



KEY INFORMATION AND ENTRY REQUIREMENTS

	UCAS CODE	TYPICAL OFFER
BSc Single Honours Geology	F600	AAB-ABB; IB: 34-32
Applied Geology	F613	AAB-ABB; IB: 34-32
Engineering Geology and Geotechnics	F644	AAB-ABB; IB: 34-32
MGeol Single Honours Geology	F603	AAB-ABB; IB: 34-32
Applied Geology	F614	AAB-ABB; IB: 34-32
Engineering Geology and Geotechnics	F615	AAB-ABB; IB: 34-32

The full and most up-to-date information about Geology is on the undergraduate website at www.exeter.ac.uk/ug/geology and we strongly advise that you check this before attending an Open Day or making your application. Some programmes require prior study of specific subjects and may also have minimum grade requirements at GCSE or equivalent, particularly in English Language and/or Mathematics.

We make every effort to ensure that the entry requirements are as up-to-date as possible in our printed literature. However, since this is printed well in advance of the start of the admissions cycle, in some cases our entry requirements and offers will change.



The
Geological
Society

-serving science & profession

International students

If you are an international student you should consult our general and subject-specific entry requirements information for A levels and the International Baccalaureate, but the University also recognises a wide range of international qualifications. You can find further information about academic and English language entry requirements at www.exeter.ac.uk/ug/international

For further details on our entry requirements, please see our Geology pages at www.exeter.ac.uk/ug/geology

PENRYN CAMPUS, CORNWALL

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GEOLOGY

7th in the *The Times and The Sunday Times Good University Guide 2017*

2nd in the Russell Group for graduate progression with 89% of Geology graduates entering into professional occupations or graduate-level further study six months after graduation¹

International reputation with excellent industrial links and employment prospects

Strong emphasis on field-based and technical training, with specialist facilities including mineralogical and geochemical analytical laboratories and test mine

Accredited by The Geological Society



The study of geology applies many different branches of science to understand how the Earth 'works' and has evolved over the last 4.6 billion years. It ranges in scope from the atomic through the continental to the cosmic, and encompasses such spectacular natural processes as earthquakes, landslides and volcanic eruptions.

Many applicants choose to study geology for these reasons alone. However, geology also has many applied aspects and knowledge of these provides excellent opportunities for work in a variety of landscapes and environments worldwide.

Geologists who can successfully apply their knowledge of how the Earth works are employed in the exploration and production of metals, industrial minerals and hydrocarbons. Geologists also have an understanding of the engineering properties of rocks and soils and are employed on civil engineering projects such as tunnels,

road cuts, dams, reservoirs and foundations. Geologists are also employed within the environmental sector, in site investigation, waste disposal and the remediation of contaminated land.

Our geology programmes are taught by the University's Camborne School of Mines (CSM), which has an exceptional international and national reputation for training geoscientists. CSM has research strengths in pure and applied geology (ore deposits/critical metals, palaeoclimates, palaeoenvironments and palaeoceanography, environmental mineralogy, igneous petrology, geostatistics and tectonics/structural geology) and geotechnical engineering (rock mass modelling).

Our programmes are accredited by The Geological Society which is advantageous should you wish to proceed to Chartered Geologist status after graduation.

¹ Destination of Leavers from Higher Education Survey (DLHE) of 2014/15 undergraduates

DEGREE PROGRAMMES

Our geology degrees provide comprehensive training for students aiming to become professional geoscientists and the MGeol programmes also provide the research skills and experience for students wishing to undertake PhD research. The mixture of pure and applied earth science and engineering modules, and associated transferable skills, is appropriate for subsequent employment in many sectors or study towards a postgraduate degree (MSc/PhD).

Emphasis is placed on practical training in field-based skills, including geological mapping (surface and underground), core logging and surveying. Residential field courses take place in the UK and abroad, along with one-day courses based on Cornwall's spectacular geology and its extractive industry and associated environmental case studies.

How your degree is structured

We offer three geology degree programmes: Geology, Applied Geology, Engineering Geology and Geotechnics. Each can be studied as either a three-year BSc or a four-year MGeol programme. The MGeol programmes provide an opportunity to both study advanced modules and undertake a substantial independent research project in your fourth year. As such, they provide an appropriate background if you wish to progress to a research degree (MPhil/PhD) or enter employment with an enhanced skillset.

Our programmes are modular and you progress through your degree by studying modules and accumulating credits as you successfully complete them. Individual modules are usually worth 15 or 30 credits each and you have to complete 120 credits per year in order to progress through the programme. Transfer between BSc and MGeol programmes may be possible up to the end of the third year, depending on academic performance and student numbers.

For up-to-date details of all our programmes and modules, please check www.exeter.ac.uk/ug/geology

Single Honours

MGeol/BSc Geology

The Geology programmes provide a fundamental training for students who wish to gain a detailed understanding of the earth, its history, processes and resources. It provides the basis for employment as a professional geoscientist in a wide range of industry sectors or, through further specialisation and study, as a route into research and advanced technical industry roles.

Years 1 and 2 Mathematics 1A; Surveying and CAD; Geology; Earth and Environmental Chemistry; Crystallography and Mineralogy; Stratigraphy and Palaeontology; Field Geology and Geological Maps.

Year 3 Dynamic Climates of the Past; Evolution of Earth and Planetary Systems; GIS for Geologists; Exploration Techniques. Options from: *Contaminated Land Management and Remediation*;

Hydrogeology; Mineral Deposit Geology; Energy Resource Geology. You will also report on your *Summer Vacation Project* and undertake the *Applied Field Geology* residential field class in either Spain or Cyprus.

Year 4 (MGeol only) You undertake a *Research Project* that runs throughout the year and select from a range of modules such as: *Advanced Mineral Analysis; Topics in Current Research; Magmatic Processes; Fluids in the Geosphere; Economics, Mineral Processing and Environment; Ore Deposit Models; Minerals Processing*.

MGeol/BSc Applied Geology

The Applied Geology programme provides a broad-based training appropriate for students who wish to maximise their employment potential as professional geoscientists in sectors such as exploration or production geology (hydrocarbons, metals, industrial rocks and minerals), hydrogeology, environmental geology and waste disposal.

Years 1 and 2 Please see MGeol/BSc Geology. You will choose between Geotechnics or Stratigraphy in Year 2.

Year 3 The overall focus of the third year is applied geology and advanced options in related scientific, engineering or environmental applications. You will report on your *Summer Vacation Project*. The Applied Field Geology module takes the form of a residential field class in Spain or Cyprus and provides a practical synthesis of many of the modules covered in the second and third years.

Year 4 (MGeol only) You undertake a *Research Project* that runs throughout the year and participate in the *Fourth-Year Field Class*. You also choose from a range of other modules relevant to employment or research in exploration/production geology and geometallurgy, such as *Advanced Techniques for Mineral Analysis; Advanced Mineral Deposit Geology; Minerals Processing; Economics, Processing and Environment; Mine Wastes: Principles, Monitoring and Remediation* and *Resource Estimation*.

MGeol/BSc Engineering Geology and Geotechnics

The Engineering Geology and Geotechnics programme is suitable for students who wish to maximise their employment potential as geoscientists in the civil engineering, environmental or minerals industries. You might also aspire to postgraduate study (MSc/PhD) focused on one of these areas.

Years 1 and 2 Please see MGeol/BSc Applied Geology. You will study the *Geotechnics* module in Year 2.

Year 3 The modules are largely the same as for the Applied Geology programme, including the *Summer Vacation Project* and the *Applied Field Geology* residential field class in Spain or Cyprus. However, there is a greater focus on engineering, including compulsory modules in *Surface Excavation Design and Hydrogeology*, and a choice between *Tunnelling and Excavation Design* and *Contaminated Land Management and Remediation*.

Year 4 (MGeol only) You undertake a *Research Project* that runs throughout the year and participate in the *Fourth-Year Field Class*. You also choose from a range of other modules relevant to employment in engineering geology or geotechnics such as *Geomechanics Computer Modelling for Excavation Design; Economics, Processing and Environment; Resource Estimation and Mine Wastes: Principles, Monitoring and Remediation*.

LEARNING AND TEACHING

Teaching methods include a combination of formal lectures, 'hands-on' practical classes and field-based teaching. Laboratory classes, using our extensive teaching collections and petrological microscopes, develop your understanding of the major groups of rocks, minerals and fossils. Project work may involve use of our mineralogical and geochemical research laboratories.

You will have on average 18 teaching hours per week and will need to undertake additional hours of private study (assignments, additional project work and associated reading). You should expect your total workload to average about 40 hours per week during term time.

We're actively engaged in introducing new methods of learning and teaching, including increasing use of interactive computer-based approaches to learning through our virtual learning environment, where the details of all modules are stored in an easily navigable website. Here, students can access module learning resources (lecture PowerPoints, notes and weblinks) and interact through activities such as discussion forums.

Research-inspired teaching

We believe that every student benefits from being part of a culture that is inspired by research and being taught by experts with whom they can discuss the very latest ideas in seminars and tutorials and become actively involved in research.

Camborne School of Mines (CSM) is an internationally recognised centre for research related to the formation, discovery, extraction and utilisation of the Earth's natural resources, and subsequent remediation of mine sites. The applied nature of much of the research is indicated by significant international industrial collaboration.

CSM also has a newly established Deep Time Global Change research group. Undergraduate teaching is therefore underpinned by lecturing staff who are experts in their respective fields. We have active research interests in igneous petrology, economic geology, tectonics, volcanology, sedimentology, environmental mineralogy and palaeoclimates, palaeoenvironments and palaeoceanography. We are committed to producing graduates who have an understanding of both the scientific and the human/social issues which are involved in the vital field of environment and sustainability, in part through association with staff at the Environment and Sustainability Institute on the Penryn Campus.

You can find out more about our research on our website at www.exeter.ac.uk/csm

Facilities

The facilities on campus offer state-of-the-art equipment for teaching and research. Our Geology Teaching Laboratory was refurbished with brand-new microscopes in summer 2015 and has stunning views across Falmouth Bay. Research facilities include QEMSCAN®, a sophisticated scanning electron microscope-based mineralogical assessment system and an FEG-SEM (high resolution scanning electron microscope with nano-imaging capability). In addition, our analytical suite also has an electron microprobe, low-vacuum scanning electron microscope, X-ray diffractometer, X-ray fluorescence spectrometer, Inductively Coupled Plasma – Mass Spectrometer (with laser ablation) and high-quality microscope and imaging facilities. Other areas include a sensor-based materials sorting and characterisation facility, a mineral processing laboratory and a geomechanics rock and soil

testing facility. The research facilities will be demonstrated during your degree and you might use them during project work. We also have our own underground test mine that is a 20-minute drive away.

Fieldwork

Fieldwork is an essential component of our programmes with formal field-based modules in all three years. Fieldwork includes one-day field classes in South West England, making the most of the excellent geology on our doorstep, and also includes residential field classes in Wales, Scotland and Cyprus/Spain. All students learn practical surveying skills at the end of the first year and underground geological mapping at our test mine during the third year.

Assessment

Assessment methods vary between modules and may include individual or group reports, essays, practical write-ups and traditional exams. You have to pass the first year in order to progress to the second year but your first-year marks do not count towards your final degree classification.

Academic support

All students have a personal tutor who is available for advice and support throughout your studies. There are also a number of services on the Penryn Campus where you can get advice and information. You can find further information about all the services in the University's undergraduate prospectus or online at www.exeter.ac.uk/undergraduate

The CSM Students' Association organises activities to help new undergraduates integrate into the department and offers a supportive environment for students throughout their studies.



Being part of a prestigious organisation such as Camborne School of Mines (CSM) is a very special experience. Its history and reputation for academic excellence, as well as the applied nature of the courses, was the main attraction for me to study at the University. All of the staff and students work as hard as possible to ensure that the importance of its work is carried on and people can continue to benefit from CSM's success.

Jake Mumford, BSc Applied Geology graduate



CAREERS

The overwhelming majority of our graduates work in geoscience and related areas. Graduates from our Geology programmes commonly enjoy excellent careers, both in the UK and overseas, in mineral and petroleum exploration and production, geotechnics, engineering geology, environment-related industries, and in pure and applied geological research. Our geology graduates have a reputation for being articulate, resourceful and well travelled, claim great job satisfaction and excellent salaries.

Many students from the department take part in the Exeter Award and the Exeter Leaders Award. These schemes encourage you to participate in employability related workshops, skills events, volunteering and employment which will contribute to your career decision-making skills and success in the employment market.

A significant proportion of our BSc graduates continue on to taught postgraduate (MSc) courses or research degrees (MPhil/PhD), with many choosing to remain at Camborne School of Mines. CSM offers a wide portfolio of specialised MSc programmes that provide a complementary alternative to a four-year MGeol programme.

For further information about what the careers service at the University of Exeter offers, please visit www.exeter.ac.uk/ug/careers

Examples of the destinations of our recent graduates:

Occupations

Mine Sight Specialist // Geotechnical Engineer // Exploration Geologist // Utility Surveyor // Site Engineer // Project Geologist // Mining Geologist // Consultant Exploration Geologist

Employers

Exploration Ecometals Ltd // Avion Gold Corporation // Coffey Mining // Barrick Gold // CSA Mines // Atlas Iron // Triassic Geological Services // London Africa Ltd // Leighton Asia // BHP Biliton // SRK Consulting // First Quantum Mining

Examples of further study followed by our graduates:

- MSc Geotechnics
- MSc Mining Geology
- MSc Applied Geology
- MSc Mining Engineering
- MSc Hydrogeology
- PhD Geology



MODULES

KEY C = Core
● = Optional

For up-to-date details of all our programmes and modules, please check www.exeter.ac.uk/ug/geology

Year 1 Modules

Module Name	Geology	Engineering Geology and Geotechnics	Applied Geology
Crystallography and Mineralogy	C	C	C
Earth and Environmental Chemistry	C	C	C
Field Geology and Geological Maps	C	C	C
Geology	C	C	C
Mathematics IA	C	C	C
Stratigraphy and Palaeontology	C	C	C
Surveying and CAD	C	C	C

Year 2 Modules

Module Name	Geology	Engineering Geology and Geotechnics	Applied Geology
Geological Mapping Techniques	C	C	C
Geotechnics	●	C	
Igneous and Metamorphic Petrology	C	C	C
Sedimentology	C	C	C
Stratigraphy	●		C
Structural Geology and Tectonics	C	C	C

Year 3 Modules

Module Name	Geology	Engineering Geology and Geotechnics	Applied Geology
Applied Field Geology	C	C	C
Contaminated Land Management and Remediation		●	●
Dynamic Climates of the Past	C		
Evolution of Earth and Planetary Systems	C		
Exploration Techniques	C	C	C
GIS for Geologists	C	C	C
Hydrogeology	●	C	●
Mineral Deposit Geology	●		C
Summer Vacation Project	C	C	C
Surface Excavation Design		C	●
Tunnelling and Excavation Design		C	

Year 4 (MGeol only)

Module Name	Geology	Engineering Geology and Geotechnics	Applied Geology
Advanced Mineral Deposit Geology	●		●
Advanced Mineral Resource Assessment		●	●
Advanced Mineral Analysis	●		●
Economics, Mineral Processing and Environment	●	●	●
Fourth-Year Field Class	C	C	C
Geomechanics Computer Modelling for Excavation Design		●	
Global Change through Earth History	●		
Magma – A Window on the Earth's Interior	●		
Mine Wastes: Principles, Monitoring and Remediation		●	●
Mineral Processing	●		●
Research Project	C	C	C
Resource Estimation		●	●

Year 1

Crystallography and Mineralogy	Includes symmetry elements of crystals; formation and stability of common rock-forming minerals; mineral optics; and the use of transmitted light microscopy to determine optical properties and to identify common rock-forming minerals.
Earth and Environmental Chemistry	Overview of the structure of matter and chemical reactions, and the properties and behaviour of solutions and suspensions, reinforced by practical applications.
Field Geology and Geological Maps	This module integrates training in field-based geological data collection (lithologies, stratigraphy, logging and structures) with an introduction to the interpretation of published geological maps.
Geology	An overview of the principal processes that have contributed to the geological evolution of the Earth and an introduction to the formation, classification and applied significance of minerals, rocks and geological structures.
Mathematics 1A	Basic principles, methods and techniques in algebra, trigonometry, calculus and statistics.
Stratigraphy and Palaeontology	Explore the evolution of life on earth before moving on to the principles of stratigraphy and the application of stratigraphy and palaeontology in applied geology.
Surveying and CAD	An introduction to fundamental surveying techniques and equipment including levels, theodolites, GPS and total stations. Methods of survey control and detail data capture, along with computational skills required for these methods are covered (distance measurement, accuracy/errors, angle measurement, reduction of observational data and elevation control/levelling and basic CAD).

Year 2

Geological Mapping Techniques	Provides a thorough training in the creation of geological maps in an upland area based around a 10-day residential field class (Scotland or mainland Europe). Also includes a three-week practical surveying training course at the end of the first year.
Geotechnics	An introduction to the engineering description of soils and rock, soil and rock mass classification and applied rock engineering. Provides a basic knowledge of site investigation practice and principles and explores how underground workings may affect surface movement. Provides an opportunity for you to design the reinforcement requirements for an excavation based on your own field-mapping data.
Igneous and Metamorphic Petrology	Develops your skills in the description, identification and classification of igneous and metamorphic rocks and provides insights into the processes that are responsible for their formation. Includes several one-day field classes on Lizard ophiolite and Cornubian Batholith.
Sedimentology	Develop an understanding of basic physical sedimentary processes and resultant sedimentary structures; a knowledge of how process-based sedimentology can be applied to the recognition of a range of clastic and carbonate depositional environments; expertise in the petrographic description and interpretation of clastic and carbonate sediments; and an appreciation of the applied nature of sedimentology. Includes a six-day residential field class in the Devon-Dorset Wessex Basin.
Stratigraphy	Reviews the principal techniques used to date, correlate, and interpret the origin of sedimentary strata. You will learn how fossils, stable and radioisotopes, orbital cycles, rock magnetic properties and geophysical or geochemical logs can be combined to provide an integrated understanding of sediment deposition. You will also be introduced to sedimentary basins and the stratigraphic methods used to reconstruct their depositional histories.
Structural Geology and Tectonics	An overview of the causes and mechanisms of naturally occurring deformation within the lithosphere and the recognition, nomenclature, formation, representation and analysis of the principal types of geological structure and their implications for applied Earth science. Includes one-day field classes based upon data collection techniques and the Upper Palaeozoic tectonic evolution of Cornwall.

MODULES CONTINUED

Year 3

Applied Field Geology	An integrated applied field exercise comprising a regional geological overview, geological mapping, a geotechnical exercise, resource estimation and an environmental impact assessment.
Contaminated Land Management and Remediation	Understanding the causes, characteristics and hazards of contaminated land and the practical approaches to assessment and remediation.
Dynamic Climates of the Past	This module will provide a broad introduction to Earth's climate system, past and present, and will equip you with the tools used to study the geologic record for evidence of past environmental and climatic change. You will learn to interpret and critically evaluate the evidence for a varied range of important past changes in Earth's climate over the last 200 million years, guided by current internationally important research.
Evolution of Earth and Planetary Systems	Earth Scientists often interpret evidence in the geological record using processes that are observed on the present Earth. However, this Principle of Uniformitarianism cannot always be applied to the very Early Earth. This module uses a variety of strands of chemical, mathematical and geological evidence to examine more than 4.5 billion years of Earth history, from before the establishment of the dynamic processes that currently rework our planet to the anthropogenic controls on Earth evolution.
Exploration Techniques	Reviews the application of geochemistry and geophysics in the search for mineralisation, geochemical and geophysical data processing, chemical element behaviour in different geological environments, and the sampling of rocks, soils, streams and biological materials. Includes training in underground geological mapping.
GIS for Geologists	Provides a practical introduction to geographical information systems and their use in geology.
Hydrogeology	An overview of hydrogeology introducing basic concepts and principles, derivation of mathematical models, applications of hydrogeological interpretation and problem solving, and applications to groundwater protection and environmental hydrogeology.
Mineral Deposit Geology	An in-depth analysis of the nature and formation of metalliferous and industrial minerals deposits.
Summer Vacation Project	Independent or semi-independent project involving the collection, analysis and presentation of geological or related data from geological mapping, field/laboratory-based study or industry placement.
Surface Excavation Design	Design-based consideration of some of the major aspects of geotechnical engineering in civil and mining engineering practice. Includes integrated site investigation, stability analysis and design (including blasting), hazard appraisal and risk management.
Tunnel and Excavation Design	Provides design-based consideration of some major aspects of geotechnical engineering found in civil and mining engineering practice. Includes an introduction to tunnelling methods and machine TBM selection.

Year 4 (MGeol only)

Advanced Mineral Deposit Geology	Critical evaluation of models for the formation of ore and industrial mineral deposits with reference to data from case examples; detailed studies of mineral assemblages and textures in hand specimen, thin section and polished block.
Advanced Mineral Resource Assessment	Covers the interpretation of data obtained from analysis of samples from orebodies through to the definition of the size of the orebody, as expressed in various grade-tonnage relationships. Introduces industry standard software.
Advanced Techniques for Mineral Analysis	Principles and practice of analytical techniques for rock and mineral analysis, applicable to individual research projects and to exploration, mine and environmental geology and geochemistry.
Economics, Mineral Processing and Environment	Covers the fundamental aspects of the mining cycle: mineral economics, processing of mineral ores to produce concentrates or metal, environmental and social impacts and remediation techniques.
Fourth-Year Field Class	A field course exploring current research topics and building key geological skills of mapping, logging and interpretation.
Geomechanics Computer Modelling for Excavation Design	Provides an introduction to software used in numerical modelling of rock mass failure mechanisms in surface and underground environments.
Global Change through Earth History	An investigation of the major events and transitions in Earth's geological history, from extraterrestrial impacts to mass extinctions, and from giant volcanic eruptions to the enigmatic anoxic oceans of the deep past.
Magma – A Window on the Earth's Interior	An exploration of the properties of natural erupted magmas is combined with the results of experiments to reconstruct the processes that operate from the deep mantle to the shallow crust, including consideration of the impacts of large scale, and occasionally cataclysmic, processes.
Mine Wastes: Principles, Monitoring and Remediation	The characterisation, prediction, monitoring, disposal and treatment, as well as environmental impacts of sulfidic mine wastes, mine water, tailings, cyanidation wastes of gold-silver ores and radioactive wastes of uranium ores.
Mineral Processing	Covers all the main methods of mineral processing used to separate ore minerals in a mining operation, including the principle of geometallurgy that links geological knowledge with mining and processing techniques.
Research Project	A substantial research project carried out as part of one of the Camborne School of Mines research groups.
Resource Estimation	Introduces the framework and data processing which underlies the characterisation of a mineral deposit. The influence of geological controls and the concept of uncertainty in resource estimation are presented.



ABOUT THE UNIVERSITY OF EXETER

Top 1% of universities worldwide (*Times Higher Education*)

9th in *The Times* and *The Sunday Times Good University Guide 2017*

Six months after graduation, 94% of our first degree graduates were in employment or further study (*HESA 2014/15*)

Our teaching is inspired by our research, 98% of which is of international quality (*2014 Research Excellence Framework*)

We have 21,000 students from 181 countries, and they are the most satisfied in the Russell Group (*NSS*)

VISIT US TO FIND OUT MORE

Open Days

You can register your interest now for our Open Days and receive priority access to book your place*; visit www.exeter.ac.uk/opendays

* Pre-registration only guarantees priority access to the booking system and is not an absolute guarantee of a place at any of our Open Days. Booking is essential and is on a first-come, first-served basis.

Penryn Campus, Cornwall:

Saturday 10 June 2017

Saturday 23 September 2017

Campus Tours

We run campus tours at the Penryn Campus on Wednesday and Friday afternoons during term time. You will be shown round by a current student, who will give you a first-hand account of what it's like to live and study at the University of Exeter.

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www.exeter.ac.uk/ug/geology



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