



School of Earth and Ocean Sciences

Undergraduate Degree Programmes

Entry 2016



... then one of our degrees is for you.

INSIDERS
meet our students

Insider Information - Find out more...

Want to know what life at Cardiff is really like? Our Insiders are real students studying a range of subjects. You can read their blogs, post comments and message them on Facebook and Twitter.

To find out more go to: www.cardiff.ac.uk/insiders

Discover the Cardiff Experience

A leading university . . .

- ▶ You'll be part of a Russell Group university – one of the UK's world-class universities.
- ▶ You can choose from more than 300 degree programmes. The Cardiff University degree is known and respected worldwide with a substantial number accredited by the professions and other external bodies.
- ▶ You'll benefit from outstanding teaching in a research-led environment – Cardiff is ranked in the UK's top 5 universities for research quality.
- ▶ Staff include a Nobel Laureate and numerous Fellows of the Royal Society and other prestigious institutions.

in an outstanding city . . .

- ▶ You'll live in a friendly, compact and safe city with all your study, living and leisure needs within walking distance.
- ▶ Your money will go further at Cardiff with capital city attractions at provincial prices – including one of the lowest average costs of living for university cities.¹

with able and motivated students . . .

- ▶ You'll be at a first choice university where demand for places is strong.
- ▶ You'll be studying in an environment with able and motivated students who have high grades at A-level or equivalent.
- ▶ You'll be at an international university with students from more than 100 countries.

who have excellent career prospects.

- ▶ You can be confident of your future prospects – typically, 95% of our students were employed or had entered further study within six months of completing their studies.²
- ▶ You'll be in demand – Cardiff is among the top 25 universities targeted by employers seeking high calibre graduates.³



Notes

1. Moneysupermarket.com
Quality of Living Index 2014
2. HESA Destination of Leavers Survey 2013
3. High Fliers Research
The Graduate Market 2015

Welcome

Studying for a degree is a major investment for your future and choosing your university and degree programme is one of life's all-important decisions.



The School of Earth and Ocean Sciences excels in teaching and research and provides a supportive and inspiring place to learn about the evolution of the Earth, its life and how it works. Our graduates are highly regarded by employers and our courses are professionally-accredited. Our enthusiastic staff are approachable experts in their fields who have a passion for teaching across the range of disciplines covered by our courses. Field classes, practicals, laboratory work and tutorials are all part of our innovative and stimulating research-informed learning experience. We pride ourselves on the consistently outstanding feedback received from our students, via the National Student Survey - with, for example, our BSc (Hons) Marine Geography course achieving a 100% student satisfaction rating in both 2013 and 2014. As well as delivering excellence in teaching and learning, our staff engage in internationally recognised, cutting-edge research that is tackling some of the most pressing issues facing humankind, ranging from climate change to exploration for natural resources.

We hope that you find this brochure helpful and informative as you consider your options as a potential university student. We have included information about the City of Cardiff and its beautiful surroundings (an

outstanding natural laboratory for Earth and ocean sciences), the University, the practical and study facilities in the School, along with descriptions of our courses and their component modules.

If you would like to receive further information about the School, or would like to arrange a visit, please do not hesitate to get in contact. Our telephone and email addresses are given inside the back page.

We look forward to hearing from you.



Professor Ian R. Hall
Head of School, Earth and Ocean Sciences,
Cardiff University

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This brochure will provide you with more details of our programmes. We hope that they will give you more than just a flavour of what we have to offer you. However, we are always ready to answer any questions you may have, by telephone or email, or when you come to Cardiff to visit. You will find appropriate contacts at the end of this brochure.

Important information. Please read carefully.

The University offers the information contained in this brochure as a guide only. It does not constitute a contract and is not binding on prospective students, current students or the University. While the University makes every effort to check the accuracy of the factual content at the time of publication, some changes will inevitably occur following publication. For example, degree programmes may have changed in line with market and student demand, and research development. Applicants should not, therefore, rely solely on this brochure and should visit the website for up-to-date information concerning course content, accreditation, and entry requirements for the relevant academic year when considering applying to the University.

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Cardiff: A capital city

“Cardiff is a popular student city, relatively inexpensive and with a good range of nightlife and cultural venues.”

Times Good University Guide 2014



More online at:
www.visitcardiff.com
www.cardiff.ac.uk
www.cardiff.gov.uk

Cardiff is a thriving and attractive city which is widely recognised as an outstanding place in which to live and study. It combines all the advantages of a compact, friendly and inexpensive location with the cultural and recreational facilities of a modern capital city.

Cardiff offers everything from the excitement of the city to the peace and tranquillity of the nearby coast and countryside. With its distinctive character, good quality of life, and growing national and international reputation, it hosts many high-profile cultural and sporting events, including international rugby, soccer, cricket and motor sport.

When it comes to entertainment, Cardiff is well-equipped to satisfy student needs. There is a multitude of cafes, pubs and nightclubs. The City is home to the world-renowned Welsh National Opera, it boasts prestigious concert venues such as the Wales Millennium Centre, St David's Hall and the Motorpoint Arena, as well as the iconic Millennium Stadium, the National Museum and Gallery of Wales, several theatres and the historic Cardiff Castle.

Cardiff is the location for award-winning television productions, including Dr Who, Sherlock, Torchwood and Casualty, and the Dr Who Experience in Cardiff Bay is a popular new attraction.

The city is one of the UK's best shopping destinations, a status enhanced by the opening of the £750 million St David's Dewi

Sant retail centre standing alongside pedestrianised shopping streets, indoor and outdoor markets, and a fascinating network of glass-canopied Victorian and Edwardian arcades.

Cardiff also has more urban green space than any other UK city, and offers easy access to the countryside, coast and mountains.

Lively, elegant, confident, cosmopolitan and ambitious are all words readily used to describe modern-day Cardiff. Together, the city and the University provide students with the 'Cardiff Experience', a lifestyle our students remember long after graduation.



The Millennium Stadium nestles in the heart of the city, and is home to numerous sporting events and concerts throughout the year

Don't just take our word for it...

"Modern Cardiff combines the best of the old and the new... it has a relatively small population and is fairly inexpensive to live in. Close to the campus, the city centre has an array of shops and entertainment options to cater to all tastes and budgets."

The Telegraph Guide to UK Universities

Come and see for yourself...

Cardiff benefits from excellent road and rail links with Britain's other major towns and cities. London, for example, is two hours by train, and the M4 links both the west and south of England, as well as west Wales. Travel to the Midlands and to the North is equally convenient. The journey by road from Birmingham, for example, takes only two hours. The main coach and railway stations are both centrally placed, and Cardiff also benefits from an international airport.



Cardiff is one of the UK's most successful retail centres



Cardiff Bay, the city's waterfront

Cardiff: A leading university

“Cardiff University is one of Britain’s leading teaching and research universities.”

Telegraph Guide to UK Universities 2014



Cardiff University has an international reputation for excellence in teaching and research, built on a history of service and achievement since 1883, and recognised by our membership of the Russell Group of leading research-led universities.

With attractive and compact campuses, excellent student accommodation, and a hugely popular Students' Union, all within easy walking distance of each other in a thriving city, it is not surprising that Cardiff is a university of first choice among well-prepared applicants.

We admit approximately 5,000 undergraduate entrants each year, the majority of whom are school and college leavers, and have high grades at A-level or equivalent. While competition for entry is strong, Cardiff is an inclusive university with a good record on widening participation and fair access, and we welcome applications, irrespective of background, from everyone with the potential to succeed at Cardiff University.

The University's Cathays Park campus is located in and around the impressive Portland stone buildings, parks and wide tree-lined avenues that form Cardiff's attractive civic centre. The majority of academic schools are located here - just a few minutes' walk from the city centre. The three academic schools offering healthcare courses (excluding Optometry and Pharmacy) are based at the Heath Park campus,

approximately one mile away, which is also home to the University Hospital of Wales.

Although dating from 1883, Cardiff is focused on the 21st century, and has modern state-of-the-art buildings and facilities. The University has invested substantially in its estate in recent years and most academic schools have benefited from major refurbishment, including new and well-equipped laboratories, lecture theatres, libraries and computing facilities.

International opportunities are available via our Global Opportunity Centre. These include study, work and volunteering placements in 27 EU countries as well as international exchange opportunities. All students also have the opportunity to study a language in addition to their degree through the University's Languages For All programme.

The University takes its environmental, safety and security responsibilities very seriously. It has comprehensive policies in place which are making great savings in energy consumption and, to support the safety and security of all members of the University community and their property, there is 24-hour security cover throughout the campus.



What the Guides say

“[Cardiff] University is the acknowledged leader of higher education in Wales. It is the Principality’s only member of the Russell Group of research-led universities and has two Nobel Laureates on its staff. It is our 2014 Best Welsh University.”

Times Good University Guide 2014

“The University is as confident and forward-looking as the city it’s located in, and has an excellent reputation for the quality of its teaching and research. Almost 60% of its research is ranked as world leading and it is a member of the Russell Group of leading universities.”

Guardian University Guide 2013

Living in Cardiff

As a fast developing capital city, Cardiff is a great place to be a student. It's large enough to offer you an exciting variety of activities and entertainment, but small enough for you to feel comfortable in.

Accommodation

Cardiff offers guaranteed University accommodation, good quality and value, and a range of residences to suit individual preferences and budgets.

All first year undergraduates who apply during the normal UCAS admissions cycle (ie come to Cardiff as a firm or insurance applicant) are guaranteed a single occupancy place in University residences during the first year of study. Please see our website for full details: www.cardiff.ac.uk/residences

The University is continually investing in its student residences, and the views of students are taken into account at the design stage. Unusually for a civic university, most of our residences are within easy walking distance of lecture theatres, libraries, laboratories, the Students' Union and city centre.

There are 15 different residences, providing more than 5,500 study bedrooms and students can apply for the residences which best suit their preferences, interests and budgets. Some 70% have en-suite shower and toilet facilities and all halls of residence have computer network connection points and access to Wi-Fi.

Fees depend on the facilities included and whether catered, part-catered or self-catered, but prices compare very favourably with those of other UK universities. Besides managing

University property, the Residences Office maintains close links with the private sector and provides assistance to students seeking to rent or share houses or flats.

Student Life

The Students' Union

Cardiff Students' Union is one of the biggest, best and most active in Britain. The Union recently opened a new venue called Y Plas which at night becomes a nightclub. Hosting live music, club nights, stand-up comedy, fashion shows and awards ceremonies, there's lots to keep you entertained from your first day to your last.

Other facilities include a new food court, a bank, a print shop, a hair salon and a bookshop. The Lounge offers IT and Skyping facilities, meeting rooms and a "chillout" area, as well as snooker tables and multi-faith prayer room. The Union also has its own letting agency and an Advice and Representation centre. In addition, it is home to CU TV and Xpress Radio (the students' own TV and radio stations) and more than 200 cultural, political, religious, social, sporting societies and clubs.

Jobshop

Jobshop is the Union's own student employment service and provides casual, clerical and catering jobs around the University to hundreds of students.



All study bedrooms in the halls of residence have computer network connection points and access to WiFi



The Fitness and Squash Centre is located at the heart of the main campus

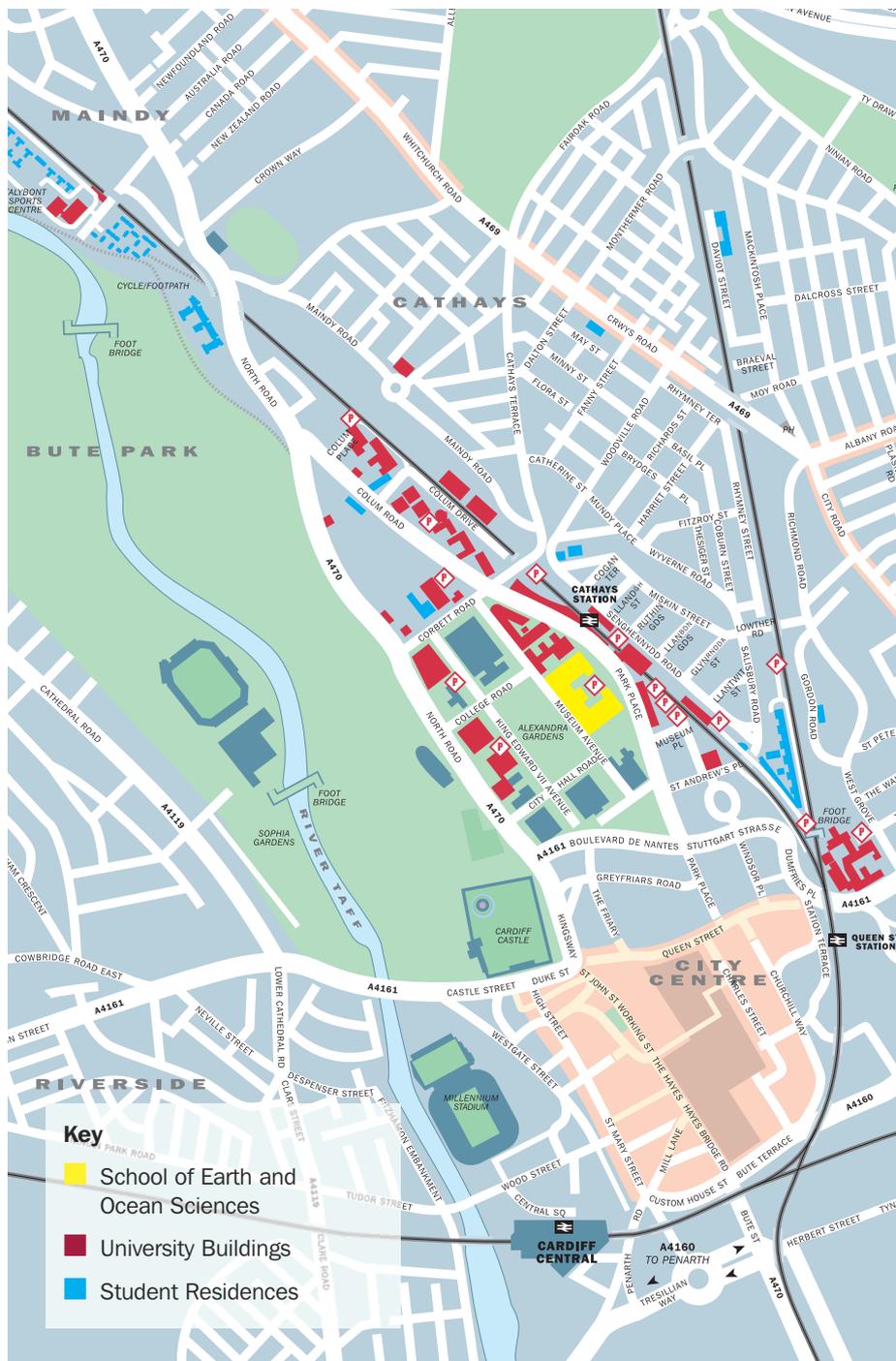


Y Plas is the Students' Union high quality nightclub

More online at:
www.cardiff.ac.uk
www.cardiff.ac.uk/residences
www.cardiffstudents.com



Students have access to a wide range of modern facilities, including Skype booths



What the Guides say

“A place in one of the University’s 5,300 single study bedrooms is guaranteed to all first year undergraduates applying through the normal UCAS admissions cycle.”

Guardian University Guide 2014

“The cost of living for a student in Cardiff is generally lower than elsewhere in the UK.”

The Independent A-Z University Guide 2014

“The Union offers an exciting entertainment programme, a comprehensive range of student support services and 150 clubs and societies.”

The Complete University Guide 2014

How to find the School

The School of Earth and Ocean Sciences is located in the Main Building which sits at the heart of the Cathays Park Campus, a short walk from the city centre.

The Main Building is close to the Cathays railway station and is easily accessible from many of the University’s Halls of Residence.

Degree Programmes in the School of Earth and Ocean Sciences

Earth and ocean science education at Cardiff provides a research-led, holistic view of the Earth in which the oceans, atmosphere, biosphere and lithosphere are studied in depth as constituent components of the Earth system.

All the degree programmes begin with a common first semester which provides a strong foundation in Earth and ocean sciences.

Although students will be registered for a particular degree in Year One, our first semester allows you to sample the broad aspects of Earth and ocean science before making your final choice. Students who wish to study the four-year MSci degrees can transfer at the end of Year Two, although it is best to register for four-year degrees in Year One as there are specialist modules in research training during Years One and Two. Students who graduate on any three-year BSc programme can apply to stay on in Year Four to study a one-year vocational MSc in Applied Environmental Geology. In total, the Cardiff School of Earth and Ocean Sciences offers 18 undergraduate degree programmes.



Studying gold exploration drill cores as part of an Exploration and Resource Geology summer placement in Tanzania

F621
BSc Exploration & Resource Geology

A three-year degree for students interested in all aspects of natural resources (hydrocarbons, ore and industrial minerals and energy) and their exploration, extraction and management. This degree is also suited to students interested in aspects of applied geology and information technology.

F622
BSc Exploration & Resource Geology (with a placement)

A four-year degree for students interested in natural resources (hydrocarbons, ore and industrial minerals and energy) and their exploration with time out in industry working with an exploration company. This degree is also suited to students interested in aspects of applied geology and information technology.

F623
MSci Exploration & Resource Geology

A four-year degree for students who wish to pursue a research career in hydrocarbons, ore and industrial minerals and energy. In Year Four, you will undertake an independent research project that focuses on your specialist subject of interest. There is also an option to spend Year Three of your degree at a university in North America, Australia or Europe. Module credits obtained during this year count towards your degree.

F624
MSci Exploration & Resource Geology (International)

F600
BSc Geology

A three-year degree for students interested in all aspects of geology and Earth evolution. This degree provides comprehensive training in field geology and map making. In Year Three, students can specialise in areas of sedimentology, palaeontology, structural or igneous geology.

F601
MSci Geology

F602
MSci Geology (International)

A four-year degree for students who wish to pursue a professional research career in Earth sciences. In Year Four you will undertake an independent research project that allows you to focus on your subject of interest in Earth sciences. There is also an option to spend Year Three of your degree at a university in North America, Australia or Europe. Module credits obtained during this year count towards your degree.



Fieldwork plays an important role in all our degree programmes



Rocky shoreline species survey in Pembrokeshire

F642
BSc Environmental Geoscience

A three-year degree for students interested in applied geoenvironmental or global geoenvironmental issues including subjects such as geo-hazards, pollution and engineering geology, climate change and sea-level rise.

F644
BSc Environmental Geoscience (with a placement)

A four-year degree for students interested in applied geoenvironmental or global geoenvironmental issues including subjects such as geo-hazards, pollution and engineering geology, climate change and sea-level rise, with time out working in the geoenvironmental industry.

F645
MESci Environmental Geoscience

F647
MESci Environmental Geoscience (International)

A four-year degree for students who wish to pursue a professional career in applied or global geoenvironmental issues such as climate change, water resources and pollution. In Year Four you will undertake an independent research project that focuses on your subject of interest. There is also an option to spend Year Three of your degree at a university in North America, Australia or Europe. Module credits obtained during this year count towards your degree.

K32H
BSc Environmental Geography

A three-year degree for students interested in aspects of Earth systems and the natural environment. The programme provides a foundation in Earth science and progresses to include subjects such as pollution, water quality, ecology, geomorphology and landscape management.

Y32M
MESci Environmental Geography
2L4D
MESci Environmental Geography (International)

A four-year degree for students interested in aspects of Earth systems and the natural environment. The programme provides a foundation in Earth science and progresses to include subjects such as pollution, water quality, ecology, geomorphology and landscape management. In Year Four you will undertake an independent research project that focuses on your subject of interest. There is also an option to spend Year Three of your degree at a university in North America, Australia or Europe. Module credits obtained during this year count towards your degree.

F841
BSc Marine Geography

A three-year degree for students interested in the study of the physical, hydrographical and managerial issues relating to the ocean and its coastlines.

F842
BSc Marine Geography (with a placement)

A four-year degree for students interested in the study of the physical, hydrographical and managerial issues relating to the ocean and its coastline, with time out working in a marine-related industry.

1D79
MESci Marine Geography
4J26
MESci Marine Geography (International)

A four-year degree for students who wish to pursue a research career in aspects of shallow, near-shore coastal processes or marine-related managerial issues. In Year Four students complete a research project on a marine topic of interest. There is also an option to spend Year Three of your degree at a university in North America, Australia or Europe. Module credits obtained during this year count towards your degree.

The First Year

The first year is designed to give you a sound foundation in Earth and ocean sciences upon which the specialised studies build in subsequent years.



First year field trip in Pembrokeshire

The first year provides an introduction to the study of the Earth and oceans as a system whilst developing scientific skills. The general skills of observation, numeracy, presentation and communication, which will be of value throughout your studies and future careers are integral to all modules. For example, the first semester includes an introduction to the use of the Cardiff University computing network and its associated software, and the use of spreadsheet, database, e-mail, drawing, and GIS packages. Fieldwork in the first year involves an introductory set of field trips in south Wales during your first week, which is designed to give you a flavour of the first-year course content and to act as an icebreaker. Several subsequent day or half-day trips are associated with individual modules and provide essential initial field training. You will also have the opportunity to undertake work at sea, as well as taking part in a residential field excursion prior to the Easter vacation.

All the first-year modules include lectures and a variety of laboratory work. Several include individual study projects. Some of the modules extend over the two semesters.

Most modules are assessed by a combination of examination and marking of other work. The nature and weighting of other assessed work varies with the requirements of different modules. You will need to achieve a satisfactory standard in the 120 credits studied before progressing to the second year. We believe it is important to take account of the varying skills and qualifications of the students arriving in the School, so the broad-based first year complements your own talents and interests. To ensure that all students have the necessary scientific knowledge for a degree in the Earth and ocean sciences by the end of the first semester, key skills are delivered through structured self-learning and workshops with periodic assessments so that students can gauge their progress. Your personal tutor, allocated to you in the first week of your course, will advise you of the best way to organise your studies to utilise your background achievements.

Because the first semester is common to all our undergraduate degree programmes, you are able to transfer between degree courses up to the start of the second semester in late January.

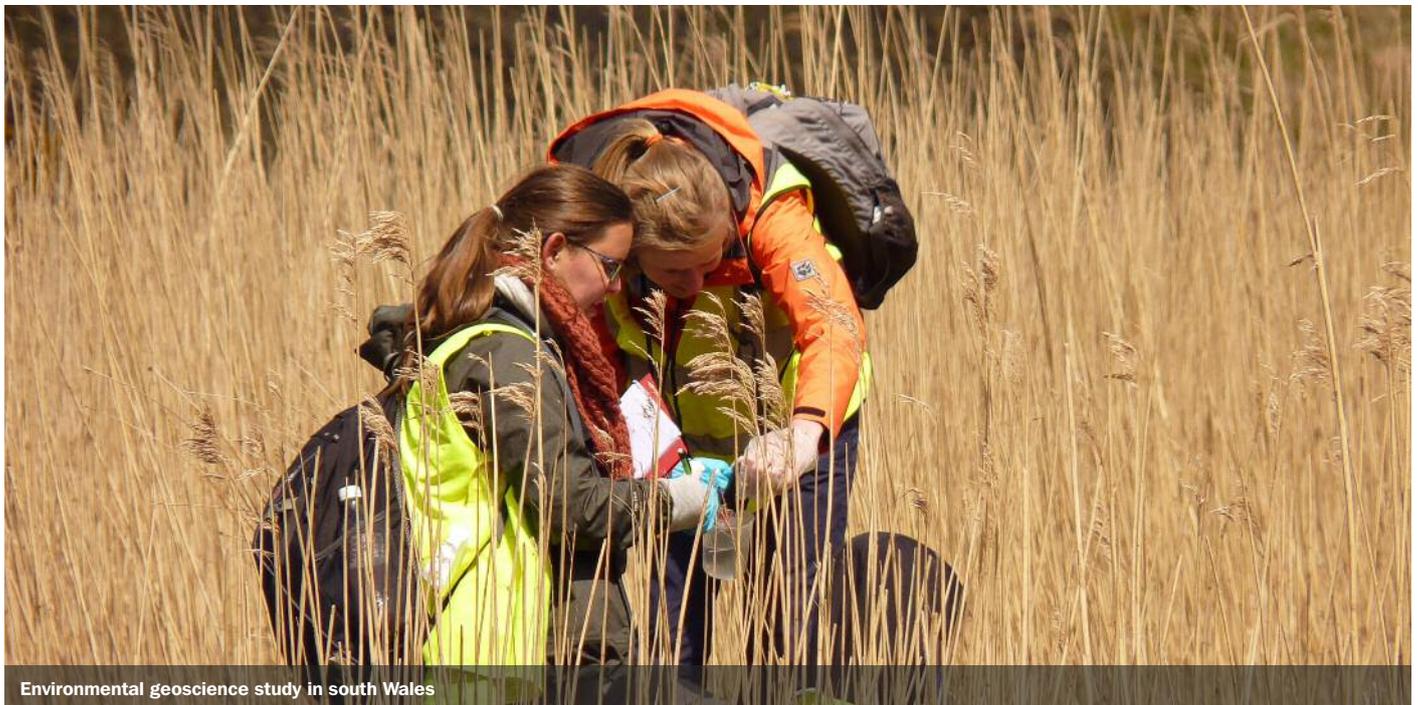


First year students undertaking a marine survey in Cardiff Bay on the School research vessel, Guiding Light

Master in Earth Sciences (MESci)

Research-informed degrees in:

- Geology (UCAS Code: F601)
- Exploration and Resource Geology (UCAS Code: F623)
- Environmental Geography (UCAS Code: Y32M)
- Environmental Geoscience (UCAS Code: F645)
- Marine Geography (UCAS Code: 1D79)



Environmental geoscience study in south Wales

The Cardiff MESci programme is a four-year undergraduate degree aimed at training students for a research career. Students with a Cardiff MESci are qualified to enter directly into PhD programmes, and the advanced fourth-year courses and research skills provide an enhanced basis for entering into professional careers in Earth and ocean sciences. The Cardiff MESci programme provides you with considerable flexibility in your choice of modules and programmes. In each of your four years you will undertake research training in which you choose topics that match your interests. In the final year you will complete a research dissertation and take a series of research-led modules, providing the skills and knowledge necessary to underpin your dissertation work. The nature of research means that you will be involved in small group teaching and will have the opportunity to work within the School's internationally-recognised research groups.

The MESci degrees at Cardiff are comparable to similar courses in Europe and North America. There is demand in industry, government and academia for a higher level of research training than a three-year undergraduate BSc course. For the individual student, undergraduate Masters programmes provide:

- a wider range of options for future career paths
- opportunities to undertake research into topics which interest you
- a greater degree of choice in learning outcomes
- more extensive opportunities for small group and individual tuition
- a higher level of university education comparable with international first degree qualifications.



Second year fieldwork in Spain

MESci Course Structure

The Year One, first semester programme is common for all MESci students, with small group teaching provided in research tutorial groups of up to six students, and with a residential field course at Easter. The more specialised second semester modules (specific to individual degrees) designed to give you a broad view of Earth and ocean sciences, with the MESci research tutorial enabling you to begin exploring your long-term research interests.

In Year Two, you will take a suite of modules appropriate to your MESci degree programme, which will enhance the basic building blocks of knowledge necessary to undertake research. In addition, you will take the MESci Field Methods and Research Tutorial module on a field-related subject of your choice and will present a talk about a field-based research project that you have designed. Year Two contributes 20% to your total degree assessment.

In your third year, in addition to selecting modules appropriate to your degree programme you will take a research module during which you will conduct research on a topic of your choice and write it up as a scientific research poster. Year Three contributes 30% to your total degree assessment.

The final year is centred on a research dissertation in a subject of your choice, depending on your degree programme. You will work with a research supervisor and interact with a research group in the School. Since there is a great breadth of research within the School you have a wide choice of dissertation topic. Year Four assessment contributes 50% to your final degree and your research dissertation is 30% of your total degree result. You will also choose options from Year Four modules which focus on topics at the cutting edge of research.



Fossil liquefaction structures in Tenerife

Inter-programme Transfer

Transfer into and out of the MESci programmes is possible but it is best to enrol on the MESci in Year One if you meet the entry requirements, as there are dedicated research training modules in Years One and Two. Transfer from a BSc to an MESci is possible at the end of Years One or Two and requires an average mark of 60%. Transfer from MESci to the equivalent BSc can also take place at the end of Years One and Two. Transfer on to the MESci (International) programme (see page 16) is also a possibility if you obtain 65% at the end of Years One and Two.

MESci Programmes

Research has no subject boundaries, and so in Cardiff we provide you with the broadest opportunity to follow and develop your own interests.

Problems of climate change and the effect of human activities on the environment are increasingly important topics in international research. The MESci in Environmental Geoscience provides a solid base for investigation of climatic change and anthropogenic effects on the planetary environment, including pollution and land contamination. The MESci in Environmental Geography covers topics that include: biogeochemistry, ecosystems science, geomorphology and landscape management.



Identification of zooplankton in water samples, Samos

The MESci in Marine Geography focuses on near shore, coastal processes, ocean policy and management as well as oceanic sediments and how a detailed record of climate change can be elucidated from the marine geological record.

The evolution of the Earth and the life that it supports underpins our understanding of our own planet and other planets in the solar system. The MESci in Geology provides the basis for researching into the evolution of our planet. Sustainability of natural resources requires that richer, more easily extractable resources need to be discovered and methods of extraction need to be both energy efficient and environmentally friendly. The MESci in Exploration and Resource Geology addresses both of these aspects on a global scale.

With each of these MESci degrees it is also possible to spend Year Three studying at a university in North America, Australia or Europe. The marks from this year of study will count towards your degree. More details of this exciting opportunity can be found in the MESci (International) section of this brochure.



Alex Quas-Cohen

Alex graduated with an MESci in Geology and went on to study for a PhD at Manchester University, researching the formation of Norwegian eclogites and the implications for crust-mantle interaction during subduction of continental crust.

How did you find the Cardiff student experience?

"Cardiff is a fantastic city, especially for students: it's small, clean, safe and cheap but has all the perks of being a capital city – gigs, shows, events etc. I very much enjoyed my undergraduate degree: the modules and fieldtrips were varied, challenging and enjoyable. The staff were friendly, approachable and fun. Overall, I had a great student experience at Cardiff and would recommend the School and the city to anyone."

MESci Module Programme

The majority of Year One to Year Three module choices are the same as the related BSc course. In addition MESci students study:

Year One	Year Two	Year Three	Year Four
Research Tutorial and Earth Science Skills	Research Tutorial and Field Skills	Research Tutorial	Research Project
Carry out a literature-based investigation of topics such as “ice in the solar system”, “early life on Earth”, “conflict diamonds” “Precambrian oceans” or “large igneous provinces”	Design a field-based research project and present it as a talk.	Discover the research methods that you can apply to your Masters thesis research in Year Four. Carry out a project and present the results as a scientific poster.	MESci Field Course
			Process Geomorphology
			Evolution of Antarctica
			Advanced Metallogenesis
			Coastal Science and Policy
			Advanced Igneous Petrogenesis
			Contaminated Land
			Geodynamics
			Extremophiles
			IPCC: The Physical Science Basis

This list of modules is only indicative and may change slightly each year.

Key:

- Core Modules
- Optional Modules



Geological mapping training in Cyprus

MESci (International)

Research-informed degrees in:

- Geology (UCAS Code: F602)
- Exploration and Resource Geology (UCAS Code: F624)
- Environmental Geography (UCAS Code: 2L4D)
- Environmental Geoscience (UCAS Code: F647)
- Marine Geography (UCAS Code: 4J26)

All with a year spent studying at an overseas university

The Cardiff MESci (International) programmes provide the opportunity for students to study at a prestigious overseas university for part of their Cardiff degree. The MESci (International) programme has the same structure and aims as the Cardiff four-year undergraduate MESci degree programmes. It is research-led and provides students with enhanced opportunities for specialisation, subject choice and advanced study. The difference is that the credits and grades for Year Three of your degree assessment are acquired at an overseas institution.

The year abroad allows you to broaden your horizons, both academically and culturally. You will be able to enrol in courses overseas that are not available at Cardiff. You will acquire a wide range of transferable skills and the additional experience will improve your employability and prospects of postgraduate studies.

Financially, these programmes are very attractive since you pay no fees at the international university and only pay 15% fees to Cardiff University. This means that successful applicants have the opportunity, for example, to attend world-class, private universities in the USA at well below UK fee levels. These institutions routinely provide intensive, small group teaching by international leaders. Presently there are agreements with the University of Miami, University of British Columbia, Rutgers (New Jersey), Wyoming University, the University of Vermont, Connecticut University, Stockholm University, Macquarie University (Sydney) and the University of Western Australia. Further opportunities are also planned with other leading institutions in North America.

The International programmes are available in all MESci subject areas: Geology, Environmental Geoscience, Environmental Geography, Exploration & Resource Geology, and Marine Geography. The intake grades for these international programmes are higher than the conventional Cardiff MESci, primarily because there is strong competition for the limited places (see page 32).

Although there are normally sufficient places to send all of our International programme cohort away for their third year, the exact number of places available can vary from year to year depending on the number of students exchanged in either direction.

This means that we cannot guarantee that all students on the International programme will be able to study abroad. In the event that a place is not available students will be transferred to the normal MESci programme. Since the programme began we have placed over 98% of qualified students who have applied to study abroad.



Jess Cartwright

"Cardiff has afforded me unbelievable opportunities and experiences. The friendliness of the staff and students provided all the support I needed to get into the study abroad year at the university of my choice and with my third year in Miami came even more opportunities to travel the world and engage in research activities such as Scientific Diving I would never have thought possible. It is in this sector I dream of building my career."

The MESci (International) programme gives you a great opportunity to experience new places and different cultures and will widen your options for future career paths. An average of 65% in both Years One and Two is required in order to remain on the MESci (International) scheme.



Gruffudd Roberts

"I believe it is the strong focus on economic geology that has made my time at Cardiff stand out. I had the amazing opportunity to spend a year studying abroad at the University of British Columbia in Vancouver, which was the highlight of my degree. Studying abroad allowed me to gain invaluable experience, which I hope to use during a future career in industry."

Environmental Geography

- BSc (UCAS Code: K32H)
- MEdSci (UCAS Code: Y32M)
- MEdSci (International) (UCAS Code: 2L4D)



Environmental Geography students studying stages of the River Towy

Environmental Geography is the study of the interaction between humans and the natural environment. Using their distinctive skills set, environmental geographers are able to explain how Earth functions as a system, one with a long history, an ever-changing present, and a future affected by our actions. The skills and understanding of environmental geographers make them uniquely placed to solve complex and wide-ranging environmental problems that arise in the landscape. This degree programme will help you to develop these skills and perspectives by providing opportunities for conducting fieldwork in a range of exciting environments and for conducting cutting-edge research with world-leading scientists in environmental geography.

At the beginning of your programme, you will be given the framework for explaining the functioning of the Earth system, including the controls on global climate. You will also learn about anthropogenic issues such as pollution, including its causes, assessment, monitoring and clean up. You will study the basics of Earth science necessary for your degree as well as an introduction to maps, topological work and geomorphology. Your first year will also include modules in

environmental chemistry and biological systems.

In the second year, you will study a wide variety of modules that include basic terrestrial and marine ecology, soils, biogeochemistry and landscape evolution. There is an emphasis on skills in sampling, data collection and analysis, and much of this is field based. Other important training includes the use of geographical information systems and the planning, execution and reporting of project work. Local fieldwork in the spring will bring many of these skills together in preparation for your main degree project.

Students undertake a major summer project between Years Two and Three, which involves independent research to develop knowledge and understanding regarding the physical, biological, and chemical controls on the environment. The School offers a number of different potential projects from which you can choose, but students are actively encouraged to devise and design their own projects. Students often choose or devise projects that relate to the environment close to their homes, but some choose projects that take them abroad to the Mediterranean, Africa or the USA.

In the third year, you will complete your project work, presenting it in the form of a professional report. There are a few compulsory modules, but most are optional, allowing you to follow your own interests and aspirations within environmental geography. As in previous years, Year Three consists of a mixture of taught knowledge and skills. In this final part of your degree, the emphasis is on synthesis, bringing together the separate strands, skills and interests to encourage a more holistic understanding of the subject.

In addition to studying the varied landscapes of South Wales, Environmental Geography students take part in residential trips to: Snowdonia National Park in Year One to study the impacts of glaciations on the modern environment; the Netherlands in Year Two to study water management and coastal defences; and to Tenerife, Spain, in Year Three to further our understanding of geomorphology, hazards, soils, water, sustainability, climate and biomes.

For students interested in professional research careers, the four-year MEdSci in Environmental Geography provides an even stronger basis for investigation and research in this subject (see MEdSci section for more details).

BSc Environmental Geography Module Programme

Year One	Year Two	Year Three
Earth and Planetary System Science	Field Skills in Environmental Geography	Environmental Geography Project
Earth Science Skills	The Ocean Atmosphere System	Global Geomorphology
The Sedimentary System	Data Acquisition and Analysis	Environmental Case Studies
Dangerous Earth	Biogeochemistry	Environmental Geography Field Course (Tenerife)
Natural Resources and Energy	Marine Ecosystems	Glaciology
Formation of the British Isles	Applied GIS	Marine Microfossils
Life Through Time	Geoecology	Marine Conservation Science
Environmental Chemistry and Biology	Environmental Pollution	Environmental Management, Science and Policy
Fieldwork	Physical Processes in Coastal Environments	Water Resources
Introduction to Geomorphology	Catchment Hydrology and Geomorphology	Engineering Geology
<p>This list of modules is only indicative and may change slightly each year.</p> <p>Key:</p> <ul style="list-style-type: none"> ● Core Modules ● Optional Modules 		Integrated Coastal Management
		Biogeography
		Geomicrobiology
		Environmental Law
		Hazards and Risk
		Palaeoclimate



Carrying out a vegetation survey in Tenerife

Geology

- BSc (UCAS Code: F600)
- MEdSci (UCAS Code: F601)
- MEdSci (International) (UCAS Code: F602)



Structural geology field teaching in Spain



Adam Hughes

Adam graduated with a BSc in Geology and works for AngloAmerican in the coalfields of North Queensland. His work involves visiting remote sites in the Australian outback to log, sample and test strata from deep underground to help project subsurface 3D models of potential coal reserves.

How did you find the Cardiff student experience?

"The classes and learning environment in the School are second to none and there was always help from any number of great minds, no matter what the problem. Studying at Cardiff Uni was the best decision I have ever made and has taken me to places I'd always dreamed of going!"

Our BSc in Geology provides you with a broad view of the physical, geochemical and biological processes that formed planet Earth, its oceans, atmosphere, lithosphere and biosphere. You will learn how to read the rocks, assess the processes involved in their formation, be able to reconstruct past environments and interpret how life evolved.

A key component of this course is fieldwork. You will travel to a number of classic localities: current field excursions run to areas both in the UK and abroad (currently Spain and Cyprus). On these excursions you will learn how to record observations, to analyse and interpret a wide range of rocks and structures in the field, and be trained in making a geological map. Our field courses are specifically designed to focus on key themes, such as the origins of oceanic crust, the development of sedimentary basins and their oil and gas potential, and the growth and collapse of mountain belts.

In the summer of your second year, you will face the exciting challenge of spending five weeks working independently on a geological mapping project in an area of your own choice. The most popular mapping areas are typically in Wales, Scotland, Ireland, southern France, Spain and Portugal, but opportunities exist for travel further afield. In your third year, you will analyse and interpret your field map data and write a detailed report on your summer mapping project.



Mapping training in Cyprus

In your third year there are several core synoptic modules, but you will also have a choice of optional modules in specialist and more applied subjects. Some of those specialist modules involve field excursions. You will also have the option to complete a research-level project in a topic of your choice. The lecturers on the Geology programme are all specialists who publish research papers in international journals and books, so you will benefit from teaching at the forefront of geological research. One of the highlights of the third year is a residential field excursion to Cyprus to study an uplifted section of oceanic crust and its associated sediments.

The four-year MSci Geology degree is for students interested in professional research careers. It provides research training in specialist aspects of geology (see MSci section for more details).



BSc Geology Module Programme

Year One	Year Two	Year Three
Life Through Time	Geological Fieldwork and Mapping Training	Geological Mapping Project
The Sedimentary System	Sedimentary Processes, Petrology and Stratigraphy	Geology Field Course (Cyprus)
Earth and Planetary System Science	Palaeoecology	Dynamic Earth
Fieldwork	Applied GIS	Advanced Sedimentology and Stratigraphy
Earth Science Skills	Igneous Geology	Global Geomorphology
Dangerous Earth	Metamorphic Geology	Structural Techniques
Natural Resources and Energy	Geophysical Exploration	Volcanic and Magmatic Processes
Earth Materials	Structural Geology	Palaeobiology
Formation of the British Isles	Plate Tectonics	Marine Microfossils
Geological Maps, Sections and Structures	Geological Resources (ores, minerals, oil & energy)	Water Resources
This list of modules is only indicative and may change slightly each year.		Engineering Geology
Key:		Glaciology
● Core Modules		Petroleum Geology and Basin Analysis
● Optional Modules		Hazards and Risk
		Applied Mineralogy
		Palaeoclimate

Exploration and Resource Geology

- BSc (UCAS Code: F621)
- BSc (placement year) (UCAS Code: F622)
- MEdSci (UCAS Code: F623)
- MEdSci (International) (UCAS Code: F624)

This is a very opportune time to study for a degree in exploration geology since young skilled people are in great demand to assist in the exploration for natural resources to feed the growing world demand for minerals, oil, gas and industrial minerals.

An exploration geologist requires a broad range of skills including: an aptitude for fieldwork, good IT skills and the ability to make key decisions from limited information. Our long-established vocationally-orientated courses are unique in the UK and well respected in the exploration industry. A degree from Cardiff in Exploration and Resource Geology will prepare you for a potentially exciting professional career as a geologist working in the global hydrocarbon, metalliferous or bulk mineral industries.

The three-year BSc degree focuses on applied geology, with the exploration, evaluation and extraction of the Earth's natural resources. The aim is to provide an understanding of the geological, physical and chemical processes active within the Earth that lead to the formation of a natural resource. The course provides training in the specialist fieldwork and IT skills required by the modern professional exploration geologist

using, whenever possible, field-based project work. You will participate in field training courses that include practical exercises in surveying, geological, geochemical, geophysical mapping techniques and safety.

This training programme leads on to residential field courses in the UK and abroad, for example to Spain, and includes a teambuilding ice-breaker visit to the Dolaucothi gold mine in mid-Wales. During fieldwork you learn to draw detailed geological maps using geological and geophysical techniques.

During the summer vacation before the third year, you undertake either a vocational industrial exploration placement anywhere in the world exploring for metals, oil or industrial minerals for at least five weeks or a practical field mapping project module under School supervision. In the autumn of your third year you will write an assessed report on this project. Over the years several of our graduates have gone on to secure full-time employment with their placement companies.



Bill Levene

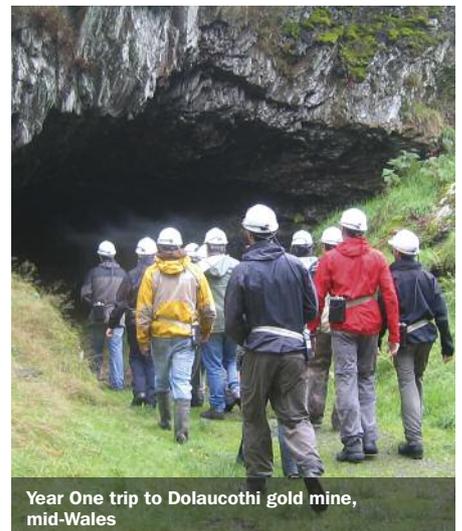
Bill graduated with a BSc in Exploration and Resource Geology and is currently working for Hummingbird Resources in Liberia. Work involves running multiple trenching/soils sampling programmes, supervising up to 80 people. Many projects are a days walk from camp and involve staying in villages that have never been visited by a European before.

How did you find the Cardiff student experience?

"The Cardiff course provided me with skills very relevant to working in mineral exploration, which I have been able to build on since graduating. Cardiff was a fantastic place to study with ample opportunity to get involved in other activities outside your course."



Year Three Exploration and Resource Geology students studying copper deposits, on their Cyprus fieldtrip



Year One trip to Dolaucothi gold mine, mid-Wales

In your third year, you will study further core exploration modules on metals and oil together with a range of optional modules involving both applied aspects and specialist geological topics. You will also have the opportunity to visit an area of outstanding European geology on residential fieldwork such as Cyprus.

Our graduates in Exploration & Resource Geology are commonly employed in field-based exploration all over the world, or are found analysing geological or geophysical data using modern computer processing techniques in global exploration companies. If you choose to study the four-year MEng Exploration and Resource Geology degree you

will be exposed to cutting-edge research in exploration geology with access to our in house state-of-the-art mineral analytical equipment, 3D-seismic processing and data visualization facilities. In the fourth year you will undertake a research project in your subject of interest in exploration or resource geology (see MEng section for more details).

BSc Exploration and Resource Geology Module Programme

Year One	Year Two	Year Three
Life Through Time	Field Skills in Exploration and Resource Geology	Exploration and Resource Geology Project
The Sedimentary System	Data Acquisition and Analysis	Ores and Ore Genesis
Earth and Planetary System Science	Geological Resources (ores, minerals, oil & energy)	Exploration & Resource Geology Field Course (Cyprus)
Fieldwork	Sedimentary Processes, Petrology and Stratigraphy	Petroleum Geology and Basin Analysis
Earth Science Skills	Igneous Geology	Applied Mineralogy
Dangerous Earth	Metamorphic Geology	Water Resources
Natural Resources and Energy	Structural Geology	Advanced Sedimentology and Stratigraphy
Earth Materials	Plate Tectonics	Structural Techniques
Formation of the British Isles	Applied GIS	Volcanic and Magmatic Processes
Geological Maps, Sections & Structures	Geophysical Exploration	Environmental Law
This list of modules is only indicative and may change slightly each year.		Engineering Geology
Key:		Hazards and Risk
● Core Modules		
● Optional Modules		



Geologists mapping training in south Wales

Environmental Geoscience

- BSc (UCAS Code: F642)
- BSc (placement year) (UCAS Code: F644)
- MEdSci (UCAS Code: F645)
- MEdSci (International) (UCAS Code: F647)



Geoconservation study in Tenerife

South Wales is one of the best locations in the UK to study Environmental Geoscience, having a wealth of local natural and man-made geoenvironmental subjects. These natural locations range from the beautiful Welsh coastline up to the scenic mountains of the Brecon Beacons, including eroding sea cliffs, sand dunes, wetlands, valley slopes and past glacial erosion.

With a long industrial history, South Wales offers study sites that include landfills, heavy metal contamination, acid mine drainage, derelict land and mining subsidence. The environmental geologist is at the forefront of the scientific community's efforts to understand our complex and changing surroundings. Furthermore, the challenging and growing market of contaminated and derelict land remediation is a growing source of employment for geoscientists.

At the start of the programme you will be taught how our planet works, and how natural and man-made events interact with, and change, the environment. You will learn about global systems like climate, how they work today, how they have operated in the

past, and are expected to change in the future. You will also learn about man-made issues like pollution; its causes, assessment, monitoring and clean up.

In the second year you will study a wide variety of modules, ranging from applied modules that will facilitate your understanding of site-specific geoenvironmental issues, such as contaminated land and geotechnics, to modules that address global geoenvironmental issues, providing a base for studies on subjects like climate change and sea-level rise. In all these modules you will be taught the skills required for planning, executing and reporting on project work. This will include both field-based and desk-based studies, and working independently and as part of a team. Local fieldwork around Easter in Year Two brings many of these skills together in preparation for your main degree project - a vital component of the programme.



Hanna Hayward

Hanna graduated with a degree in Environmental Geoscience (with a placement year) and is currently working as an Assistant Environmental Advisor for BAM Construct UK.

How did you find the Cardiff student experience?

"There were many reasons that made me choose Cardiff to study Environmental Geoscience, but it was the opportunity to have an industrial placement year as well as the variety of field trips and high standard of teaching which separated Cardiff University from my other choices. I thoroughly enjoyed my degree."

Throughout the second year you will acquire more specific skills that will be essential for your own project work. For example, if you undertake a project that requires you to carry out geochemical analyses, you will be taught the protocols required to work in a modern state-of-the-art geochemical facility.

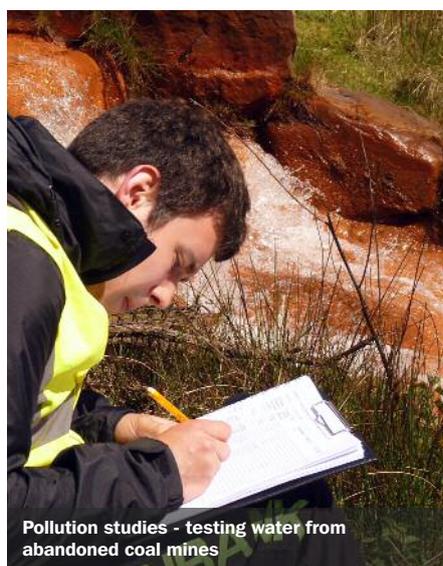
The School provides a wide range of projects from which you can choose a subject of interest. However, students are actively encouraged to design their own projects. Students choose or devise projects that relate to geoenvironmental issues close to their homes or that have impacted on their lives in the past. Such projects are undertaken with help and advice provided by bodies such as the Local Authorities or Environmental Agency.

In the third year you will complete your project work, presenting it in the form of a professional report. There are a few core modules, but most are optional, allowing you to target your own geoenvironmental interests and aspirations. As with the previous years, the third year consists of a mixture of taught knowledge and skills. However, in this final part of your degree, the emphasis is much more on synthesis, tying together the separate strands to give a more complete and holistic understanding of the subject.

As well as fieldwork in South Wales, this programme also has residential trips to Portugal for geological mapping training and geoecology and to the volcano of Tenerife to study “the whole island concept” linking geomorphology, hazards, soils, vegetation, water and sustainability.

The evolution of our present environment into the future is a key subject for global enquiry

and includes the problems of climate change and the effect of human activities on the environment. For students interested in professional research careers in Environmental Geoscience, the four-year MESci in Environmental Geoscience provides a basis for investigation of these key areas (see MESci section for more details).



Pollution studies - testing water from abandoned coal mines



Year 2 students undertaking a geoecology survey

BSc Environmental Geoscience Module Programme

Year One	Year Two	Year Three	
Life Through Time	Field Skills in Environmental Geoscience	Environmental Geoscience Project	
The Sedimentary System	Data Acquisition and Analysis	Environmental Geoscience Field Course (Tenerife)	
Earth and Planetary System Science	Sedimentary Processes, Petrology and Stratigraphy	Environmental Case Studies	
Fieldwork	Environmental Pollution	Engineering Geology	
Earth Science Skills	Applied GIS	Global Geomorphology	
Formation of the British Isles	Palaeoecology	Environmental Management and Policy	
Natural Resources and Energy	Catchment Geomorphology	Integrated Coastal Management	
Earth Materials	Geophysical Exploration	Marine Microfossils	
Geological Maps, Sections & Structures	Structural Geology	Water Resources	
Dangerous Earth	Geoecology	Glaciology	
<p>This list of modules is only indicative and may change slightly each year.</p> <p>Key:</p> <ul style="list-style-type: none"> ● Core Modules ● Optional Modules 		Palaeobiology	
			Hazards and Risk
			Palaeoclimate
			Environmental Law
			Geomicrobiology

Marine Geography

- BSc (UCAS Code: F841)
- BSc (placement year) (UCAS Code: F842)
- MEdSci (UCAS Code: 1D79)
- MEdSci (International) (UCAS Code: 4J26)



Marine Geography students studying marine ecology on their field course to Greece

Marine Geography is the study of the ocean and its coastlines - the geography of the sea. Marine geographers augment traditional land-based geographic skills with new techniques and approaches in order to understand the intriguing geography that lies offshore and beneath the ocean surface.

The World Ocean, 71% of the planet and rising, is one of the last frontiers on Earth for the exploration and development of resources to sustain humanity in the future. Owing to its size, dynamic nature and diversity, the geography of the ocean environment is fundamental to our understanding of the natural systems of the whole planet. Marine Geography is physical geography blended with applied use in the form of human geography. As such, Marine Geographers study the socio-economic relationships between people and the physical characteristics of the sea and coast at global and local scales to help decision-making on issues such as fisheries, offshore oil and gas, ports and shipping, conservation, minerals and energy, strategic use and management. These issues are all critical in terms of sustainable development and environmental protection.

A major component of the programme in Cardiff is that of mapping the marine environment in order to understand its physical and biological characteristics. You will learn not only about traditional navigation and hydrographic surveying techniques, but you will also gain experience of modern remote sensing systems including satellite imagery, side-scan and multi-beam SONARS for seabed mapping, and 3D-seismic methods for probing the ocean floor. You will also get the opportunity to ground-truth the images of the seabed and marine ecosystem by deploying underwater cameras and various seabed-sampling devices including grabs, corers and trawls.

The programme involves a multidisciplinary approach to the wide range of data relating to society and the sea. Information acquired from a range of equipment and techniques is compiled using Geographical Information Systems (GIS). The results of the GIS analyses are used not only to investigate the geography of the coasts and oceans, but also to help decision-makers involved in Integrated Coastal Zone Management.



Beth Taylor

"After a placement year working for a marine NGO in Greece, I was certain I wanted a career in marine conservation and a job heavily fuelled by fieldwork and I have been employed in the marine sector since graduation.

I have worked on marine spatial planning reports for the Marine Management Organisation; conducted elasmobranch research in the Cayman Islands; been a researcher on the largest ever Caribbean wide coral reef and social science project in British Virgin Islands; acted as lab manager of a coral research base on a remote island of four people...and now I am Project Manager of the Manta Trust's Laamu Atoll research initiative.

There is no way I would have been able to get to these places and do these incredible jobs if it had not been for my foundation in marine science gained at Cardiff. I was also told categorically during my Masters application process, that the skills and knowledge base gained during my undergraduate BSc was key in my gaining a place on the highly competitive MSc Marine Environmental Management at the University of York.

I would highly recommend Cardiff Marine Geography BSc for anyone considering a career in the marine sector due to its broad scope, which allows anyone to explore almost every job possibility under the sun!"



Marine Geography students in Jersey deploying scientific probes to test water column

For example, the School hosts the Severn Estuary Partnership, which uses the results of such techniques to coordinate and monitor implementation of socio-economic and environmental policies within the estuary. Studies involving the techniques of hydrographic surveying, GIS, and environmental management systems provide the opportunity to develop highly sought after transferable skills.

The School has a high number of marine scientists on its teaching staff, many with sea-going experience, an international reputation for academic research and well-established links with industry. They specialise in a range of interests including marine biology, physical processes, coastal and ocean management, hydrographic surveying and seafloor mapping, global climate change and environmental management of marine operations.

A significant amount of practical and applied experience is built into the degree programme. Situated in an estuary with a large tidal range and with access to a wide variety of coastal environments, Cardiff is an

excellent base for both traditional fieldwork and innovative seetime training. Following the UK-based fieldcourse programme in the first year, in the second and third year you will acquire field skills at a range of European coastal and island locations. Current options include Greece, Malta and Jersey. The School operates its own Research Vessel *Guiding Light* and this is used by undergraduates as part of the research-led teaching programme. In addition, undergraduate students have undertaken summer and long-term placements at many overseas locations, including Spain, Greece, Maldives, Bahamas amongst others. This provides an essential background in practical aspects of coastal and marine research techniques, which provides you with an edge in the careers market.

The BSc degree in Marine Geography is accredited by the Royal Institution of Chartered Surveyors. You may also read for a four-year degree in Marine Geography, where the third year is spent on an industrial placement.

This sandwich course is extremely popular and the placements are much sought after, as they enhance future employment opportunities greatly.

For students interested in professional research careers in Marine Geography, the four year MEd in Marine Geography provides a basis for investigation of these key areas (see MEd section for more details).



Coastal habitat project work in the Mediterranean



Ecological survey of the sea floor in Malta

BSc Marine Geography Module Programme

Year One	Year Two	Year Three
Marine Charts and Hydrography	Applied GIS	Marine Geography Project
The Sedimentary System	Coastal Hydrography	Marine Geography Fieldcourse
Earth and Planetary System Science	Environmental Pollution	Applications of Marine Science
Fieldwork	The Ocean Atmosphere System	Glaciology
Earth Science Skills	Marine and Coastal Resource Systems	Marine Conservation Science
Environmental Chemistry and Biology	Marine Ecosystems	Environmental Management, Science and Policy
Natural Resources and Energy	Geomorphology of Catchments and Coasts	Marine Geomatics
The Global Ocean	Marine Geography Field Skills	Coral Reefs
Marine Geography Data Analysis		Integrated Coastal Management
Dangerous Earth		Water Resources
<p>This list of modules is only indicative and may change slightly each year.</p> <p>Key:</p> <ul style="list-style-type: none"> ● Core Modules ● Optional Modules 		Environmental Law
		Biogeography
		Geomicrobiology
		Marine Microfossils
		Palaeoclimate

Recent examples of placements include:

PORT OF DOVER Environmental survey assistant	ANDREWS HYDROGRAPHIC Hydrographic surveyor	METEROLOGICAL OFFICE Data processing assistant
PORT OF MILFORD HAVEN Hydrographic survey assistant	FUGRO UDI Survey assistant	PEMBROKESHIRE NATIONAL PARK Control zone management assistant
PORT OF PORTLAND Survey assistants	GARDLINE SURVEYS Offshore survey assistant	TITAN ENVIRONMENTAL SURVEYS Survey assistant
A&P PLYMOUTH Port surveyor	H R WALLINGFORD Environmental modelling	WORLD CONSERVATION MONITORING CENTRE GIS programmer

BSc Earth Sciences with a Preliminary Year

- BSc (UCAS Code: F641) (4 years)

The Preliminary Year forms the first year of a four-year BSc course (five years in the case of one of our BSc degrees with an industrial placement year). Following the successful completion of the Preliminary Year, students can choose to study any of the BSc degree programmes available in the School.

This degree programme with a Preliminary Year is academically demanding and is principally designed for students who have good A-level grades but have no science background.

Please note: the Preliminary Year is not designed for students who have taken appropriate A-levels but not achieved the grades required for First Year entry. Consequently, admission to this degree programme requires the same grades as our other BSc degrees.



Environmental geoscientists soil sampling in Tenerife

Postgraduate Masters Courses

After your first degree you may wish to specialise in a particular area of Earth Sciences, by taking a taught Postgraduate Masters course.

MSc Applied Environmental Geology

This vocationally-orientated course and five-month project undertaken with an industrial partner ensures that students are well prepared for working in the engineering and environmental industries. It has a successful 25-year history, having trained over 700 postgraduates who are now working in industry and government agencies in UK, Europe and overseas.

Technical geological information is required for all geo-environmental site investigations, ranging from designing foundations to assessing contaminated land. In the developed and developing world, large areas of derelict industrial land are now being remediated for other uses, and in such areas site investigation demands the integration of both geotechnical and geo-environmental skills. Additionally, environmental protection and sustainable development now underpins



MSc students on site with Geotechnology Ltd

legislation in most countries. Typically, individual projects involve elements of geotechnics, ground contamination and environmental assessment. It is this integrative approach that forms the basis of this MSc programme.

The MSc programme is accredited by the Geological Society of London Geology so successful completion of this postgraduate degree can be used in credit towards gaining the professional Chartered Geologist (C.Geol) qualification.

Employability and Careers

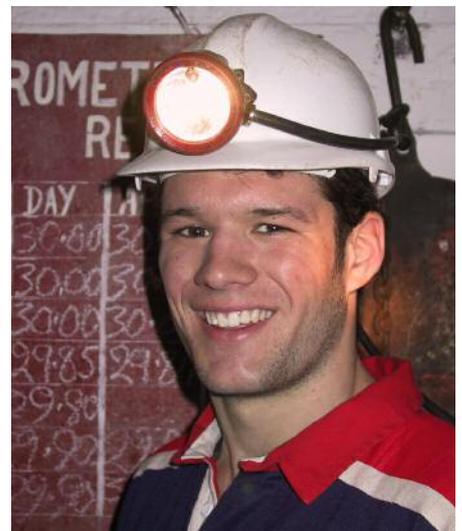
All of the degrees offered by Cardiff School of Earth and Ocean Sciences will equip you to pursue a career based on the knowledge and skills acquired during your studies. With all of our courses you will develop a wide range of transferable skills which are highly sought after by employers.

These transferrable skills include:

- ▶ Numeracy
- ▶ ICT
- ▶ Practical skills
- ▶ Effective written and oral communication
- ▶ An ability to conduct independent research
- ▶ Problem solving
- ▶ Synthesis, evaluation and critical analysis
- ▶ Working independently and teamwork
- ▶ Collecting and recording data
- ▶ Report writing
- ▶ Processing, modelling and interpreting data
- ▶ Bibliographic skills.

The applied, industry-focused nature of most of our degrees means that our graduates have a distinct advantage in the careers market.

The experience gained during summer placements with companies has often been instrumental in helping to secure a permanent job, sometimes with the same company. As you can see below our graduates work in a wide variety of areas. Many of our graduates go on to further study after their BSc or MSci degree, and the research informed content of the programmes in the School means that our graduates are well equipped to undertake specialist taught Masters courses (see below), teacher training courses or high-level research leading to Doctoral degrees. In recent years our graduates have gone on to study for doctorates in, for example, Cardiff, Manchester, Durham, University College London and the Open University.



Typical Recent Graduate Careers and Further Training

Geology / Exploration & Resource Geology

- mineral exploration
- geological consultant
- field mapping
- oil geologist
- mining software analyst
- geophysical surveying
- water industry
- construction industry
- seabed and hydrographic surveying

Masters (MSc) in:

- hydrogeology
- applied geotechnics
- geochemistry
- environmental risk management
- applied environmental geology
- mining geology
- engineering geology

Environmental Geoscience / Environmental Geography

- water industry
- waste management
- environmental advisor
- construction industry
- software analyst
- surveying
- environmental consultant
- pollution monitoring

Masters (MSc) in:

- environmental conservation management
- applied environmental geology
- engineering geology
- waste management
- environmental hydrogeology
- hydrology
- water resources management

Marine Geography

- hydrographic surveyor
- marine conservation officer
- water industry
- marine environmental consultant
- oceanographic surveyor
- waste management
- port authority officer
- marine research

Masters (MSc) in:

- conservation
- environmental hydrogeology
- oceanography
- renewable energy
- biotechnology
- applied environmental geology

Research in Cardiff School of Earth and Ocean Sciences

Cardiff Earth and Ocean Sciences is a research School with over 40 leading international research scientists and around 50 postgraduate research students investigating a diverse range of research topics.



Drilling sediments in Tanzania to provide new insights into the history of tropical climates



Measuring flow under glaciers, Greenland



Mineral exploration research

Research within the School of Earth and Ocean Sciences is as fascinating as it is broad. Our researchers (including two fellows of the Royal Society) are addressing fundamental questions relating to the evolution of our planet. From deep within the Earth, through the crust, into the oceans and onto the land, the international quality of our research output is highlighted by our ranking of 4th in the UK within our discipline (REF2014). Our researchers are divided into the Solid, Living and Changing: Earth and Ocean Science research groups but our specific research interests are broken down into several themes that may lie within a single group or straddle groups. In this way we ensure that new and exciting partnerships between scientists with different interests can prosper.

The breadth of our research is reflected in the range of taught modules offered to our undergraduate students who can get involved through practical classes and virtual surveys using satellite images, as well as through their own research projects in the laboratory and in the field.

Solid: Earth and Ocean Science

Through a combination of field and 3D seismic data, laboratory investigations and numerical modelling, the Solid research group investigates the composition and dynamic evolution of the Earth's mantle and crust, including the formation of mineral and hydrocarbon deposits, magmatic and hydrothermal processes, geodynamics, solid Earth dynamics, plate tectonics and the development of sedimentary basins. Our research in mineral deposits focuses on magmatic ore deposits of platinum-group elements, nickel, copper and chromium, notably in southern Africa and Fennoscandia. Research on the ocean lithosphere concerns spreading ridges, transform faults, processes in mid-ocean ridge magma chambers and ancient analogues within ophiolites, primarily in Cyprus and Oman. Members of this research group work closely with various mineral and hydrocarbon resource companies.

Research themes central to the Solid group include: ocean lithosphere processes, subsurface and mantle geodynamics and processes in mineral deposit formation. Members from the group also work within the



Geological fieldwork in Iran

African continent theme, a multi-disciplinary initiative promoting research and education in the geosciences.

Living: Earth and Ocean Science

Life evolved on Earth some 3.5 billion years ago and has had a significant influence on environmental conditions, which continue today. Rocks contain a unique archive of past ecosystems in their fossils, which we study to document the rich history of life on Earth and its environmental impact. The Living research group studies biogeochemical processes today and the fossil inferences of their past roles. Life on Earth has co-evolved with the planet and without life our environment would be very different, for example little oxygen, high CO₂, high temperatures, highly reduced oceans and no oil or gas. Microbes drive many of the responsible biogeochemical cycles and we investigate the rates, controls, feedbacks and the organisms involved.

Key research themes within the Living group include: geomicrobiology, microbial biogeochemistry, cold climates, ecosystems in deep time, plants and environmental dynamics and the taxonomy, stratigraphy, and evolution marine microfossils.

Changing: Earth and Ocean Science

The Changing research group investigates the causes and consequences of changes in the Earth system, in the ocean, atmosphere and on land, from the geological past into the present and future using a combination of

field research, laboratory experimentation and numerical modelling. The emphasis is on understanding natural processes that cause changes on our planet and, in some cases, how human activity affects those processes and how they affect us, for example, landslips, coastal erosion and climate change. Research projects are underway all over the planet, from the oceans around Antarctica to forested mountains at the equator.

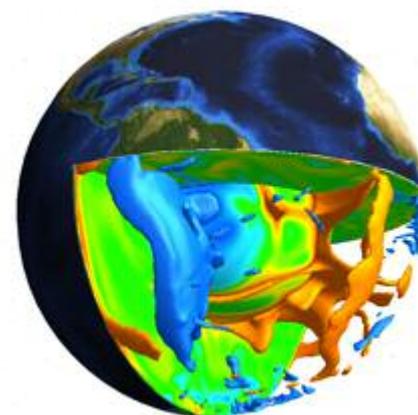
Research themes central to the Changing group include: Earth surface processes, plants and environmental dynamics, cold climates, marine microfossils and palaeoclimate and climate systems. Members from this group are also working within the African continent theme.



Collecting sediment cores on a research cruise



Fossil leaves buried in glacier ice in Svalbard



Modelling of heat flow in the mantle

Applications

To be considered for entry onto one of our degree programmes you should apply online via the UCAS website using the 'UCAS Apply' facility. To use this facility you need to log onto: www.ucas.ac.uk/apply

The website will provide you with information on how to apply and explains the UCAS procedure.

Entry Requirements

For detailed entry requirements and latest typical offers please see: www.cardiff.ac.uk/ugcourses

Our typical offers are:

MESci (International):

A-level: AAA from three A-levels - at least two of which must be sciences.

International Baccalaureate: 34 - 35 points, including at least two sciences at Higher level.

WBQ: A in the Core plus AA in A levels.

MESci:

A-level: AAB from three A-levels - at least two of which must be sciences.

International Baccalaureate: 32 - 34 points, including at least two sciences at Higher level.

WBQ: A in the Core plus AB in A-levels.

BSc:

A-level: ABB from three A-levels - at least one of which must be a science (applicants for Exploration and Resource Geology must have at least 2 science A-levels).

International Baccalaureate: 29 - 32 points, including at least one science at Higher level.

WBQ: A in the Core plus grades BB in A-levels.

The School will consider combinations of qualifications which include both vocational and academic A-levels.

Equal Opportunities

Cardiff University is committed to promoting equality and diversity in all of its practices and activities, including those relating to student recruitment, selection and admission. The University aims to establish an inclusive culture which welcomes and ensures equality of opportunity for applicants of all ages, ethnicities, disabilities, family structures, genders, nationalities, sexual orientations, races, religious or other beliefs, and socio-economic backgrounds. This commitment forms part of the Equality and Diversity Policy which is available at: www.cardiff.ac.uk/cocom/equalityanddiversity/index

Applicants with Disabilities/Specific Needs

All offers to study at Cardiff University are made solely on the basis of academic merit. Where applicants have specific requirements that relate to a disability or medical condition, they are encouraged to discuss these with relevant staff in order that appropriate arrangements can be made to ensure the University provides an accessible environment. Specifically, applicants are invited to contact the Disability Adviser who can provide information about the applications procedure, course delivery and access to the physical environment. Where appropriate, informal visits can be arranged in which applicants can view accommodation and meet academic staff.

For further information please contact the Disability Adviser:

Tel: +44 (0)29 2087 4844

Email: disability@cardiff.ac.uk

Deferred Entry

The School has no objection to the possibility of deferred entry provided the intervening year is spent in a positive and worthwhile way. Application is made through UCAS in the usual way, although the UCAS application must show the deferred year of entry.



There are a range of opportunities to visit the University

More online at:
www.cardiff.ac.uk
www.cardiff.ac.uk/for/prospective/undergraduate

Tuition Fees and Financial Assistance

The University charges an annual fee which covers all tuition fees, registration and examinations other than the re-taking of examinations by students not currently



registered. Please note charges for accommodation in University Residences are additional.

Please see the following website for more information:
www.cardiff.ac.uk/fees

Scholarships and Bursaries

For more information please visit the following website:
www.cardiff.ac.uk/funding-ug

Useful websites for information about tuition fees and financial assistance:

Cardiff University website:
www.cardiff.ac.uk/fees
 Student Support Centre website:
www.cardiff.ac.uk/financialsupport/index.html

Student Finance Wales
www.studentfinancewales.co.uk
 Student Finance England:
www.studentfinanceengland.co.uk
 Student Loans Company
www.slc.co.uk

Further Information

For further information, please email us at:
earth-ug@cardiff.ac.uk or visit us at the Cardiff School of Earth and Ocean Sciences website:
www.cardiff.ac.uk/earth-ocean-sciences

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To find out more about the Cardiff School of Earth and Ocean Sciences please visit our website
www.cardiff.ac.uk/earth-ocean-sciences

INSIDERS

meet our students

Got questions about student life?
Get them answered at:
www.cardiff.ac.uk/insiders

Some of our current students are sharing their experiences online through their Facebook pages, so if you want to know what life as a student at Cardiff is really like, then you can find out now. There is also lots of information about what is happening in Cardiff, including articles written by our students, videos, and much more.

Enquiries

Tel: **029 2087 4830**
Email: earth-ug@cardiff.ac.uk

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