

Geology with Physical Geography BSc (Hons)

COURSE DETAILS

- A level requirements: [ABB](#)
- UCAS code: F6F8
- Study mode: Full-time
- Length: 3 years

KEY DATES

- Apply by: [29 January 2025](#)
- Starts: 22 September 2025

Course overview

The Earth surface system is dynamic and diverse, with changes driven by the interplay of physical, chemical, geological and biological processes in a wide range of environments. Drawing on the complementary expertise of staff in geology and physical geography, this integrated degree programme provides a clear view of the controlling processes that link landscape evolution with environmental change and natural events that impact human activity.

INTRODUCTION

You'll be taught by research active staff, at the forefront of their chosen fields, learning about cutting-edge science before it appears in textbooks. You'll also have the opportunity to undertake project work within the Department's research groups.

Your training will include the comprehensive study of surface and near-surface processes, relevant to many industrial, engineering and environmental employment sectors. Years one and two cover a wide range of geological and physical geography topics, allowing for greater choice in the final year.

Fieldwork in years two and three at Liverpool is designed specifically for this degree programme integrating geology and geomorphology where you will have academic tutors from both disciplines.

A research-based dissertation is undertaken in year three on a geological and/or geomorphological topic.

A two-week field class to South Eastern Spain in year three has been designed exclusively for Geology with Physical Geography students, integrating all aspects of the degree.

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

- The comprehensive study of sub-surface and near-surface processes
 - Specific practical skills necessary for a career in Earth Sciences
 - Transferable life skills and independent thinking
 - Nine to ten days of fieldwork in year one
 - 11 days of fieldwork in year two
 - Eight days of fieldwork in year three.
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ACCREDITATION

This degree is accredited by the Geological Society of London, satisfying the requirements of Fellowship and Chartered Geologist status.

Course content

Discover what you'll learn, what you'll study, and how you'll be taught and assessed.

YEAR ONE

In year one, you will take seven compulsory modules and one optional module as outlined below.

Fieldwork involves:

- 1 day in North England (October)
- 8 days in Pembrokeshire (Easter).

ENVS117 is required for students without A2 Maths or Physics or equivalent from a Foundation year. You must discuss this with your Programme Director at the start of the academic session.

COMPULSORY MODULES

EXPERIMENTS IN PHYSICAL GEOGRAPHY (ENVS120)

Credits: 15 / Semester: semester 1

The module uses laboratory experiments to allow students to gain first-hand 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 (one poster per group). However, perhaps most valuable is the feedback obtained informally via discussions during the sessions.

INTRODUCTION TO FIELD GEOLOGY (ENVS109)

Credits: 15 / Semester: semester 2

This field module provides a basic training in field techniques and gives students practical experience working with a wide range of rock types and tectonic structures to solve geological problems. Students gain experience in recording field data and use their own data to interpret geological processes and environments. The module is assessed by means of an individual fieldwork portfolio and a group synthesis poster completed after the field class.

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.

INTRODUCTION TO STRUCTURAL GEOLOGY AND GEOLOGICAL MAPS (ENVS156)

Credits: 15 / Semester: semester 2

This module introduces key subjects within Earth Sciences: Structural Geology and Geological Mapping. In this module you will be introduced to geological structures from the micro to the mountain scale, and receive training in the geometrical techniques used to document and analyse them. You will also learn the basic principles of stress and strain which underpin a number of advanced Earth Science subjects and skills used in industry and research. Finally, the module will provide training in how to read and understand geological maps, train your 3D visualisation skills by learning how to create geological cross-sections from maps, and how to stereographically plot 3D geological data. A combination of virtual lectures, tutorials, and directed reading will help you navigate this course. You will be assessed on the development of your practical skills through an open book practical exam and an individual research paper on a topic in structural geology.

STUDY SKILLS AND GIS (EARTH SCIENCE) (ENVS101)

Credits: 15 / Semester: whole session

This module introduces students to the key skills necessary to succeed on a University Earth Science course. It does this via a series of lectures, workshops and tutorials, together with a geology fieldwork day and attendance at departmental seminars and talks. The lectures, towards the start of the first semester, cover academic integrity, exam skills, employability and 2D/3D visualisation. Tailored workshops cover Geographical Information Systems (GIS), Word, Excel and programming skills. Small-group (typically 4 to 8 students) tutorials are run by academic staff and cover essay writing (including assessment), careers and employability. Academic tutors undertake personal development planning (careers and module selection advice) with each tutee.

THEORY AND LABORATORY EXPERIMENTS IN EARTH SURFACES 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 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.

EARTH MATERIALS (ENVS185)

Credits: 15 / Semester: semester 1

This module will introduce and develop understanding of rock-forming minerals and critical raw materials in terms of their environments of formation, occurrence, and abundance. The module will focus on exploring the uses and societal significance of a range of Earth materials, especially those critical to sustainable and renewable energy resources and various societal infrastructure. The key practical skills of mineral description, identification and interpretation will be developed and applied throughout the module to equip students with appropriate skills for many later geoscience modules and for future employment.

OPTIONAL MODULES

EARTH STRUCTURE AND PLATE TECTONICS (ENVS112)

Credits: 15 / Semester: semester 2

This module provides an introduction to the Earth and aims to teach students about the structure and composition of the Earth, the Earth's gravitational and magnetic fields, and dynamics within the deep Earth; the physics of Earth material and the geological time scale; and plate tectonics. The course is delivered through a combination of lectures and practicals. Students are assessed through a combination of coursework and a final exam.

LIVING WITH ENVIRONMENTAL CHANGE (ENVS119)

Credits: 15 / Semester: semester 1

This module examines a number of global 'grand challenges' facing humans on the planet earth related to climate and environmental change. It will introduce students to core concepts of sustainability and human impacts upon the environment, as well as exploring the range of proposed solutions and mitigation strategies which are available to understand climate and environmental change. The module thus provides a core knowledge base for social and natural scientists who wish to understand environmental change.

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 through online pop-quizzes and a formal written exam.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

YEAR TWO

In year two, you will take the following compulsory modules and two optional modules as outlined below.

Fieldwork involves:

- 15 days in Scotland (Easter)
- 3 days in NW England/Wales
- 9 days in North Yorkshire.

COMPULSORY MODULES

APPLIED GEOPHYSICS (ENVS216)

Credits: 15 / Semester: semester 1

This module provides an introduction to the principles and application of all the main geophysical methods used for exploration purposes. These methods include seismic refraction, seismic reflection, electrical methods, ground penetrating radar, gravity and magnetics. Case studies will be used to highlight the application of these methods at a range of scales from shallow to deep to small to large, highlighting their uses within archaeology, engineering and geology. The module concludes with a synthesis of methods and how to approach site investigation. The module is delivered through lectures and problem sessions and is based on continuous assessment from set homework assignments or problem sheets and a final exam.

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.

RESEARCH SKILLS (EARTH SCIENCE) (ENVS200)

Credits: 15 / Semester: whole session

This module introduces and develops a range of skills that are central to the research process and for employment after graduation. The module provides students with the research skills they will need to complete Year 3 dissertation projects. The syllabus is delivered via tutorial sessions and a lecture/workshop series. The tutorials provide a learning environment to support students in discussing key issues and in developing important professional skills. The lecture/workshop series covers IT-related skills needed for writing and illustrating reports, graphically representing geospatial data, consistently citing and referencing data sources, as well as aspects of project planning and risk assessment. Assessment is coursework-based and comprises an oral presentation, a report/literature review, a poster displaying geological/geophysical geospatial data, and a project plan (Gantt chart).

SEDIMENTARY PROCESSES AND DEPOSITIONAL ENVIRONMENTS (ENVS219)

Credits: 15 / Semester: semester 1

Sedimentary successions are the only archive from which we can accurately decode the Earth's past. Using physical, chemical and biological information we can reconstruct past climates, tectonics and depositional environments. This module teaches the fundamental principles of interpreting sedimentary stratigraphy and develops students' abilities to recognise sedimentary textures and use them to interpret ancient depositional environments.

FIELD MAPPING TECHNIQUES (ENVS293)

Credits: 15 / Semester: semester 2

This module is a combination of on-campus workshops followed by a residential field class in which students learn various techniques required to characterise the 3D geological and geomorphological evolution of an area. Training entails mapping of geological and geomorphological features at different scales, training in methods for acquiring a variety of field data, and guidance for synthesising and interpreting field datasets. Training is designed to develop abilities to visualise geology and geomorphology in 3D, and to analyse and synthesise discrete observations to build a full four-dimensional model of the geological history of an area from their own measured data. Such fieldskills and data-handling and data synthesis skills are highly regarded and often sought for by geoscience employers. This module also provides the students with skills required for final year independent field-based research projects. Exercises will encourage increasingly independent work as students' skills develop. Group work develops students' ability to work effectively in a team.

EARTH AND ENVIRONMENTAL DATA SCIENCE (ENVS229)

Credits: 15 / Semester: semester 2

This module introduces students to fundamentals of Earth and environmental data science. Students will become familiar with methods used to collate and computationally analyse a variety of Earth Science data. After introducing programming basics, students will then start to write code to analyse and simulate Earth processes that model their datasets. By the end of the module, students are expected to have a broad overview of the ways in which data science is applied in the study of the Earth and environment.

OPTIONAL MODULES

METAMORPHISM AND CRUSTAL EVOLUTION (ENVS212)

Credits: 15 / Semester: semester 2

Building on previous study of mineralogy, igneous and structural geology, this module provides students with a foundation in the subject of metamorphism. From how and why atoms move around to form new minerals, through the textures of metamorphic rocks in hand specimen and how to interpret them, to the large-scale plate tectonic phenomena that drive everything. Delivery involves a combination of interactive lectures and practical sessions. Practicals involve thin section work, hand specimen examination, calculations and the study of geological maps. Metamorphic geology plays a pivotal role in unravelling the story of the Caledonides of Britain and Ireland, as it does in unravelling the history of the entire Earth. Students are assessed during term in using practical skills (thin section drawing, calculations, use of various graphical and pictorial techniques) and through a final theory exam in knowledge and understanding of the subject.

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.

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.

SOILS, SLOPES AND THE ENVIRONMENT (ENVS238)

Credits: 15 / Semester: semester 2

The module is concerned with the fundamental properties and characteristics of slopes and soils, and their relationship with the environment. Through a combination of theory and practical-led teaching, students will learn about slope and soil forming processes and evolution, and apply this knowledge to a number of pure and applied problems relating to slope and soil stability. The module is assessed through a combination of coursework (group report) and examination.

ENVIRONMENTAL GEOPHYSICS (ENVS258)

Credits: 15 / Semester: semester 2

This module builds on the theory taught in Applied Geophysics (ENVS216) by introducing practical experience, data analysis and interpretation of field data. The module will introduce the principles of environmental surveying using a range of geophysical techniques. Attention will be paid to how these different methods can be integrated to provide a thorough interpretation of survey data. The module will be assessed through writing a project proposal and a technical report.

STRUCTURAL GEOLOGY AND INTERPRETATION OF GEOLOGICAL MAPS (ENVS263)

Credits: 15 / Semester: semester 2

This module builds on the prerequisite module Introduction to Structural Geology and Geological Maps. While the module introduces additional structures, emphasis is placed on the spatial, kinematic and temporal relationships between geological structures. Strain and stress analysis are developed to a level such that they may be used, as appropriate, to explain the origins of selected geological structures. The module considers the geometries of a series of geological structures and stratigraphies displayed on geological maps and how they should be described and analysed with an emphasis on the interpretation of a geological map as an integrated whole. A combination of lectures, laboratory work and directed reading are used to deliver the module. Lectures will be supported by laboratory-based practicals. It will be assessed using a theory examination and a practical examination.

APPLIED ENVIRONMENTAL GEOSCIENCE (ENVS331)

Credits: 15 / Semester: semester 2

This module uses practical tasks analysing authentic and currently relevant professional datasets to consolidate, develop and apply fundamental geoscience skills that are key in the practice of applied environmental geoscience. The module also focuses on important transferable skills such as data analysis, data visualisation, and professional report preparation, all focused on maximising employability in the environmental geoscience sector.

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.

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.

VOLCANOLOGY AND GEOHAZARDS (ENVS284)

Credits: 15 / Semester: semester 1

This module comprises a series of lectures, seminars and practical classes to facilitate students constructing their own learning in the fields of volcanology and geohazards. Lectures and guided reading present the scientific, societal, economic and political aspects of volcanic hazards within the wider geohazard context. These themes are then explored further through illustrative case studies, guest seminars and practical exercises.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

YEAR THREE

In year three, students take the following compulsory modules, and five optional modules as outlined below.

Fieldwork involves:

- Optional number of field days (up to 28 days) to carry out independent field data collection as part of the final year Earth Science Project
- Eight days in the southern Spain
- Three to five days in NW England.

ENVS300 is a research project that can take place in the field, laboratory or a combination. If students choose a geological field mapping project, data in the field will take place in Summer between Years 2 and 3. If students choose a laboratory project, data can be collected in the summer between Years 2 and 3 and during Semester 1 of year 3. Report write up will take place in Semester 1 and 2.

COMPULSORY 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.

GEODYNAMICS OF THE MEDITERRANEAN (ENVS368)

Credits: 15 / Semester: semester 2

This unique module bridges the gap between geodynamics and crustal evolution (Geology) and Earth surface processes (Physical Geography) and provides a crucial perspective on how to combine these disciplines in the field. The field course itself will take place in southeast Spain but the concepts applied and skills used are transferable to other situations and localities. The module is delivered in the form of weekly seminars to provide sufficient background information prior to the field course. When in the field, several days will be spent providing students with the appropriate geological and geomorphological background to the area. This is then followed by assessed, student-led research projects and short field excursions.

EARTH SCIENCE PROJECT (ENVS300)

Credits: 30 / Semester: whole session

A pinnacle of your degree, this module will embed you within an active research group where you will undertake an individual and unique Earth Science research project over the course of an academic year. Under the supervision of an academic member of staff, you will plan and undertake an independent (field-, lab- or desk-based) research project in an area of Earth Science that interests you. In addition to developing specific and general research skills, you will gain invaluable experience in communicating your topic and findings in both oral and written formats.

OPTIONAL MODULES

GEOENERGY (ENVS337)

Credits: 15 / Semester: semester 1

Our pathway to a carbon neutral world relies upon our ability to develop new technologies and improve established technologies. Earth Scientists will play a major role in this energy revolution from sourcing raw materials for solar cells and batteries to sequestering carbon dioxide in rock units deep beneath the Earth's surface. This module provides a background to the GeoEnergy sector, with particular focus on fluid flow through geological structures and rock units. The broad aim of the module is to provide students with the appropriate level of knowledge and skillset to be able to evaluate and manage hydrocarbon reservoirs, including carbon dioxide sequestration, and geothermal systems.

CLIMATE CHANGE - A CRITICAL REVIEW (ENVS389)

Credits: 15 / Semester: semester 2

This module examines climate change impacts on humans and ecosystems. The module is designed to give the student a good overview of the strength and weaknesses of climate modelling approaches. Elements of the global carbon cycle are discussed.

ENGINEERING GEOLOGY AND HYDROGEOLOGY (ENVS338)

Credits: 15 / Semester: semester 1

This module provides the basic principles of engineering geology and hydrogeology. The applications of these principles are illustrated using selected examples and emphasis is placed on the interaction between them and their control on the mechanical stability of natural systems. By necessity predictions must be quantitative but, in order to develop understanding, a strongly graphical approach has been adopted in this module. The applications of engineering geology and hydrogeology will be highlighted using a field-based case study: the Mam Tor landslip. Engineering geology and hydrogeology are two important sources of employment and this module provides an opportunity to experience the scope and nature of these subjects. A combination of lectures, directed reading, laboratory work and fieldwork are used to deliver the module. Twelve lectures will be supported by six laboratory based practicals. It will be assessed using a report of the field investigation and an examination.

MINERAL RESOURCES (ENVS326)

Credits: 15 / Semester: semester 2

This module aims to provide understanding of the major types of mineral deposit through a critical assessment of conceptual models of deposit forming processes. There is an emphasis on geochemistry and quantitative methods. Content is delivered through on-line lectures with the aim of understanding: how mineral resources are formed; synthesising their distribution in space and time and evaluating this distribution in relation to overall Earth evolution; considering sustainability and the role of economics and politics. Practical understanding of mineral exploration is achieved through team-based role-playing activities in which students are divided into exploration companies. Each company has a two-stage budget and has to decide how to spend it on sampling, mapping, geochemical analysis, trenching and drilling. Each team presents an interim verbal report on the first stage followed by a second-stage final executive report summarising findings and providing an evaluation of gold resource. Assessment is split between the team exploration project (50%) and a final coursework essay (50%) from a choice of three topics. The team project uses peer assessment to produce individual marks for team members. This module has encouraged many students to follow mineral exploration careers.

NATURAL HAZARDS AND SOCIETY (ENVS319)

Credits: 15 / Semester: semester 1

This module aims to provide an integrated perspective on a range of natural hazards, the different levels of impact on human societies, and the mitigation and adaptation strategies adopted before, during and after extreme events. At the end of this module students will have an understanding of the physical processes and societal impacts associated with a range of geophysical and meteorological hazards. The course is delivered in a series of lectures supported by tutorial sessions and is assessed by an exam and coursework assignment.

SIMULATING ENVIRONMENTAL SYSTEMS (ENVS397)

Credits: 15 / Semester: semester 2

This module will teach students to write and use simple numerical forward models of environmental systems, including geomorphic, geophysical, oceanographic and ecological models. Successful students will develop important transferrable coding and numeracy skills through a series of lectures, seminars and practical work. The module will be assessed through practical work only, with formative feedback throughout to help develop the necessary skills.

THE LIVING, EVOLVING EARTH (ENVS320)

Credits: 15 / Semester: semester 1

This module looks at long term evolutionary patterns and the links between the evolution of life, climate and environmental change. Building on the basics of palaeontology, it covers topics and ideas that are used day-to-day by professional palaeontologists. The course deals with evolutionary theory and its place in palaeontology, as the student learns how to read and construct evolutionary hypotheses, and describe and understand patterns in the fossil record. In addition, the module will explore key events in the history of life on Earth, using exceptionally preserved faunas to illustrate the evolution of the flora and fauna. The module is delivered through lectures and practical sessions. The practicals are designed to run alongside and support the lecture material, giving the student the opportunity to understand the module content more deeply. Students are required to undertake a group project that brings together much of the course material into a coherent whole.

APPLIED ENVIRONMENTAL GEOSCIENCE (ENVS331)

Credits: 15 / Semester: semester 2

This module uses practical tasks analysing authentic and currently relevant professional datasets to consolidate, develop and apply fundamental geoscience skills that are key in the practice of applied environmental geoscience. The module also focuses on important transferable skills such as data analysis, data visualisation, and professional report preparation, all focused on maximising employability in the environmental geoscience sector.

Any optional modules listed above are illustrative only and may vary from year to year. Modules may be subject to minimum student numbers being achieved and staff availability. This means that the availability of specific optional modules cannot be guaranteed.

HOW YOU'LL LEARN

Teaching takes place through lectures, practicals, workshops, seminars, tutorials and fieldwork, with an emphasis on learning through doing. The award-winning Central Teaching Laboratories, provide a state-of-the-art facility for undergraduate practical work. Students value the learning opportunities provided by field classes, including the rapid and detailed feedback on performance.

You will typically receive 15–20 hours of formal teaching each week, and complete between 50 and 100 days of residential fieldwork over the course of their programme. In years three and four you will carry out independent research projects on a topic and location of your choice. All projects are supervised by a member of staff who will meet with you on a weekly, or more frequent, basis.

Our excellent staff to student ratio means you will never be an anonymous student in an enormous class and you'll have the opportunity to get to know all staff in the Department. You will have fortnightly tutorials with a member of academic staff in years one and two, and you will be assigned a personal tutor, who can offer guidance and support throughout your time at the University.

HOW YOU'RE ASSESSED

Assessment matches the learning objectives for each module and may take the form of written exams, practical laboratory and computer examinations, coursework submissions in the form of essays, scientific papers, briefing notes or lab/field notebooks, reports and portfolios, oral and poster presentations and contributions to group projects, and problem-solving exercises. Assessment is via tasks that mirror those graduate students are likely to undertake working as professional geoscientists. For example, generating and interpreting quantitative spatial data, with appropriate consideration of inherent uncertainty, is a key task and necessary skill for professional environmental geoscientists, and this skill is developed and assessed on several programme modules, especially field and lab-based modules. As well as being authentic in terms of the underlying purpose of the assessed task, assessment tasks are also authentic in terms of format, intended audience, resources used, and collaborative team elements. For example, team-based environmental assessment work with professional format delivery appropriate for presentation to management-level colleagues using state-of-the-art field, lab or IT resources is central to assessments in field classes.

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

There has never been a better time to study Earth sciences. Many of the fundamental questions of our times will be answered by geoscientists, as we seek to provide sustainable resources for the world's population, as well as predict and mitigate climate change and natural hazards by building a better understanding of the planet on which we live.

Our recent graduates have gained employment within a degree-related field or continued within further education after graduation. We have close links with geoscience and environmental industries ensuring that our degrees properly equip you for future employment.

RECENT EMPLOYERS

- Geological Surveys in the UK and abroad
- Hydrocarbon and support industries: ExxonMobil, BP, Shell, Geotrace, Geokinetics, Neflex, Robertson, Deloitte, CGG, Osiris, PGS
- Engineering and environmental consultancies: The Environment Agency, Environmental Resources Management, URS Corporation, Caulmert Ltd, VerdErg Renewables, RSK Geophysics, RSK Environment, Geomaterials, Fugro
- Mining and related industries: Gold Fields, Rio Tinto, Cliffs Natural Resources, Geological Solutions, Hanson Aggregate Marine Ltd, Aggregate 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	£9,535
Year in industry fee	£1,850
Year abroad fee	£1,385

International fees	
Full-time place, per year	£29,100
Year in industry fee	£1,850
Year abroad fee	£14,550

The UK full-time tuition fee, international course fee and fee for the year abroad for international students shown are correct for 2025/26 entry. We are currently awaiting confirmation of whether the year abroad fee for UK students, as well as the year in industry fee will change, so the fees shown are for 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 fees and funding.](#)

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 geological field kit, dissertation expenses, and optional field classes in year three.

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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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. Most of our undergraduate degrees are eligible, with the exception of clinical programmes in Medicine and Dental Surgery.](#)

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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.](#)

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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.](#)

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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.](#)

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KAPLAN DIGITAL PATHWAYS EXCELLENCE SCHOLARSHIP

- [International students](#)

[Completed a Kaplan Digital Pathways Foundation Certificate? We're offering a £5,000 fee discount off the first year of undergraduate study for a maximum of two high achieving students joining one of our non-clinical degrees from an online Kaplan Foundation Certificate.](#)

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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.](#)

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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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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.](#)

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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.](#)

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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.](#)

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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.](#)

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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.](#)

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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	<p>ABB</p> <p>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.</p> <p>You may automatically qualify for reduced entry requirements through our contextual offers scheme.</p> <p>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.</p> <p>Available foundation years:</p> <ul style="list-style-type: none">• Earth Sciences (4 year route including a Foundation Year at Carmel College) BSc (Hons)• Geography 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 overall including two Higher Level sciences and no score less than 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 grades ABB
Welsh Baccalaureate Advanced	Acceptable at grade B including 2 Science A Levels at grades AB
Access	Considered if taking a relevant subject. 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 English and Mathematics grade C/4 or above also required.
International qualifications	Many countries have a different education system to that of the UK, meaning your qualifications may not meet our direct entry requirements. Although there is no direct Foundation Certificate route to this course, completing a Foundation Certificate, such as that offered by the University of Liverpool International College , can guarantee you a place on a number of similar courses which may interest you.

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.

THE ORIGINAL

REDBRICK