning about the ocean, plankton and climate. Whatever your scientific background, we will provide you with the key knowledge of ocean biology, chemistry and physics that you need to understand why a planet needs an ocean in order to support a stable climate. Our teaching uses a combination of lectures, workshops and data analysis laboratories. The module is assessed by 3 pieces of coursework: analysis of data that we have collected during our research expeditions, use of a computer simulation to investigate plankton growth in a warmer climate, and a final quiz to test your knowledge of key concepts.

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.

CLIMATOLOGY (ENVS231)

Credits: 15 / Semester: semester 2

Understanding global climate systems is a key challenge for the coming century. However, these are complex systems which we continue to learn more about as research develops. This module covers a variety of topics which will develop students' ability to understand these systems. Topics include 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. The module has a balance between theory, processes, impacts, and hands-on experimentation and data analysis.

GEOMORPHOLOGY: ICE, SEA AND AIR (ENVS252)

Credits: 15 / Semester: semester 2

The module explores the basic processes that have helped shape landforms across the world. Module is predominantly focused on glacial, aeolian, and coastal landforms. The module is divided into four components, each composed of four sessions. The module starts with an introduction to how geomorphic processes operate and forces that influence geomorphic change. This includes the magnitude and frequency of events, as well as the time and space scales over which the processes operate, covering glacial, aeolian and coastal geomorphology. The module is delivered through weekly in-person lectures, two days of fieldwork and a formative GIS practical. It is assessed through two pieces of coursework based on the field work and a written exam.

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.

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

YEAR THREE

COMPULSORY MODULES

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. Students will see how carbon is partitioned between the atmosphere, land and ocean in the contemporary and past Earth system, understand how the ocean stores 50 times more carbon than the atmosphere, and consider the impact of increasing carbon dioxide on the organisms living on land and in the ocean. Teaching is through lectures, workshops focusing on key components of the carbon cycle, and guided reading. Assessment is by two pieces of coursework.

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 research topics within Ocean and Climate Sciences. It also aims to develop generic skills such as team working and communication skills. The module considers recent reports such as the IPCC (Intergovernmental Panel on Climate Change) and the associated 2019 SROCC (Special Report on Oceans and Cryosphere in a Changing Climate), with students working with one of the lead IPCC authors based in Liverpool. Students will also attend the bi-weekly Ocean and Climate Sciences research seminars that are given by invited national and international experts on a range of subjects related to the marine and climate system. Assessment is by individual oral presentations by students presenting what they have learnt from recent research papers of particular interest to them, and a group presentation on a research topic of current importance (e.g. as highlighted in the latest SROCC report). A final in-person exam is focused around a recent high-impact scientific paper provided to the students.

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 and an essay.

SEA PRACTICAL (ENVS349)

Credits: 30 / Semester: semester 1

Measurements made at sea are a key activity in oceanographic research. This module introduces the collection of data and samples including navigation, meteorological parameters, temperature and salinity, currents, dissolved oxygen, nutrients, chlorophyll and plankton. We will use the Field Studies Council Site at Millport in Scotland, where students will gain experience of sampling at sea and use skills developed in the second year to calibrate and analyse their data. Laboratory work, analysing water samples for nutrients and plankton, will take place in Millport and in the Central Teaching Laboratories in Liverpool. The Sea Practical introduces students to the way in which professional ocean scientists work in both research and commercial surveying. 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. Research integrity is an integral component of this module. The module is assessed by a group presentation on components of the data analysis and quality, a record and laboratory book, and a scientific report/paper addressing a key question arising from the data collected off Millport.

INDEPENDENT RESEARCH PROJECT (ENVS306)

Credits: 30 / Semester: semester 3

This module consists of a two-semester dissertation research project, carried out individually by a student with supervision by a member of academic staff. Projects can be field-, laboratory- or desk-based studies on a predefined project and the student will learn about project design, data collection, analysis and interpretation of results.

OPTIONAL MODULES

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 and mitigation measures. Topics will be investigated through a combination of lectures, 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

This module looks at the cycling of carbon and greenhouse gases, and how their emissions drive climatic warming, via a range of different topics. These include ecosystems (e.g. peatlands, freshwaters), societal change (e.g. how did Covid 19 affect carbon emissions?), greenhouse gas accounting and policy (e.g. Net Zero, Representative Concentration Pathways), and Negative Emissions Technologies (e.g. enhanced weathering, direct air capture). By drawing together this diverse range of topics the module will equip students with a broad knowledge of why the climate is warming, and how this warming might be reversed. 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. Students 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.

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, to think critically and to study independently.

A number of the School’s degree programmes involve laboratory and field work. The field work 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 notebooks, oral and poster presentations and contributions to group projects. Coursework is designed around the types of problems encountered, and the skills needed, in commercial, research and public sector jobs. Emphasis is placed on good laboratory practice and maintaining useful lab notebooks in the context of scientific integrity and scientific data management.

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

Our degree programmes are designed to provide you with the skills to tackle these global environmental challenges.

After completing this course, the employability options are extensive and include:

- Government agencies (Environment Agency, Met Office)
- Environmental consultancy and management
- Climate research
- Accountancy and insurance brokers
- Education
- Renewable energy industries

89.5% **OF ENVIRONMENTAL SCIENCES STUDENTS ARE IN WORK AND/OR FURTHER STUDY 15 MONTHS AFTER GRADUATION.**

Discover Uni, 2018-19.

Fees and funding

Your tuition fees, funding your studies, and other costs to consider.

TUITION FEES

UK fees (applies to Channel Islands, Isle of Man and Republic of Ireland)	
Full-time place, per year	£9,250
Year in industry fee	£1,850
Year abroad fee	£1,385

International fees	
Full-time place, per year	£27,200
Year abroad fee	£13,600

Fees shown are for the academic year 2024/25. Please note that the Year Abroad fee also applies to the Year in China.

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 paying for your studies.

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 that could help pay your tuition and living expenses.

We've set the country or region your qualifications are from as United Kingdom. Change it here

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RIGBY ENTERPRISE AWARD

- Home students

Are you a UK student with a household income of £25,000 or less? If you've participated in an eligible outreach programme, you could be eligible to apply for a Rigby Enterprise Award worth £5,000 per year for three years of your undergraduate degree.

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THE LIVERPOOL BURSARY

- Home students

If you're a UK student joining an undergraduate degree and have a household income below £35,000, you could be eligible for a Liverpool Bursary worth up to £2,000 for each year of undergraduate study.

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ASYLUM SEEKERS SCHOLARSHIP

- Home students

Apply for an Asylum Seekers Scholarship and you could have your tuition fees paid in full and receive help with study costs. You'll need to have applied for asylum in the UK, or be the dependant of an asylum seeker, and be joining an eligible undergraduate degree.

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CARE LEAVERS' OPPORTUNITY BURSARY

- Home students

If you've spent 13 or more weeks in Local Authority care since age 14, you could be eligible for a bursary of £3,000 per year of study. You'll need to be a UK student joining an eligible undergraduate degree and be aged 28 or above on 1 September in the year you start.

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COWRIE FOUNDATION SCHOLARSHIP

- Home students

Are you a UK student with a Black African or Caribbean heritage and a household income of £25,000 or less? You could be eligible to apply for a Cowrie Foundation Scholarship worth up to £8,000 for each year of undergraduate study.

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ESTRANGED STUDENTS BURSARY

- Home students

If you're a UK student identified as estranged by Student Finance England (or the equivalent UK funding body), you could be eligible for a bursary of £1,000 for each year of

undergraduate study.

- ## GENESYS LIFE SCIENCES SCHOLARSHIP

  - Home students

Joining a School of Biosciences degree and have a household income of less than £25,000? If you're a UK student, you could apply to receive £4,500 per year for three years of your undergraduate course.

- ## GRADUATE ASSOCIATION HONG KONG & TUNG UNDERGRADUATE SCHOLARSHIPS

  - International students
  - Hong Kong

If you're an undergraduate student from Hong Kong who can demonstrate academic excellence, you may be eligible to apply for a scholarship worth £10,000 in partnership with the Tung Foundation.

- ## NOLAN SCHOLARSHIPS

  - Home students

Do you live in the Liverpool City Region with a household income of £25,000 or less? Did neither of your parents attend University? You could be eligible to apply for a Nolan Scholarship worth £5,000 per year for three years of undergraduate study.

- ## ROLABOTIC SCHOLARSHIP

  - Home students

Are you a UK student with a household income of £25,000 or less? Did neither of your parents attend University? You could be eligible to apply for a ROLABOTIC Scholarship worth £4,500 for each year of your undergraduate degree.

- ## SPORT LIVERPOOL PERFORMANCE PROGRAMME

  - Home and international students

Apply to receive tailored training support to enhance your sporting performance. Our athlete support package includes a range of benefits, from bespoke strength and conditioning training to physiotherapy sessions and one-to-one nutritional advice.

- ## TECHNETIX BROADHURST ENGINEERING SCHOLARSHIP

  - Home students

Joining a degree in the School of Electrical Engineering, Electronics and Computer Science? If you're a UK student with household income below £25,000, you could be eligible to apply for £5,000 a year for three years of study. Two awards will be available per academic year.

- ## UNDERGRADUATE GLOBAL ADVANCEMENT SCHOLARSHIP
  - International students

If you're a high-achieving international student starting an undergraduate degree with us from September 2024, you could be eligible to receive a fee discount of up to £5,000. You'll need to achieve grades equivalent to AAA in A levels and be joining a non-clinical degree.

- ## UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE EXCELLENCE SCHOLARSHIP
  - International students

Completed a Foundation Certificate at University of Liverpool International College (UoLIC)? We're offering a £5,000 fee discount off the first year of undergraduate study to some of the highest achieving students joining one of our non-clinical degrees from UoLIC.

- ## UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE FIRST CLASS SCHOLARSHIP
  - International students

We're offering a £1,000 fee discount for years 2 and 3 of undergraduate study to eligible students progressing from University of Liverpool International College. You'll need to be studying a non-clinical subject and get an average of 70% or above in year 1 of your degree.

- ## UNIVERSITY OF LIVERPOOL INTERNATIONAL COLLEGE IMPACT PROGRESSION SCHOLARSHIPS
  - International students

If you're a University of Liverpool International College student awarded a Kaplan Impact Scholarship, we'll also consider you for an Impact Progression Scholarship. If selected, you'll receive a £3,000 fee discount off the first year of your undergraduate degree.

- ## YOUNG ADULT CARER'S (YAC) BURSARY
  - Home students

If you're a young adult and a registered carer in the UK, you might be eligible for a £1,000 bursary for each year of study. You'll need to be aged 18-25 on 1 September in the year you start your undergraduate degree.

Entry requirements

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

Your qualification	**Requirements** About our typical entry requirements
A levels	ABB Applicants with the Extended Project Qualification (EPQ) are eligible for a reduction in grade requirements. For this course, the offer is **BBB** with **A** in the EPQ. You may automatically qualify for reduced entry requirements through our contextual offers scheme. 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 (4 year route including a Foundation Year at Carmel College) BSc (Hons) • Chemical Sciences BSc (Hons) (4 year route including a Foundation Year at Carmel College) BSc (Hons)
GCSE	4/C in English and 4/C in Mathematics
Subject requirements	For applicants from England: For science A levels that include the separately graded practical endorsement, a "Pass" is required.
BTEC Level 3 National Extended Diploma	D*DD in relevant diploma
International Baccalaureate	33 points, including grade 5 at Higher Level in two science subjects (see subject specific requirements), no score below 4

Your qualification	Requirements About our typical entry requirements
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
International qualifications	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.

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.