Marine Biology with Oceanography
BSc (Hons)

COURSE DETAILS
- A level requirements: ABB
- UCAS code: C1F7
- Study mode: Full-time
- Length: 3 years

INTRODUCTION
Life first emerged in the ocean and has spread throughout this dynamic environment. The distribution, growth and success of marine organisms is affected by the interaction of biological, chemical and physical processes operating in the ocean.

You will discover how individuals, populations and communities respond to environmental drivers such as temperature and food availability, as well as to the challenges presented by a changing climate and human interaction. You will also gain the varied skills necessary to examine the marine environment and relay your findings to audiences from the general public through to government bodies.

You will study the interaction between the biology of marine organisms, the composition and properties of seawater and the physical processes operating in the oceans.

There is a strong emphasis on marine sustainability and ecosystem management, marine biogeochemistry, the climate system and numerical skills.

Training at sea, in the field, and in the laboratory in years one, two and three will provide you with the essential skills required to be a successful marine scientist including practical experience of data collection and processing, analysis and interpretation.

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**

- Evolutionary processes
- Laboratory and field techniques
- Diversity of life in the marine environment
- Human threats to ecosystems
- Quantitative skills
- Coastal biodiversity
- Analysis of environmental data
- Conducting independent research

**ACCREDITATION**

Our degree is one of only a handful in the UK to be accredited by the Institute of Marine Engineering, Science and Technology (IMAREST), opening up opportunities for students and graduates of our programmes.
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 sciences and marine biology, as well as developing essential and transferrable skills. Optional modules are available in biology and ecology. There are fieldwork opportunities in ocean sciences and marine biology in year one.

ENVS117 is a compulsory module for those without A level Maths or similar. Students with Aevel Maths must choose either ENVS117 or PHYS107.

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. Students gain quantitative skills by completing a series of coursework exercises. Students address the Net Zero carbon goal via group work involving digital storytelling.

LABORATORY AND FIELD TECHNIQUES FOR ECOLOGISTS (ENVS171)

Credits: 15 / Semester: semester 2
This varied practical module will provide training in a range of ecological skills in a series of field exercises, either in person, or through online equivalent exercises, as necessary. You will experience a range of ecological environments and learn to develop identification and sampling skills for both terrestrial and marine animals and plants. The skills used will have a wide application to many fields of environmental science including biology, ecology and physical geography. You will learn quantitative skills in field ecology and use these to solve fundamental and applied problems. Assessments include a mix of MCQ tests and practical portfolios.

LIFE IN THE SEAS AND OCEANS (ENVS121)

Credits: 15 / Semester: semester 1
The seas and oceans cover 71% of the Earth's surface, with an average depth of 3.6 km and a volume of >1 billion cubic kilometres, the seas and oceans represent around 99% of planet Earth's living space. Around 50-80% of all life on Earth is found in the oceans, with an estimated 240,000 species. As we have only explored around 10% of the oceans, more species and ways of life are still being discovered.

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 series of E-lectures. During a series of workshops and practicals you will have the opportunity to examine marine organisms in our award winning teaching facilities and explore some of the diverse adaptations marine organisms have adopted in order to meet the challenge of survival in the marine environment. Your knowledge and understanding will be assessed via open-book online tests, a group project and an individual project.

**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 anthropocene.

**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 and how to use a bibliographic software. Tutorials with an assigned individual tutor take place in groups of typically 6-7 students, typically once every 2 weeks.

**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.

**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. Teaching will be delivered through lectures, tutorial sessions and on-line formative quiz with automated feedback. The tutorial session consists in a set of formative exercises with the presence of demonstrator for facilitate individual learning. The module also include revision sessions (run by demonstrators and staff) as well as revision sessions run by Year 2 and/or Year 3 students who have done this module previously. Assessment is done through 3 on-line tests and a final in-person open book exam.

**EVOLUTION (LIFE103)**

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

This module describes the evolutionary processes that have resulted in the generation of the diverse life forms that populate the planet.

This includes the theory of evolution by natural selection, and the genetic processes that result in gene evolution and diversity.

Selected scenarios and case studies will apply evolutionary concepts, showing the fundamental importance of evolution to a broad range of the life sciences.

The module is split into two parts: the first part (A) is the same for all students, the second part (B) contains a number of parallel strands tailored to students interest.

Students will be advised by their programme director which strand to follow.

The lectures will be supplemented with a variety of on-line resources.

Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module.
The module will be assessed by continuous assessments.

**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.

**QUANTITATIVE SKILLS FOR ECOLOGY AND MARINE BIOLOGY (ENVS128)**

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

This module will help students to develop the quantitative skills needed for ecology, marine biology and related subjects, including basic mathematics, statistics and computing. It will be delivered via a series of lectures, practical classes and problem-solving sessions. No mathematical knowledge above GCSE level will be assumed. The module will be assessed through a combination of continuous assessment and a written exam.

**MOLECULES AND CELLS (LIFE101)**

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

This module describes the detailed composition of cells and the processes by which they obtain and generate energy, grow, replicate and eventually die. The lectures will be supplemented with on-line resources and illustrated with some of the latest research methods that are used to study cell structure and function. Students will be given guided reading, and regular formative assessment exercises will enable students to evaluate their understanding of the module. The module will be assessed by both continuous assessments and by a final examination.

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

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**YEAR TWO**

In year two, there is an emphasis on the development of practical, analytical and numerical skills through training in fieldwork, laboratory skills and practical oceanography. There is an opportunity for students to be trained in the industry standard software used in ocean sciences,
Matlab, or R software used in much of the biological sciences. There are fieldwork opportunities in ocean sciences and marine biology in year two.

COMPULSORY MODULES

STUDYING UK COASTAL MARINE BIODIVERSITY (ENVS241)

Credits: 15 / Semester: semester 1

This module is a fieldwork based module which will be co-taught with the Marine Biological Society of the UK in Devon prior to the start of semester one. The MBA is the UK’s learned society for Marine Biologists and we are delighted that experts from the MBA will be teaching on this module. Students will learn about the diversity of coastal marine taxa sampled at sea, how you sample them and identify them, and research more detail on the species found. This will include information on their distribution, taxonomy, habitats and key features. Students will learn how to research and produce an accessible guide (as part of a team) that can be used by the public to learn about a whole group of common UK fauna, this forms part of the assessment. In addition students will sit an open book online examination covering the materials taught on the field course.

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 (55%) and coursework (45%). 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

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.

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.

**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, students will focus on developing skills in critiquing and reading the scientific literature. Lectures, workshops and tutorials will guide students in developing these skills. This will be assessed through a literature review essay. In the second half of semester one students will be introduced to the process of scientific research through a series of lectures, workshops and tutorials, this will continue in semester two.

In semester two students will continue to learn about scientific research and 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. Students will be supported through this via a series of lectures, workshops and tutorials.

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.

**UNDERSTANDING MARINE AND TERRESTRIAL SPATIAL ECOLOGY USING GIS (ENVS255)**

*Credits: 15 / Semester: semester 2*

This module explores the concepts and applications of Geographical Information Systems (GIS) to solve contemporary questions in spatial ecology. The module involves applied case studies and practical work designed to develop both an understanding of GIS principles and concepts, such as data acquisition, integration and spatial analyses, and its application to analyse and understand 2D and 3D spatial data.
Programme details and modules listed are illustrative only and subject to change.

**YEAR THREE**

In year three, there is an emphasis on the development of skills in research and critical analysis through the independent research project and tutorials covering current hot topics in ocean and climate sciences. Students are introduced to the fundamentals of the global carbon cycle and select options to suite their interests in either marine biology or ocean sciences. There are fieldwork opportunities in ocean sciences and marine biology in 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. 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.

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 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. 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, (2) a record and laboratory book and (3) a scientific report/paper addressing a key question. 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. Research integrity is an integral component of this module.

INDEPENDENT RESEARCH PROJECT (ENVS306)
Credits: 30 / Semester: whole session

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

MARINE ECOLOGY: THEORY AND APPLICATIONS (ENVS383)
Credits: 15 / Semester: semester 2

This module develops the connections between ecological theory and management of marine communities and ecosystems. The theory will mainly focus on mathematical models of the dynamics of populations and communities, and will include practical work with software. The second half of the module aims to give a rounded overview of the current understanding of vulnerability of marine taxa to human activities and climate change, and enable students to evaluate consequences of loss of species on ecosystem structure and functioning, as well as on human wellbeing.
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%).

SURVIVING THE MARINE ENVIRONMENT: ADAPTATION, BEHAVIOUR AND CONSERVATION (ENVS310)

Credits: 15 / Semester: semester 1

This module aims to foster a broad understanding of contemporary theory in behavioural ecology, evolutionary biology and ecophysiology, with special reference to the marine environment. We will consider processes that operate at scales from individuals to populations and consider implications of these processes for the conservation of marine species and ecosystems. This 15 credit module builds on knowledge acquired about techniques, theory and processes acquired in Year 1 (e.g. Marine Biology: Life in the Seas and Oceans & Marine Ecosystems: Diversity Processes & Threats) and Year 2 (e.g. Marine Ecophysiology, Ecology & Exploitation) and provides the opportunity to experience the integration of current research themes in marine biology.

CONTEMPORARY ISSUES IN ECOLOGY AND MARINE BIOLOGY (ENVS301)

Credits: 15 / Semester: whole session

This module aims to develop a number of skills, attributes and experiences required by graduates in ecology and marine biology with a focus on careers, an appreciation of the current state of their field and an international perspective. This is achieved through a programme of interactive tutorials and associated activities, directed via the virtual learning environment. In doing so, students will engage with up to date research and scientific communication in the fields of ecology, conservation, biodiversity and marine biology. To complement this, students will undertake a series of activities to boost their employability, tailored to their specific needs, to prepare students for life after graduation.

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 topic 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:
- Presentation of the IPCC (Intergovernmental Panel on Climate Change) and the 2019 SROCC (Special Report on Oceans and Cryosphere in a Changing Climate) with one of the lead author, Prof. A. Tagliabue;
- Weekly Ocean Sciences research seminars that are given by international experts on a range of subject (physical, chemical and/or biological) related to the marine system, in the past, currently and/or in the future;
- Individual oral presentations by students of recent research papers or research topic of particular interest to them;
- Group presentations (typically 3 to 4 students per group) on a research topic of current importance (e.g. as highlighted in the latest SROCC report).

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.

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.

Programme details and modules listed are illustrative only and subject to change.
HOW YOU’LL LEARN

Teaching strategies include a mix of lectures, tutorials, workshops, field classes, research vessel cruises, laboratory work, computer sessions, group projects and individual work under supervision. You will typically receive around 15 hours of formal teaching each week, as well as about 60 hours on residential field courses each year. You will study four modules per semester. A module might involve two one-hour lectures each week, and a laboratory or computer-based practical as well. Tutorials are an integral part of our approach, involving groups of 5–7 students meeting regularly with a member of academic staff to discuss study skills, careers, current research and topical issues.

As you progress through your degree, you are increasingly challenged to engage with current debates, to think critically and to study independently. You will do an ‘Honours Project’ throughout year three, which is a piece of independent research (field, lab or data analysis) on a topic of your choice, supervised by a member of academic staff. If you opt for the four-year integrated master’s programmes, you will spend 50% of your final year on a master’s project working closely within a research group on an area which may well generate publishable results.

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

We produce highly employable marine biologists, trained in industry-relevant skills and modern equipment and software, and who can apply their knowledge to a wide range of fields including conservation, aquaculture, pollution and environmental monitoring.

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

Discover Uni, 2018-19.

Our graduates have a diverse range of careers in the following areas which include: the media, environmental consultancy, administration, academia, teaching, local and national government and international banking. Examples of recent graduate careers in the sector include: fisheries observers, surveyor, seabird research assistant, turtle conservation field leader, field assistant on mammal surveys, rangers and conducting environmental surveys for construction work. Many choose to continue their studies at master’s or PhD level on topics such as fish assemblages in mangroves, marine ecosystem responses to climate change and carbon sequestration in soils.

RECENT EMPLOYERS

- Joint Nature Conservation Committee (JNCC)
- United Utilities
- Fairbanks Environmental
- Wildlife Sense
- Earth and Marine Environmental Consultants
- International Pole and Line Foundation

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.

<table>
<thead>
<tr>
<th>UK fees</th>
<th>Also applies to Channel Islands, Isle of Man and Republic of Ireland</th>
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<tbody>
<tr>
<td>Full-time place, per year</td>
<td>£9,250</td>
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<tr>
<td>Year in industry fee</td>
<td>£1,850</td>
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<td>Year abroad fee</td>
<td>£1,385</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 2023-24 academic year.

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.

<table>
<thead>
<tr>
<th>Your qualification</th>
<th>Requirements</th>
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<tbody>
<tr>
<td><strong>About our typical entry requirements</strong></td>
<td></td>
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</table>
| **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.** | **route including a Foundation Year at Carmel College**  
**Biological Sciences (with a Foundation Year) leading to BSc (Hons)** |
<p>| <strong>GCSE</strong> | <strong>4/C in English and 4/C in Mathematics</strong> |</p>
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<th>Your qualification</th>
<th>Requirements</th>
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<tr>
<td>Subject requirements</td>
<td>Including Biology and one other science. Acceptable sciences: Mathematics, Further Mathematics, Physics, Chemistry, Geology, Geography, Applied Science (Double Award), Environmental Science/Studies*, Economics, Computer Science. *Not in combination with each other For applicants from England: For science A levels that include the separately graded practical endorsement, a &quot;Pass&quot; is required.</td>
</tr>
<tr>
<td>BTEC Level 3 National Extended Diploma</td>
<td>D*DD in relevant diploma</td>
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<tr>
<td>International Baccalaureate</td>
<td>33 points including 5 at Higher Level in Biology and one other science, no score below 4.</td>
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<tr>
<td>Irish Leaving Certificate</td>
<td>H1, H2, H2, H2, H3, H3 including H2 or above in Biology and a second science</td>
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<tr>
<td>Scottish Higher/Advanced Higher</td>
<td>Not accepted without Advanced Highers at ABB including Biology and 1 other science</td>
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<tr>
<td>Welsh Baccalaureate Advanced</td>
<td>Accepted at Grade B with AB at A levels including Biology and 1 other science</td>
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<tr>
<td>Access</td>
<td>45 Level 3 credits in graded units in a relevant Diploma, including 30 at Distinction and a further 15 with at least Merit. 15 Distinctions are required in each of Biology and a second science. GCSE Mathematics and English at grade C/4 also required.</td>
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### Your qualification

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<tr>
<th>Requirements</th>
<th>About our typical entry requirements</th>
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### 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.

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THE ORIGINAL

REDBRICK

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