

Course Information Document: Undergraduate

Academic Year 2021/22

1. Course Summary

Names of programme and award title(s)	<p>BSc (Hons) Geology*</p> <p>BSc (Hons) Geology (Applied Geophysics)*</p> <p>BSc (Hons) Geology (Environmental Geoscience)*</p> <p>BSc (Hons) Geology (Geoforensics)*</p> <p>BSc (Hons) Geology (Volcanology)*</p> <p>*all programmes include 'with International Year' and 'with Work Placement Year' options (see Annex for details)</p>
Award type	Single Honours
Mode of study	Full-time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 6
Normal length of the programme	3 years; 4 years with either the International Year or Placement Year between years 2 and 3
Maximum period of registration	The normal length as specified above plus 3 years
Location of study	Keele Campus
Accreditation (if applicable)	Our courses are accredited by the Geological Society of London. This revised course, which has new bracketed specialisms, is due for re-accreditation in 2020. For further details see the section on Accreditation.
Regulator	Office for Students (OfS)
Tuition Fees	<p>UK students:</p> <p>Fee for 2021/22 is £9,250*</p> <p>International/EU students:</p> <p>Fee for 2021/22 is £17,000**</p> <p>The fee for the international year abroad is calculated at 15% of the standard year fee</p> <p>The fee for the work placement year is calculated at 20% of the standard year fee</p>

How this information might change: Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

** We reserve the right to increase fees in subsequent years of study by an inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

2. What is a Single Honours programme?

The Single Honours programme described in this document allows you to focus more or less exclusively on this subject. In keeping with Keele's commitment to breadth in the curriculum, the programme also gives you the opportunity to take some modules in other disciplines and in modern foreign languages as part of a 360-credit Honours degree. Thus it enables you to gain, and be able to demonstrate, a distinctive range of graduate attributes.

3. Overview of the Programme

Geology is a fascinating subject that investigates how the Earth was formed, how life arose and evolved, why the Earth looks like it does today, what resources it contains and how we can find them. Geologists are essential for a decarbonised, sustainable future through development of carbon neutral energy sources such as geothermal, sustainable extraction of mineral resources and geological sequestration of carbon dioxide.

Our society is based on the work of geologists in the hunt for natural resources for energy and materials for modern living. If it hasn't been grown, then a geologist has discovered it. This means that future job opportunities for geologists are excellent as society develops increasing needs for these resources.

Geology draws on knowledge from many different aspects of science such as chemistry, biology, and physics as well as other subjects such as geography, environmental science and economics. As such Geology is the ideal subject to choose as a single honours degree programme, whilst maintaining Keele's ethos of interdisciplinarity. We will teach you many employability skills that are valuable for everyday work not only in geology, but also in many fields of employment after you graduate.

4. Aims of the programme

The broad aims of the programme are to:

- enable you to specialise in Geology via a three-year Single Honours programme to obtain a more in-depth experience of the subject, as well as gaining additional experience in independent project work and key skills;
- provide specialist pathways within the Geology Single Honours programme to enable you to focus on either Applied Geophysics, Environmental Geoscience, Geoforensics or Volcanology;
- provide a broad-based introduction to Geology at Level 4 that does not require previous knowledge of geology topics, and to utilise the material covered at Level 4 to lay the foundations for detailed study of geological concepts at Levels 5 & 6;
- provide an understanding of the structure and composition of the Earth and other planets;
- provide an integrated approach to understanding the present and past interactions between the physical, chemical and biological processes operating in the Earth's core, mantle, crust, and surface;
- provide an appreciation of the history of the Earth over geological time scales;
- promote an awareness of the dual context of the subject in society, as well as providing knowledge and understanding of both the exploitation and the conservation of the Earth's resources;
- provide an appreciation of the scientific fundamentals in the geosciences and an adequate knowledge base for a career in research or industry;
- emphasise the development of field, laboratory, presentational, writing and information technology skills to prepare graduates for independent work in their professional careers;
- provide a fully integrated fieldwork programme, including overseas field courses;
- provide appropriate monitoring schemes and feedback for students on their progress;
- provide a wide choice of subject options and all-round education.

In addition:

- The BSc Geology (Applied Geophysics) pathway aims to combine a broad understanding of geology with a more in-depth study of applied geophysics techniques and their practical applications.
- The BSc Geology (Environmental Geoscience) pathway aims to combine a broad understanding of geology with a more in-depth knowledge of human interactions with the Earth's environments.
- The BSc Geology (Geoforensics) pathway aims to combine a broad understanding of geology with a more in-depth knowledge of geological materials and forensics to help solve crime.
- The BSc Geology (Volcanology) pathway aims to combine a broad understanding of geology with a more in-depth study of volcanic processes and the effects of volcanoes on society from hazards to climate change.

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Intellectual skills
- Employability skills

Subject knowledge and understanding

Successful students will be able to demonstrate knowledge and understanding of:

- the terminology, nomenclature and classification of rocks, minerals, fossils and geological structures;
- geological processes and how they integrate to shape the natural world at different temporal and spatial scales;
- the structure and composition of the Earth and other planets;
- geological time, including the principles of stratigraphy, the stratigraphic column, dating techniques, rates of Earth processes and major events in Earth history;
- the evolution of life on Earth as revealed by the fossil record;
- major geoscience paradigms, including uniformitarianism, the extent of geological time and plate tectonics;
- the need for both a multi-disciplinary and interdisciplinary approach to the development of knowledge in the geosciences;
- the different components of the Earth system and how they interact to change the physical world and their impact on society;
- different methods used in the observation, analysis, interpretation and representation of geological and geophysical information;
- how the geology of a field study area can be used to illustrate and deepen understanding of the geological evolution of a wider region;
- modern environments and processes, and use of this knowledge to interpret aspects of the geological record;
- issues concerning the exploration, availability and sustainability of natural resources;
- geological aspects of human impacts on the physical environment;
- natural hazards and their impacts on society;
- applications of Geology to the development of knowledge, wealth creation and improving quality of life.

Subject specific skills

Successful students will be able to:

- identify a wide range of igneous, sedimentary and metamorphic rocks, as well as a wide range of minerals, fossils and geological structures;
- implement three-dimensional analysis with particular reference to the subsurface distribution and relationships of rocks observed at the surface;
- collect and record geological and geophysical information in the field, including the production and interpretation of geological maps;
- plan, design and execute an independent piece of project work in the geological sciences, including acquisition and recording of geological data in the field, followed by the processing, interpretation and presentation of this data, and the production of a final report;
- make safe and effective use of a range of field equipment commonly used by the geoscience profession and develop an understanding of the scope and limitations of such equipment;
- undertake effective fieldwork with due regard for safety, risk assessment, rights of access, relevant health and safety regulations and sensitivity to the impact of investigations on the environment;
- work safely in a scientific laboratory, with awareness of standard methods and procedures and with due regard for risk assessment and relevant health and safety regulations;
- prepare effective maps and diagrams using a range of appropriate technologies;
- employ a variety of technical and laboratory-based methods for the collection and analysis of geological and geophysical information;
- combine and interpret different types of geological and geophysical evidence using quantitative and qualitative approaches;
- appreciate the issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of geoscience data in the field and laboratory;
- use powers of observation, analysis and imagination to make decisions in the light of uncertainty.

In addition to the learning outcomes of the BSc Geology programme, successful students of the **BSc Geology (Applied Geophysics)** pathway will be able to:

- use geophysical techniques in geotechnics, ground engineering, geoforensics and environmental monitoring

In addition to the learning outcomes of the BSc Geology programme, successful students of the **BSc Geology (Environmental Geoscience)** pathway will be able to:

- employ applied methodologies to assess and solve a variety of pressing environmental issues

In addition to the learning outcomes of the BSc Geology programme, successful students of the **BSc Geology (Geoforensics)** pathway will be able to develop:

- laboratory, field and applied research skills in forensic investigation

In addition to the learning outcomes of the BSc Geology programme, successful students of the **BSc Geology (Volcanology)** pathway will be able to:

- use a combination of specialist field techniques, equipment and software to understand a variety of volcanic phenomena.

Intellectual skills

Successful students will be able to:

- recognise and use subject-specific theories, concepts and principles to make reasoned decisions and solve problems
- analyse, synthesise and summarise data and information critically, including prior research
- collect and integrate several lines of evidence to formulate and test hypotheses, and make critical judgements
- apply knowledge and understanding to address familiar and unfamiliar problems
- assess the merits of contrasting theories, explanations and policies
- recognise the moral and ethical issues of investigations and appreciate the need for professional codes of conduct
- develop an adaptable and flexible approach to study and work
- identify and work towards targets for personal, academic and career development
- take responsibility for their own learning and develop a habit of reflection upon that learning

Key or transferable skills (including employability skills)

Successful students will be able to:

- develop and sustain effective approaches to learning and study, including time management, flexibility, creativity and intellectual integrity
- communicate effectively to a variety of audiences in written, verbal and graphical forms
- work with numerical data using appropriate qualitative and quantitative techniques, as well as computer software packages
- work effectively with a variety of types of information technology to analyse and present information and data, as well as solve numerical problems
- use the internet as a means of communication and a source of information
- demonstrate competence in spatial awareness and observation
- conduct field and laboratory studies
- reference work in an appropriate manner
- work with information handling and retrieval systems using data from a wide range of sources
- work effectively both as an individual and as part of a group or team, recognising and respecting the viewpoints of others
- sustain motivation to work towards a goal over an extended period of time
- recognise responsibilities as a local, national and international citizen

Additional Opportunities

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities, including independent thinking, synthesising information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. You will be able to enrich your studies and make yourself more employable after graduation by taking advantage of the whole host of additional opportunities that we offer to help you develop your skills and experiences. For example, you could learn a second language, study abroad, volunteer in the local area, or gain a qualification to teach English as a foreign language. Further information is available at:

<https://www.keele.ac.uk/study/undergraduate/additionalopportunities/>

Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

6. How is the programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- Lectures
- Workshops
- Practical classes
- Field courses
- Individual progress interviews
- Directed reading
- Group presentations and linked discussion
- Independent study and project work
- Use of e-learning/the Keele Learning Environment (KLE)

The directed reading and lecture slides available in advance on the KLE help you prepare for lectures and the practical classes reinforce concepts learned in lectures through problem solving and practical application of geological techniques. Some classes are taught in workshop format integrating both lecture and practical material. Fieldwork provides a deep, immersive learning experience that puts geological processes and their products into their four dimensional context. The independent mapping project provides the opportunity to bring together and demonstrate proficiency in all areas of geology.

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways.

7. Teaching Staff

Currently our core teaching staff members comprises of a number of Readers, Senior Lecturers, Lecturers and Research and Teaching Fellows, who between them have expertise and interests in all major areas of earth sciences as well as complementary vocational disciplines such as computing and forensic science. In addition, members of the Geography and Environmental lecturing staff also contribute to the Geology degree programmes.

All current academic members of staff are active researchers and many have a distinguished track record in publication, the generation of grant income, industrial collaboration and journal editorship. Several staff have particular interests in the development of geoscience education and/or have played an active role in the promotion of UK geoscience activities (e.g. via membership of Geological Society committees). A number of members of staff are Fellows/Senior Fellows of the Higher Education Academy (F.H.E.A.) and one has an MA in Teaching and Learning. Many have professional qualifications such as Fellow of the Geological Society (F.G.S.), Chartered Geologist (C.Geol), European Geologist (EurGeol), Fellow of the Royal Astronomical Society (F.R.A.S.), as well as others. Members of Geology staff have also won both group and individual Keele Teaching and Learning Excellence Awards.

The University will attempt to minimise changes to our core teaching teams, as delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff changes, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April. Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

The Geology Single Honours programme is modular in structure. The programme provides a broad-based first year followed by more specialised second year and third-year studies.

We assume no prior expertise in Geology, and begin with introductory modules that provide a platform from which students can develop their knowledge, understanding and skills. First year is an introductory year in which students acquire essential academic skills and a foundation of knowledge of the underlying concepts and principles of the subject. Second year develops a critical understanding of more advanced topics and conceptual issues in the subject, and helps students to establish skills in independent research. Third year allows students to explore specialised topics of their choice at the level of the most recent scientific research, and to develop a range of advanced skills. There are also specialist pathways available within the Geology degree programme for those students who wish to specialise in either Applied Geophysics, Environmental Geoscience, Geoforensics or Volcanology.

There are three types of module delivered as part of your programme. They are:

- Compulsory modules - a module that you are required to study on this course;
- Optional modules - these allow you some limited choice of what to study from a list of modules;
- Elective modules - a free choice of modules that count towards the overall credit requirement but not the number of subject-related credits.

Students may select to transfer to study M.Geology at Levels 6 and 7 (see M.Geology Programme Specification for details), or continue with the Single Honours scheme at Level 6.

A summary of the credit requirements per year is as follows, with a minimum of 90 subject credits (compulsory plus optional) required for each year.

For further information on the content of modules currently offered, including the list of elective modules, please visit:

<https://www.keele.ac.uk/recordsandexams/modulecatalogue/>

Year	Compulsory	Optional		Electives	
		Min	Max	Min	Max
Level 4	105	0	0	15	15
Level 5	105	0	0	15	15
Level 6	45	60	75	0	15

Module Lists

Level 4

Compulsory modules	Module Code	Credits	Period
Minerals and Rocks	ESC-10070	15	Semester 1
Earth Structure	ESC-10074	15	Semester 1
Academic, Professional and Fieldwork Skills	ESC-10068	15	Semester 1-2
Geoscience Data Interpretation, Analysis and Visualisation	ESC-10047	15	Semester 2
The Earth System	ESC-10048	15	Semester 2
Climate Change: The Scientific and Societal Context	ESC-10066	15	Semester 2
Stratigraphy and Palaeontology	ESC-10076	15	Semester 2

The Level 4 modules belonging to the specialist pathways in BSc Geology are set out below.

BSc Geology (Applied Geophysics), Level 4 modules:

The Level 4 modules are the same as for BSc Geology

BSc Geology (Environmental Geoscience), Level 4 modules:

Compulsory modules	Module Code	Credits	Period
Earth Structure	ESC-10074	15	1
Minerals and Rocks	ESC-10070	15	1
Academic, Professional and Fieldwork Skills	ESC-10068	15	1 - 2
Environmental Management*	ESC-10072	15	1 - 2
Climate Change: The Scientific and Societal Context	ESC-10066	15	2
The Earth System	ESC-10048	15	2
Stratigraphy and Palaeontology	ESC-10076	15	2
<i>*Replaces module ESC-10047 (Geoscience Data Interpretation, Analysis and Visualisation) in BSc Geology</i>			

BSc Geology (Geoforensics), Level 4 modules:

Compulsory modules	Module Code	Credits	Period
Earth Structure	ESC-10074	15	1
Minerals and Rocks	ESC-10070	15	1
Academic, Professional and Fieldwork Skills	ESC-10068	15	1 - 2
Forensic Identification and Investigation*	FSC-10005	30	1 - 2
Climate Change: The Scientific and Societal Context	ESC-10066	15	2
Stratigraphy and Palaeontology	ESC-10076	15	2
<i>*Replaces modules ESC-10047 (Geoscience Data Interpretation, Analysis and Visualisation) and ESC-10048 (The Earth System) in BSc Geology</i>			

BSc Geology (Volcanology), Level 4 modules:

The Level 4 modules are the same as for BSc Geology

Level 5

Compulsory modules	Module Code	Credits	Period
Igneous and Metamorphic Petrology	ESC-20001	15	Semester 1
Palaeoclimatology and Quaternary Studies	ESC-20036	15	Semester 1
Employability Training: Engaging with the Workplace	ESC-20092	15	Semester 1-2
Field Skills	ESC-20104	15	Semester 1-2
Reconstructing Past Environments	ESC-20002	15	Semester 2
Geoscience and Society	ESC-20037	15	Semester 2
Geochemistry	ESC-20064	15	Semester 2

Work Placement Year

Students taking the 4-year with 'Work Placement Year' undertake their work placement between Year-2 and Year-3 of their degree programme. During the work placement year, students undertake a work placement (minimum 30 weeks full time (1,050 hours) or equivalent) with a geologically-focussed company or organisation. Students take the year-long, non-credit bearing module.

The Level 5 modules belonging to the specialist pathways in BSc Geology are set out below.

BSc Geology (Applied Geophysics), Level 5 modules:

Compulsory modules	Module Code	Credits	Period
Igneous and Metamorphic Petrology	ESC-20001	15	1
Palaeoclimatology and Quaternary Studies	ESC-20036	15	1
Employability Training: Engaging with the Workplace	ESC-20092	15	1 - 2
Field Skills	ESC-20104	15	1 - 2
Reconstructing Past Environments	ESC-20002	15	2
Near-Surface Geophysics*	ESC-20098	15	2
Geoscience and Society	ESC-20037	15	2
<i>*Replaces module ESC-20064 (Geochemistry) in BSc Geology</i>			

BSc Geology (Environmental Geoscience), Level 5 modules:

Compulsory modules	Module Code	Credits	Period
Igneous and Metamorphic Petrology	ESC-20001	15	1
Human Impact on the Environment, scientific perspectives*	ESC-20017	15	1
Employability Training: Engaging with the Workplace	ESC-20092	15	1 - 2
Field Skills	ESC-20104	15	1 - 2
Reconstructing Past Environments	ESC-20002	15	2
Environmental Analytical Methods*	ESC-20032	15	2
Geoscience and Society	ESC-20037	15	2
<i>*Replaces modules ESC-20036 (Palaeoclimatology and Quaternary Studies) and ESC-20064 (Geochemistry) in BSc Geology</i>			

BSc Geology (Geoforensics), Level 5 modules:

Compulsory modules	Module Code	Credits	Period
Igneous and Metamorphic Petrology	ESC-20001	15	1
Forensic Genetics*	CHE-20021	15	1
Employability Training: Engaging with the Workplace	ESC-20092	15	1 - 2
Field Skills	ESC-20104	15	1 - 2
Reconstructing Past Sedimentary Environments	ESC-20002	15	2
Near-Surface Geophysics*	ESC-20098	15	2
Criminalistic Methods*	CHE-20010	15	2
<i>*Replaces modules ESC-20036 (Palaeoclimatology and Quaternary Studies), ESC-20037 (Geoscience and Society) and ESC-20064 (Geochemistry) in BSc Geology</i>			

BSc Geology (Volcanology), Level 5 modules:

Compulsory modules	Module Code	Credits	Period
Igneous and Metamorphic Petrology	ESC-20001	15	1
Volcanoes and the Environment*	ESC-20094	15	1
Employability Training: Engaging with the Workplace	ESC-20092	15	1 - 2
Field Skills	ESC-20104	15	1 - 2
Reconstructing Past Sedimentary Environments	ESC-20002	15	2
Environmental Analytical Methods*	ESC-20032	15	2
Geochemistry	ESC-20064	15	2
<i>*Replaces modules ESC-20036 (Palaeoclimatology and Quaternary Studies) and ESC-20037 (Geoscience and Society) in BSc Geology</i>			

Level 6

Compulsory modules	Module Code	Credits	Period
Economic Geology	ESC-30028	15	Semester 1
Geoscience: Independent Field Project - ISP	ESC-30032	30	Semester 1-2

Optional modules	Module Code	Credits	Period
Glaciers and Glacial Geomorphology	ESC-30006	15	Semester 1
Natural Hazards	ESC-30009	15	Semester 1
Global Environmental Change	ESC-30018	15	Semester 1
Advanced Topics in Sedimentology	ESC-30034	15	Semester 1
Exploration Geophysics for the Hydrocarbon Industry	ESC-30036	15	Semester 1
Structure and Geodynamics	ESC-30008	15	Semester 2
Water Resources	ESC-30020	15	Semester 2
Hydrological and Engineering Geology	ESC-30022	15	Semester 2
Micropalaeontology: Principles and Applications	ESC-30025	15	Semester 2
Coastal Environments	ESC-30027	15	Semester 2
Advanced Petrology and Structural Geology Field Course	ESC-30030	15	Semester 2
Volcanic and Magmatic Processes	ESC-30033	15	Semester 2
The Science of Soil	ESC-30058	15	Semester 2

Level 6 Module Rules

1. **BSc Geology:** Select a field course module, either ESC-30030 or ESC-30033
2. **BSc Geology:** Optional modules: two modules in semester 1 and two modules in semester 2 (total of four modules). One of the semester 1 option modules can be replaced by an elective module.
3. **BSc Geology:** ESC-30006, ESC-30018, ESC-30020 and ESC-30027: no more than two Physical Geography modules can be taken and some module combinations may be prohibited due to timetable constraints.
4. **BSc Geology (Applied Geophysics):** Optional modules: one module in semester 1 and two modules in semester 2 (total of three modules). One of the semester 1 or 2 option modules can be replaced by an elective module.
5. **BSc Geology (Environmental Geoscience):** Optional modules: one module in semester 1 and one module in semester 2 (total of two modules). The semester 2 option module can be replaced by an elective module.
6. **BSc Geology (Geoforensics):** Optional modules: two modules in semester 1 and two modules in semester 2 (total of four modules). One of the option modules can be replaced by an elective module in either semester 1 or 2.
7. **BSc Geology (Volcanology):** Optional modules: two modules in semester 1 and one module in semester 2 (total of three modules). One of the semester 1 or 2 option modules can be replaced by an elective module.

The Level 6 modules belonging to the specialist pathways in BSc Geology are set out below.

BSc Geology (Applied Geophysics), Level 6 modules:

Compulsory modules	Module Code	Credits	Period
Applied Geophysics - Independent Project*	ESC-30066	30	1 - 2
Exploration Geophysics for the Hydrocarbon Industry	ESC-30036	15	1
Frontiers in Applied Geophysics**	ESC-30076	15	1
Hydrological and Engineering Geology	ESC-30022	15	2
<i>*Replaces module ESC-30032 (Geoscience: Independent Field Project - ISP) in BSc Geology</i>			
<i>**Additional module compared to BSc Geology in order to add some bespoke content to this specialist pathway.</i>			
Optional modules	Module Code	Credits	Period
Natural Hazards	ESC-30009	15	1
Economic Geology	ESC-30028	15	1
Advanced Topics in Sedimentology	ESC-30034	15	1
Structure and Geodynamics	ESC-30008	15	2
Water Resources	ESC-30020	15	2
The Science of Soil	ESC-30058	15	2

BSc Geology (Environmental Geoscience), Level 6 modules:

Compulsory modules	Module Code	Credits	Period
Environmental Geoscience - Independent Project*	ESC-30068	30	1 - 2
Global Environmental Change	ESC-30018	15	1
Frontiers in Environmental Geoscience**	ESC-30078	15	1
Hydrological and Engineering Geology	ESC-30022	15	2
The Science of Soil	ESC-30058	15	2
<i>*Replaces module ESC-30032 (Geoscience: Independent Field Project - ISP) in BSc Geology</i>			
<i>**Additional module compared to BSc Geology in order to add some bespoke content to this specialist pathway.</i>			
Optional modules	Module Code	Credits	Period
Glaciers and Glacial Geomorphology	ESC-30006	15	1
Natural Hazards	ESC-30009	15	1
Advanced Topics in Sedimentology	ESC-30034	15	1
Applied GIS*	ESC-30044	15	1
Ecotoxicology and Risk Assessment*	ESC-30056	15	1
Water Resources	ESC-30020	15	2
Micropalaeontology: Principles and Applications	ESC-30025	15	2
Coastal Environments	ESC-30027	15	2
<i>*Additional optional module compared to BSc Geology</i>			

BSc Geology (Geoforensics), Level 6 modules:

Compulsory modules	Module Code	Credits	Period
Geoforensics - Independent Project*	ESC-30070	30	1 - 2
Frontiers in Geoforensics**	ESC-30080	15	1
Forensic Geoscience**	CHE-30044	15	2
<i>*Replaces module ESC-30032 (Geoscience: Independent Field Project - ISP) in BSc Geology</i>			
<i>**Additional modules compared to BSc Geology in order to add some bespoke content to this specialist pathway.</i>			
Optional modules	Module Code	Credits	Period
Advanced Topics in Sedimentology	ESC-30034	15	1
Evaluation of evidence, explosives and arson*	CHE-30033	15	1
Advanced Topics in Forensic Analysis*	CHE-30035	15	1
Hydrological and Engineering Geology	ESC-30022	15	2
The Science of Soil	ESC-30058	15	2
Forensic Toxicology*	CHE-30010	15	2
<i>*Additional optional module compared to BSc Geology</i>			

BSc Geology (Volcanology), Level 6 modules:

Compulsory modules	Module Code	Credits	Period
Volcanology - Independent Project*	ESC-30072	30	1 - 2
Natural Hazards	ESC-30009	15	1
Volcanic and Magmatic Processes	ESC-30033	15	2
Frontiers in Volcanology**	ESC-30074	15	2
<i>*Replaces module ESC-30032 (Geoscience: Independent Field Project - ISP) in BSc Geology</i>			
<i>**Additional module compared to BSc Geology in order to add some bespoke content to this specialist pathway.</i>			
Optional modules	Module Code	Credits	Period
Global Environmental Change	ESC-30018	15	1
Economic Geology	ESC-30028	15	1
Advanced Topics in Sedimentology	ESC-30034	15	1
Structure and Geodynamics	ESC-30008	15	2
Hydrological and Engineering Geology	ESC-30022	15	2

9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Honours Degree	360 credits	<p>You will require at least 120 credits at levels 4, 5 and 6</p> <p>You must accumulate at least 270 credits in your main subject (out of 360 credits overall), with at least 90 credits in each of the three years of study*, to graduate with a named single honours degree in this subject.</p> <p>*An exemption applies for students transferring from a Combined Honours programme - see point 3.4 here: https://www.keele.ac.uk/regulations/regulationc3/</p>
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

International Year option: in addition to the above students must pass a module covering the international year in order to graduate with a named degree including the 'international year' wording. Students who do not complete, or fail the international year, will be transferred to the three-year version of the programme.

Work Placement Year option: in addition to the above students must pass a non-credit bearing module covering the work placement year in order to graduate with a named degree including the 'with Work Placement Year' wording. Students who do not complete, or fail the work placement year, will be transferred to the three-year version of the programme.

10. How is the Programme Assessed?

The wide variety of assessment methods used on this programme at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used on your programme:

- **Unseen closed and open book examinations** in different formats test your knowledge and understanding of the subject. Examinations may consist of essay, short answer and/or multiple choice questions.
- **Technical reports** allow you to demonstrate your ability to articulate ideas clearly and concisely in a format used in the geological industry. Technical reports also develop and demonstrate research and presentation skills (including appropriate scholarly referencing).
- **Laboratory reports** - structured proformas and full laboratory reports are formal summaries of work carried out in the geological laboratory and test your understanding of the practical aspects of the programme and develop the skills necessary to enable you to present and analyse your results.
- **Class tests** taken either in the geological laboratory or online via the Keele Learning Environment (KLE) assess your subject knowledge and your ability to apply it in a more structured and focused way.
- **Dissertations** enable you to explore in depth an area of particular interest through a substantial piece of focused research and writing, and demonstrate a deeper understanding of geological issues.
- **Field course exercises** allow you to demonstrate your understanding of geological features encountered in the field. This might include the contents of your field notebook, field sketches, geological logs and maps.
- **Oral and poster presentations and reports** assess your subject knowledge and understanding and your ability to articulate this orally and graphically. Group work also tests your ability to work effectively as members of a team, and to reflect on these processes as part of your own personal development
- **Literature Syntheses** of other scholars' work test your ability to identify and summarise the key points of a text and to evaluate the quality of arguments and the evidence used to support them. They also help you provide a background context for your research project work.
- **Portfolios** may consist of a range of different pieces of work but on a common theme to allow you to demonstrate your knowledge and understanding via a number of different formats.

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the

course of tutorial and seminar discussions.

11. Contact Time and Expected Workload

This measure of contact time is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity

	Scheduled learning and teaching activities	Guided independent Study	Placements
Year 1 (Level 4)	30%	70%	0%
Year 2 (Level 5)	47%	53%	0%
Year 3 (Level 6)	33%	67%	0%

12. Accreditation

The course equivalent to Single Honours Geology has been accredited by the Geological Society of London www.geolsoc.org.uk, which is the world's oldest geological society that was founded in 1807 by Royal Charter and is the UK national society for geoscience. It exists to promote the geosciences and the professional interests of UK geoscientists. The main aim of the accreditation scheme is to ensure that geology/geoscience degree courses are underpinned by well-maintained internal standards that satisfy the academic requirements of Fellowship of the Society and Chartered Geologist status.

If you successfully complete an accredited degree course will normally qualify for admission to Fellowship of the Society and for the award of Chartered Geologist status after a specified period of professional development and relevant experience.

Accreditation status was awarded in 2007, followed by successful applications for reaccreditation in 2014. The course is due for reaccreditation in 2020 which will cover the revised structure and introduction of specialist pathways.

13. University Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: <http://www.keele.ac.uk/student-agreement/>

A student who has completed a semester abroad will not normally be eligible to transfer onto the International Year option.

It is not possible to take both the Work Placement Year and the International Year option.

At this time there are no additional course regulations relating to accreditation. However, should these be required by the regulating body in the future, we might have to add programme regulations to maintain our accreditation. Should this be required we will inform you of any changes at the earliest opportunity.

14. Other Learning Opportunities

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided in the Annex for the International Year.

Other opportunities

Fieldwork

Fieldwork is an essential part of a geologist's training and is intended to supplement and complement formal class teaching and

develop the skills of observing and recording. It also establishes professional, social and cultural links outside the institution and develops an external dimension to the School's courses. The Geology programme includes field excursions to classic geological areas within the British Isles, as well as overseas field courses to enable students to study the evolution of fundamentally different geological regimes. Due to the combined honours structure of Keele, field courses typically have to take place at weekends or during vacation time.

15. Additional Costs

Field Course Costs

We offer a degree pathway where there are no additional charges to students for accommodation and travel around the field area on field courses as a core part of their programme. These costs are part of your tuition fees. At Level 5 (second year), you have the option of attending an overseas course at no additional cost (currently Almeria, southern Spain), or paying the extra cost of going on an overseas field course to a more far-afield destination (e.g. the western USA) above the level to which the no-cost field course is subsidised. At Level 6 (third year), you have the option of attending a field course to a UK destination (currently Mull, western Scotland) at no additional cost, or paying the extra cost of going to an overseas destination (currently southern Italy) above the level to which the UK field course is subsidised. The potential additional cost is indicated at the start of the year, with details posted on student notice boards to enable you to make an informed decision on the choices available. In order to help you manage their field course costs, the payments are also spread over the course of the academic year, normally January, March and May. The first instalment is non-refundable due to the need to pre-book accommodation, flights, etc. in advance.

Students are expected to have adequate clothing for field trips including waterproofs and stout shoes. Some field courses are fully or partly catered for, others are self-catered and students are expected to purchase their own food.

All students undertake an independent project which may include fieldwork that is carried out during the summer vacation between Levels 5 and 6 (years 2 and 3). Students are responsible for organising their own transport and accommodation as well as paying any costs incurred. These costs are extremely variable and not forecastable as they are dependent on where the student carries out their project. Costs are minimal if the project work is undertaken in the student's local home area.

Work Placement Costs

Students undertaking the work placement year will be responsible for organising their own work placement, with the support of the module tutors. This allows students to choose when and where to carry out their work placement, taking into consideration the potential living and travel expenses incurred and the effect on other times available to earn money. Students are encouraged to consider the potential costs incurred in carrying out the work placements at the time of setting these up.

IMPORTANT: Costs are only for indicative purposes and correct at the time of printing. Costs are dependent on the options chosen by students and susceptible to changes in the number of students taking field courses and changes in external factors such as flight and accommodation costs outside the University's control. In addition, we reserve the right to change the venues of field courses due to cost, academic and health and safety considerations.

Activity	Estimated Cost
Residential Field courses	£0 on 'no cost' pathway
Equipment: Hard hat, high visibility tabard, safety glasses provided at no additional cost. Stout outdoor shoes / walking boots and waterproof clothing are essential	Up to £150 if require outdoor clothing
Total estimated additional costs	
Depends on field course chosen and if have to purchase outdoor clothing.	Up to £150 on 'no cost' pathway
Variable additional costs depending on optional field course choices	

These costs have been forecast by the University as accurately as possible but may be subject to change as a result of factors outside of our control (for example, increase in costs for external services). Forecast costs are reviewed on an annual basis to ensure they remain representative.

There will be additional costs for inter-library loans and potential overdue library fines, printing, photocopying and graduation. We do not anticipate any further costs for this programme.

16. Annex - International Year

Geology with International Year

International Year Programme

Students registered for this Single Honours programme may either be admitted for or apply to transfer during their period of study at Level 5 to the International Year option. Students accepted onto this option will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the standard programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the International Year option.

International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject
2. Experience of a different culture, academically, professionally and socially

Entry Requirements for the International Year

Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 60% across all modules in Semester 1 at Level 5 is normally required. Places on the International Year are then conditional on achieving an average mark of 54% across all Level 5 modules with no module fails. Where no Semester 1 marks have been awarded performance in 1st year marks and ongoing 2nd year assessments are taken into account)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1st and 2nd year tutors and programme director)

Students may not register for both an International Year and a Placement Year.

Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone conversations or on-line meetings with the Study Abroad tutor, in line with recommended Personal Tutoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

1. Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
2. Discuss the benefits and challenges of global citizenship and internationalisation
3. Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.
4. Design, plan and critically evaluate a practical investigation within the geology, record relevant information accurately and systematically and be able to reflect upon the data in a critical manner.
5. Integrate, apply and develop fundamental geology principles to describe and explain phenomena and solve problems in the context of selected topics within geology.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Regulations

Students registered for the International Year are subject to the programme-specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any module with significant overlap to the Level 6 modules they will study on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

17. Annex - Work Placement Year

Geology with Work Placement Year

Work Placement Year summary

Students registered for this programme may either be admitted for or apply to transfer during their studies to the 'with Work Placement Year' option (NB: for Combined Honours students the rules relating to the work placement year in the subject where the placement is organised are to be followed). Students accepted onto this programme will have an extra year of study (the Work Placement Year) with a relevant placement provider after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the Work Placement Year will be permitted to progress to Level 6. Students who fail to satisfactorily complete the Work Placement Year will normally revert to the 3-year programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the Work Placement Year option.

Work Placement Year Programme Aims

In addition to the programme aims specified in the main body of this document, the Work Placement Year aims to provide students with:

1. the opportunity to carry out a long-term work-based learning experience in the geological sector
2. enhanced employability skills training

Entry Requirements for the Work Placement Year

Admission to the Work Placement Year is subject to successful application, interview and references from appropriate staff. Students have the opportunity to apply directly for the 4-year 'with work placement year' degree programme, or to transfer onto the 4-year programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 4-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking the year-long work placement. Students who fail to pass the work placement year, and those who fail to meet the minimum requirements of the work placement year module (minimum 30 weeks full time (1,050 hours), or equivalent, work placement), will be automatically transferred onto the 3-year degree programme.

The criteria to be applied are:

- A good University attendance record and be in 'good academic standing'.
- Passed all Year-1 and Year-2 Semester 1 modules with an overall module average of > 60%
- General Aptitude (to be demonstrated by application(s) to relevant placement providers with prior agreement from the Programme Lead, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor, 1st and 2nd year tutors and Programme Lead)
- Students undertaking work placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based.
- (*International students only*) Due to visa requirements, it is not possible for international students who require a Tier 4 Visa to apply for direct entry onto the 4-year with Work Placement Year degree programme. Students wishing to transfer onto this programme should discuss this with student support, the academic tutor for the work placement year, and the Programme Lead. Students should be aware that there are visa implications for this transfer, and it is the student's responsibility to complete any and all necessary processes to be eligible for this programme. There may be additional costs, including applying for a new Visa from outside of the UK for international students associated with a transfer to the work placement programme.

Students may not register for both an International Year and a Work Placement Year.

Student Support

Students will be supported whilst on the Work Placement Year via the following methods:

- Regular contact between the student and a named member of staff who will be assigned to the student as their University supervisor. The University supervisor will be in regular contact with the student throughout the year, and be on hand to provide advice (pastoral or academic) and liaise with the Placement supervisor on the student's behalf if required.
- Two formal contacts with the student during the placement year: the University supervisor will visit the student in their placement organization at around the 5 weeks after placement has commenced, and then visit again (or conduct a telephone/video call tutorial) at around 15 weeks into the placement.
- Weekly supervision sessions will take place with the placement supervisor (or his/her nominee) throughout the duration of the placement.

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete the 'with Work Placement Year' option will be able to:

1. critically evaluate their learning from the work placement
2. explain how the professional environmental sector operates and what skills are needed to develop their career
3. apply academic theory learnt as part of the taught degree to real situations in the work place
4. evaluate their own employability skills (via a SWOT Analysis) and create Intended Learning Outcomes for their placement in order to develop the skills areas which they have identified as being weak or needing further enhancement
5. develop, through practice in the work place, the work-related skills identified through their SWOT analysis and Intended Learning Outcomes

These learning outcomes will be assessed through the non-credit bearing Work Placement Year (Geology) module (ESC-30052) which involves:

1. Mid-Placement Portfolio (SWOT analysis & Action Plan + Evaluation by Host) [30%]
2. Final Placement Portfolio (Reflective Diary + Evaluation by Host) [70%]

Regulations

Students registered for the 'with Work Placement Year' option are subject to programme-specific regulations (if any) and the University regulations. In addition, during the Work Placement Year, the following regulations will apply:

- Students undertaking the Work Placement Year must successfully complete the zero-credit rated 'Work Placement Year (Geology)' module (ESC-30052)
- In order to ensure a high quality placement experience, each placement agency will sign up to a placement contract (analogous to a service level agreement).
- Once a student has been accepted by a placement organisation, the student will make a pre-placement visit and a member of staff identified within the placement contract will be assigned as the placement supervisor. The placement supervisor will be responsible for ensuring that the placement experience meets the agreed contract agreed with the University.
- The placement student will also sign up an agreement outlining his/her responsibilities in relation to the requirements of each organisation.
- If a student chooses to start their work placement prior to the September of their placement year, then the student must ensure that they negotiate time off to attend any relevant field courses and fieldwork. Failure to attend field-courses or undertake fieldwork due to a work placement position will not be considered as exceptional circumstances.

Students will be expected to behave professionally in terms of:

(i) conforming to the work practices of the organisation; and

(ii) remembering that they are representatives of the University and their actions will reflect on the School and have an impact on that organisation's willingness (or otherwise) to remain engaged with the placement.

Additional costs for the Work Placement Year

Tuition fees for students on the Work Placement Year will be charged at 20% of the annual tuition fees for that year of study, as set out in Section 1. The Work Placement Year can be included in your Student Finance allocation; to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their placement provider, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available to students from the placement provider during the placement but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

Eligibility for student finance will depend on the type of placement and whether it is paid or not. If it is paid, this is likely to affect student finance eligibility, however if it is voluntary and therefore unpaid, should not affect student finance eligibility. Students are required to confirm eligibility with their student finance provider.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.

Version History

This document

Date Approved: 05 March 2021

Previous documents

Version No	Year	Owner	Date Approved	Summary of and rationale for changes
1.1	2020/21	STUART EGAN		Minor revision: added module ESC-30058 (The Science of Soil) as a level 6 option module.
1	2020/21	IAN STIMPSON	18 December 2019	
1.1	2019/20	STUART EGAN		Minor revision: added module ESC-30058 (The Science of Soil) as a level 6 option module.
1	2019/20	IAN STIMPSON	18 December 2019	