

PROGRAMME SPECIFICATION

This document describes **BSc Honours Degree programmes in Geology, Geology with a Year in Industry, Petroleum Geology and Petroleum Geology with a Year Industry**. This specification is valid for new entrants from **September 2017**.

The aims of all Honours Degree programmes in Earth Sciences are:

- to provide a sound and extensive basis for the study of the Geological Sciences, meeting the requirements for programme accreditation by the Geological Society where appropriate and the general requirements of the subject benchmarking statement;
- to provide students with knowledge of the science, and equip them with discipline-specific and transferable skills;
- to provide a flexible and progressive structure in which students are able to gain knowledge, understanding and appropriate skills relating to distinctive research specialisms;
- to offer a range of specialist courses and research projects which allow students to develop expertise and research interests in their chosen field;
- to equip students with the knowledge and skills appropriate for a career in the Earth Sciences, and generally to provide them with a range of personal attributes relevant to the world beyond Higher Education, enabling them to engage in lifelong learning and to contribute to the wider community.

Programmes are delivered in three stages, each of which comprises one year of full-time study during which the student must follow courses to the value of 120 credits. Although full-time attendance is the normal mode of study, BSc Geology and BSc Petroleum Geology programmes are also available in part time mode, whereby students would normally take 60 credits per year.

Programmes are characterised by the provision of a broad base in skills and knowledge in stages one and two, followed by opportunities for specialisation in stage three. The programmes also have strong compulsory spines of fieldwork culminating in an independent mapping project. Training in data collection, data analysis and presentation of reports is provided in core courses along with a range of transferrable skills that contribute to the successful progression of Earth Science graduates into a wide range of careers. Teaching and learning in the programme are designed to provide graduates with a sound basis of knowledge and skills in the geological sciences akin to those required by a professional geologist. Specialist courses offered in stage three are closely informed by the active research of staff, particularly in the general areas of "Ancient and Modern Earth Systems" (modern atmospheres, surface processes, palaeobiology, ancient Earth systems), Tectonics and Basins (sedimentology, mountain evolution, uplift, and erosion, numerical modelling, seismic interpretation, lithospheric and asthenospheric processes) and Geochemistry (palaeoceanography, crust-mantle evolution, plumes and ridges, volcanic arcs).

Further information

[Learning outcomes](#)

[Teaching, learning and assessment](#)

[Details of the programme structure\(s\)](#)

[Progression and award requirements](#)

[Student support and guidance](#)

[Admission requirements](#)

[Further learning and career opportunities](#)

[Indicators of quality and standards](#)

[List of programmes, with details of awards, degree titles, accreditation and teaching arrangements](#)

This document provides a summary of the main features of the programme(s), and of the outcomes, which a student might reasonably be expected to achieve if full advantage is taken of the learning opportunities provided. Further information is contained in the College prospectus, the College Regulations and in various handbooks issued to students upon arrival. Whilst Royal Holloway keeps all its information for prospective applicants and students under review, programmes and the availability of individual courses are necessarily subject to change at any time, and prospective applicants are therefore advised to seek confirmation of any factors, which might affect their decision to follow a specific programme. In turn, Royal Holloway will inform applicants and students as soon as is practicable of any substantial changes which might affect their studies.

Learning outcomes

Teaching and learning in the programmes are closely informed by the research of staff. In general terms, the programmes provide opportunities for students to develop and demonstrate the following learning outcomes:

Knowledge and understanding of

- the scientific, interdisciplinary study of the physical, chemical and biological processes operating on and within the Earth;
- the interaction of these processes in the consideration of the Earth as a dynamic system through time, (crust-mantle processes, surface processes, biosphere, atmosphere and hydrosphere);
- the structure and composition of the Earth;
- the study of geological materials (minerals, rocks, fluids);
- the use of geological maps to represent three-dimensional spatial variations and their interpretation in a temporal framework;
- the techniques of investigation in the geological sciences (geophysical, geochemical, remote sensing, geological data collection and analysis);
- the evolution of life and changing environments through the study of palaeobiology, palaeoecology, palaeoenvironmental and sedimentological analysis;
- geodynamic processes at the scale of local and global tectonics;
- stratigraphic principles and techniques (litho-, bio-, chrono- and sequence stratigraphy);
- the application of the Earth Sciences to resource exploitation (hydrocarbons, minerals, water), civil and environmental engineering (construction, waste disposal) and environmental hazards (earthquakes, volcanic eruptions, floods, landslides);
- the social and political role of the Earth Sciences in the exploitation and conservation of geological resources.

Skills and other attributes

- develop a strategy for tackling a scientific problem;
- collect, document and analyse different types of data using appropriate techniques and methodologies;
- synthesise data and information, and recognise or formulate hypotheses for the interpretation of this information;
- recognise the importance of applying professional standards in scientific work.
- the description and interpretation of rocks and minerals in hand specimen and through the use of a petrological microscope;
- the analysis and interpretation in time and space of structural and stratigraphic data presented as geological maps;
- reduction and interpretation of geophysical and other remotely sensed data;
- the design and analysis of experiments in a safe and effective manner;
- the recording of relevant geological data in spatial context;
- the collection of rocks, minerals, fossils and environmental media in a safe, efficient and environmentally sensitive manner;
- the attainment of certain standards of numeracy;*
- the ability to use appropriate computer technology and communication using the internet;*
- the use of libraries and the retrieval of information from diverse sources;*

- the ability to assemble information, analyze and synthesize results and present them in a variety of reporting formats including short written reports, longer dissertations and presentation as posters and oral presentations;*
- working in a team, setting goals by discussion, and sharing information and ideas to develop a collective outcome to a problem.*
- The use of multiple mediums to communicate science to a wide range of audiences.*

* transferable skills

[Back to top](#)

Teaching, learning and assessment

The learning outcomes are embedded within the core and optional courses available to the students. A progression of knowledge and understanding is achieved by starting with a basic grounding, which is subsequently reinforced and developed through application to specialist topics. In stages one and two, different aspects are taught as 30 or 15 credit modules, these modules are linked through tutorial exercises and most importantly through the mandatory field programme where the application of theory and practical skills learnt in class are used to solve geological problems. In stage three, specialist topics utilise this broad geological grounding to build more in depth knowledge and understanding of certain geological sub-disciplines. Again integration of all aspects of the stage 3 taught programme occurs through field projects, both the independent mapping project and the year 3 taught field trip. Practical classes comprise 60% of the timetabled study time, reflecting the emphasis on learning through studying maps, rocks and class work exercises. Lectures are used to introduce material and provide a context for private study. Tutorials supplement and reinforce knowledge and understanding. An appropriate field programme provides opportunities for students to apply concepts developed in the classroom and lecture theatre and is considered to be a fundamental aspect of the teaching programme. Field and laboratory project work carried out as individuals or in teams represents an opportunity for students to develop in-depth knowledge of specialist areas. Transferable, laboratory and field skills are identified within the learning outcomes of course units and summarized in a skills progression chart in the undergraduate handbook.

Assessment of skills, knowledge and understanding is by means of formal examinations, coursework practical exercises, literature research reports, fieldwork and laboratory exercises and reports, oral presentations and independent dissertations. Independent research projects in stage three provide opportunities to develop and integrate a wide range of discipline-specific and transferable skills and students are encouraged to regard these as an important forum for demonstrating their abilities. Full details of the assessments for individual courses can be obtained from the [Department](#).

[Back to top](#)

Details of the programme structure(s)

Please note that not all courses run each year. A full list of courses including optional courses for the current academic year can be obtained from the [Department](#).

Single Honours Degree programmes in Earth Sciences

BSc Geology/ BSc Geology with a year in industry	BSc Petroleum Geology/ BSc Petroleum Geology with a year in industry
Stage 1	Stage 1
Students must take the following mandatory courses GL1100 Global Tectonics (15 credits) GL1200 Introductory Sedimentology (15 credits) GL1460 Igneous and Metamorphic Geology (15 credits) GL1500 Physics and Chemistry of the Earth (15 credits) GL1600 Earth Structures (15 credits)	Students must take the following mandatory courses GL1100 Global Tectonics (15 credits) GL1200 Introductory Sedimentology (15 credits) GL1460 Igneous and Metamorphic Geology (15 credits) GL1500 Physics and Chemistry of the Earth (15 credits) GL1600 Earth Structures (15 credits)

GL1900 Scientific and Geological Field Skills (15 credits) non condonable GL1800 Introductory Palaeontology (15 credits)	GL1900 Scientific and Geological Field Skills (15 credits) non condonable GL1800 Introductory Palaeontology (15 credits) GL1750 Petroleum Geology with Maths (15 credits)
and either GL1300 Environmental Issues with Maths (15 credits) or GL1750 Petroleum Geology with Maths (15 credits)	
Stage 2	Stage 2
Students must take the following mandatory courses: GL2200 Stratigraphy and the History of Life (15 credits) GL2210 Regional Geology (15 credits) GL2400 Igneous and Metamorphic Geology (15 credits) GL2410 Geochemistry (15 credits) GL2901 Advanced Scientific and Geological Field Skills (30 credits) non condonable	Students must take the following mandatory courses: GL2210 Regional Geology (15 credits) GL2230 Sedimentary Basin Analysis (15 credits) GL2500 Applied Geophysics (15 credits) GL2600 Structural Analysis and Remote Sensing (15 credits) GL2901 Advanced Scientific and Geological Field Skills (30 credits) non condonable
And choose options to the value of 30 credits from the following: GL2230 Sedimentary Basin Analysis (15 credits) GL2320 Geohazards (15 credits)(15 credits) GL2500 Applied Geophysics (15 credits) GL2520 Computational Earth Sciences (15 credits) GL2600 Structural Analysis and Remote Sensing (15 credits)	And choose courses to the value of 30 credits from: GL2200 Stratigraphy and the History of Life (15 credits) GL2320 Geohazards (15 credits) GL2400 Igneous and Metamorphic Geology (15 credits) GL2410 Geochemistry (15 credits) GL2520 Computational Geology (15 credits)
Stage 3	
Students following BSc Geology must take the following mandatory courses: GL3001 Advanced Concepts and Techniques in Geology (30 credits) GL3901 Independent Geological Field Mapping (30 credits) - this course must be passed in order to graduate with the degree title BSc Geology	Students following BSc Petroleum Geology must take the following mandatory courses: GL3001 Advanced Concepts and Techniques in Geology (30 credits) GL3210 Advanced Topics in Sedimentology (15 credits) GL3600 Advanced Techniques in Tectonic and Structural Interpretation (15 credits) GL3700 The Geology of Petroleum (15 credits) GL3951 Independent Field Mapping (Sedimentary Basins) (30 credits) - this course must be passed in order to graduate with the degree title BSc Petroleum Geology
and choose courses to the value of 60 credits from: GL3200 Marine Geology (15 credits) GL3210 Advanced Topics in Sedimentology (15 credits) GL3300 Aqueous Geology (15 credits) GL3460 Volcanology (15 credits) GL3510 Planetary Geology and Geophysics (15 credits) GL3600 Advanced Techniques in Tectonic and Structural Interpretation (15 credits) GL3750 Mineral Resources (15 credits) GL3800 Advanced Palaeontology (15 credits)	and choose courses to the value of 15 credits from: GL3200 Marine Geology (15 credits) GL3300 Aqueous Geology (15 credits) GL3460 Volcanology (15 credits) GL3510 Planetary Geology and Geophysics (15 credits) GL3750 Mineral Resources (15 credits) GL3800 Advanced Palaeontology (15 credits)

<p>Students following BSc Geology with a Year in Industry or BSc Petroleum Geology with a Year in Industry: GL3141 Applied Geology (Industrial Placement) (30 credits). This is a 9-12 month work experience placement, between stages two and three. This course unit must be passed in order to graduate with the degree title BSc Geology with a Year in Industry or BSc Petroleum Geology with a Year in Industry.</p>	
Stage 4	Stage 4
<p>Students following the BSc Geology with a Year in Industry must take the following mandatory courses: GL3001 Advanced Concepts and Techniques in Geology (30 credits) GL3901 Independent Geological Field Mapping (30 credits) – this course must be passed in order to graduate with the degree title BSc Geology</p>	<p>Students following the BSc Petroleum Geology with a Year in Industry must take the following mandatory courses: GL3001 Advanced Concepts and Techniques in Geology (30 credits) GL3210 Advanced Topics in Sedimentology (15 credits) GL3600 Advanced Techniques in Tectonic and Structural Interpretation (15 credits) GL3700 The Geology of Petroleum (15 credits) GL3951 Independent Field Mapping (Sedimentary Basins) (30 credits) - this course must be passed in order to graduate with the degree title BSc Petroleum Geology</p>
<p>And choose courses to the value of 60 credits from: GL3200 Marine Geology (15 credits) GL3210 Advanced Topics in Sedimentology (15 credits) GL3300 Aqueous Geology (15 credits) GL3460 Volcanology (15 credits) GL3510 Planetary Geology and Geophysics (15 credits) GL3600 Advanced Techniques in Tectonic and Structural Interpretation (15 credits) GL3750 Mineral Resources (15 credits) GL3800 Advanced Palaeontology (15 credits)</p>	<p>And choose courses to the value of 15 credits from: GL3200 Marine Geology (15 credits) GL3300 Aqueous Geology (15 credits) GL3460 Volcanology (15 credits) GL3510 Planetary Geology and Geophysics (15 credits) GL3750 Mineral Resources (15 credits) GL3800 Advanced Palaeontology (15 credits)</p>

[Back to top](#)

Progression and award requirements

The progression and award requirements are essentially the same across all Honours Degree programmes at Royal Holloway as outlined in the [College's Undergraduate Regulations](#). However, on some programmes there may be a requirement to pass specific courses in order to progress to the next stage, or to qualify for a particular degree title and this will put restrictions on courses in which failing marks can be condoned (see programme structure above for details).

GL1900 must be passed in order to progress to stage 2 of BSc Geology and BSc Petroleum Geology plus their year in industry variants.

GL2901 must be passed in order to progress to stage 3 of BSc Geology and BSc Petroleum Geology plus their year in industry variants.

GL3901 Independent Geological Field Mapping must be passed to qualify for the BSc Geology.

GL3951 Independent Field Mapping (Sedimentary Basins) must be passed to qualify for the BSc Petroleum Geology.

GL3141 Applied Geology (Industrial Placement) must be passed in order to qualify for 'Year in Industry' in the degree title.

Failure to meet progression requirements for stages 1 and 2 could result in transfer to the unaccredited BSc Geological Sciences programme.

[Back to top](#)

Student support and guidance

- Personal Advisers: All students are allocated a personal adviser who meets with them regularly through the programme. The personal adviser's role is to advise on academic, pastoral and welfare issues. Students may choose to be allocated a different personal adviser at any stage during the programme.
- Degree Programme coordinators and the Director of UG Teaching provide a back-up system of academic, pastoral and welfare advice.
- All members of staff are available and accessible during office hours.
- Detailed student handbook and course resources.
- Representation on the Student-Staff Committee.
- Extensive supporting materials and learning resources in College and University libraries and Computer Centre.
- Dedicated departmental teaching laboratories and computing facilities.
- College Careers Service and Departmental Careers and Employability Tutor.
- Access to all College and University support services, including Student Counselling Service, Health Centre and the Disability and Dyslexia Services for students with disabilities and Specific Learning Difficulties. .

[Back to top](#)

Admission requirements

Details of the Department's typical offer is available on the [Course Finder](#) web page. However, the Department also has considerable flexibility in its admissions and offers policy and strongly encourages applications from non-standard applicants. Students whose first language is not English may also be asked for a qualification in English Language at an appropriate level. For further guidance it may be helpful to contact the [Recruitment and Partnerships Office](#).

[Back to top](#)

Further learning and career opportunities

Graduates from Earth Sciences degree programmes have successfully progressed into a wide range of professions, while some have continued onto Postgraduate studies. In addition to the services offered by the College Careers Service, the Department has strong alumni links. Links with employers are fostered through the Department's External Advisory Board. The following Masters programmes are available within the Department: MSc Petroleum Geoscience, MSc Environmental Diagnosis and Management, MSc Earth Sciences by Research, and there is also the relevant MSc in Quaternary Science in the Department of Geography. The degree programmes are accredited by the Geological Society of London as a pathway to professional status for graduates. For further details please refer to the [Careers and Employability Service](#).

[Back to top](#)

Indicators of quality and standards

Royal Holloway's position as one of the UK's leading research-intensive institutions was confirmed by the results of the most recent Research Excellence Framework (REF 2014) conducted by the Higher Education Funding Council (HEFCE). The scoring system for the REF 2014 measures research quality in four categories, with the top score of 4* indicating quality that is world-leading and of the highest standards in terms of originality, significance and rigour and 3* indicating research that is internationally excellent. 81% of the College's research profile was deemed to be within the 4* or 3* categories, an increase of over 20% since 2008. This results for the quality of our research

outputs placed Royal Holloway 15th in the UK based on an overall Grade Point Average (GPA) score and 20th in the UK for 4* and 3* research. The Department of Earth Sciences is ranked 14 in the UK for research of 4* standard and 2 for 3* and 4* research and is ranked within the top 5 departments for their subject in the UK.

[Back to top](#)

List of programmes

All the programmes are taught entirely by staff at Royal Holloway, University of London, and lead to awards of the University of London. Programmes in Earth Sciences (with the exception of Petroleum Geology) are subject to accreditation by the Geological Society of London and the aims and outcomes reflect this. The QAA subject benchmark statements in Earth Sciences, Environmental Sciences and Environmental Studies describe the general features which one might expect from Honours Degree programmes in the subject, and can therefore be used as a point of reference when reading this document (see www.qaa.ac.uk). UCAS codes are given in parentheses (see www.ucas.ac.uk).

Single Honours Degree programmes in Earth Sciences

BSc Geology (F600)
BSc Geology with a Year in Industry (F603)
BSc Petroleum Geology (F620)
BSc Petroleum Geology with a Year in Industry

Diploma of Higher Education

(Only available to students registered for BSc in these subjects but who fail to graduate, subject to passing required courses as detailed in the relevant section of the College's Undergraduate Regulations. Not available for admission through UCAS)

DipHE in Geology

[Back to top](#)