

**Royal Holloway, University of London**  
**Course specification for an undergraduate award**  
**BSc Earth, Climate and Environmental Change (F764)**

**Section 1 – Introduction to your course**

This course specification is a formal document, which provides a summary of the main features of your course and the learning outcomes that you might reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities that are provided. Further information is contained in the College prospectus, and in various handbooks, all of which you will be able to access online. Alternatively, further information on the College's academic regulations and policies can be found [here](#). Further information on the College's Admissions Policy can be found [here](#).

Your degree course in BSc Earth, Climate and Environmental Change is delivered in three stages, each of which comprises one year of full-time study during which you must follow modules to the value of 120 credits. Although full-time attendance is the normal mode of study, the BSc Earth, Climate and Environmental Change is also available in part time mode, whereby you would normally take 60 credits per year. Modules are characterised by the provision of a broad base in skills and knowledge in stages one and two, followed by opportunities for specialisation and choice in stage three culminating in a final year research project supervised by a member of the Earth Science staff. Some modules also have an element of compulsory fieldwork. Training in data collection, data analysis and presentation of reports is provided in core modules 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 course are designed to provide graduates with a sound basis of knowledge and skills in the Earth, Climate and Environmental sciences akin to those required by professionals in these three sectors. Specialist modules offered in stages two and three are closely informed by the active research of staff in our department and other departments in the school.

While Royal Holloway keeps all the information made available under review, courses and the availability of individual modules, especially optional modules are necessarily subject to change at any time, and you are therefore advised to seek confirmation of any factors which might affect your decision to follow a specific course. In turn, Royal Holloway will inform you as soon as is practicable of any significant changes which might affect your studies.

The following is a brief description for some of the most important terminology for understanding the content of this document:

*Degree course* – May also be referred to as 'degree programme' or simply 'programme', these terms refer to the qualification you will be awarded upon successful completion of your studies.

*Module* – May also be referred to as 'course', this refers to the individual units you will study each year to complete your degree course. Undergraduate degrees at Royal Holloway comprise a combination of modules in multiples of 15 credits to the value of 120 credits per year. On some degree courses a certain number of optional modules must be passed for a particular degree title.

Section 2 – Course details			
<b>Date of specification update</b>	August 2022	<b>Location of study</b>	Egham Campus
<b>Course award and title</b>	BSc Earth, Climate and Environmental Change	<b>Level of study</b>	Undergraduate
<b>Course code</b>	3524	<b>UCAS code</b>	F764
<b>Year of entry</b>	2023/24		
<b>Awarding body</b>	Royal Holloway, University of London		
<b>Department or school</b>	Department of Earth Sciences School of Life Sciences and the Environment	<b>Other departments or schools involved in teaching the course</b>	N/A although you are permitted to take modules (max 30 credits) from Geography and/or Biology in your final year.
<b>Mode(s) of attendance</b>	Full-time Part-time	<b>Duration of the course</b>	3 years (full-time) 6 years (part-time)
<b>Accrediting Professional, Statutory or Regulatory Body requirement(s)</b>	N/A		
<b>Link to Coursefinder for further information:</b>	<a href="https://www.royalholloway.ac.uk/studying-here/">https://www.royalholloway.ac.uk/studying-here/</a>	<b>For queries on admissions:</b>	<a href="https://royalholloway.ac.uk/applicationquery">https://royalholloway.ac.uk/applicationquery</a>

Section 3 – Degree course structure					
3.1 Mandatory module information					
The following table summarises the mandatory modules which students must take in each year of study					
Year	Module code	Module title	Credits	FHEQ level	Module status (Mandatory Condonable MC or Mandatory Non-Condonable MNC)
1	GL1101	Evolving Earth	30	4	MC
1	GL1301	Human interaction with the Earth	30	4	MC
1	GL1401	Climate, Ocean and Atmosphere	30	4	MC
1	GL1500	Physics and Chemistry of the Earth	15	4	MC
1	GL1900	Scientific and Geological field skills	15	4	MC
2	GL2320	Geohazards	15	5	MC
2	GL2460	Research in Earth, Climate and Environmental Change	15	5	MC
2	GL2520	Computational Earth Sciences	15	5	MC
2	GL2340	GIS and remote sensing	15	5	MC
2	GL2800	Oceanography	15	5	MC
2	GL2410	Geochemistry	15	5	MC
3	GL3880	Advanced Palaeoclimates	15	6	MC
3	GL3451	Earth, Climate and Environmental Change research project	30	6	MNC
3	GL3940	Methods of Environmental Investigation	15	6	MNC

This table sets out the most important information for the mandatory modules on your degree course. These modules are central to achieving your learning outcomes, so they are compulsory, and all students on your degree course will be required to take them. You will be automatically registered for these modules each year. Mandatory modules fall into two categories: 'condonable' or 'non-condonable'.

In the case of mandatory 'non-condonable' (MNC) modules, you must pass the module before you can proceed to the next year of your course, or to successfully graduate with a particular degree title. In the case of mandatory 'condonable' (MC) modules, these must be taken but you can still progress or graduate even if you do not pass them. Please note that although Royal Holloway will keep changes to a minimum, changes to your degree course may be made where reasonable and necessary due to unexpected events. For example: where requirements of relevant Professional, Statutory or Regulatory Bodies have changed and course requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of external advisors, to enhance academic provision.

### 3.2 Optional modules

In addition to mandatory modules, there will be a number of optional modules available during the course of your degree. Although Royal Holloway will keep changes to a minimum, new options may be offered or existing ones may be withdrawn. For example where reasonable and necessary due to unexpected events, where requirements of relevant Professional, Statutory or Regulatory Bodies (PSRBs) have changed and course requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of External Advisors, to enhance academic provision. There may be additional requirements around option selection; please contact the Department for further information.

During your degree course you must take a module in Meteorology and a module in Modern Climate Change, as follows:

GL2330 Practical Meteorology (15 credits) OR GL3330 Advanced Practical Meteorology (15 credits)

AND

GL2650 Introduction to Modern Climate Change (15 credits) OR GL3650 Modern Climate Change (15 credits)

Modules GL2330/GL3330 and GL2650/GL3650 are offered in alternative years only so you will be advised by the Undergraduate Course Lead in which year of study you will need to complete your Meteorology and Climate Change modules.

In stage two, you will take optional modules to the value of 15 credits.

In stage three, you will take optional modules to the value of 45 credits.

#### Section 4 - Progressing through each year of your degree course

For further information on the progression and award requirements for your degree, please refer to Royal Holloway's [Academic Regulations](#).

Progression throughout the year/s is monitored through performance in summative or formative coursework assignments. Please note that if you hold a Student Visa and you choose to leave (or are required to leave because of non-progression) or complete early (before the course end date stated on your CAS), then this will be reported to UKVI.

All first-year undergraduate students are required to take and pass the non-credit bearing Moodle-based Academic Integrity module SS1001 to progress into the second year of study (unless their course includes the alternative mandatory SS1000 module). The pass mark for the module assessment is stated in the on-line Academic Integrity Moodle module. Students may attempt the assessment as often as they wish with no penalties or capping. Students who meet the requirements for progression as stipulated in the College's Undergraduate Regulations (Section: Conditions for progression to the next stage) but fail to pass the Moodle-based Academic Integrity module will not be permitted to progress into their second year of academic study at the College

Although full-time attendance is the normal mode of study, this course also available in part time mode, whereby students would normally take 60 credits per year.

#### Section 5 – Educational aims of the course

The aims of this course are:

- to provide a sound and extensive basis for the study of the Earth, Climate and Environmental sciences;
- to provide you with knowledge of the science, and equip you with discipline-specific and transferable skills, including the ability to reflect critically on the data and information you are presented;
- to provide a progressive structure in which you are able to gain knowledge, understanding and appropriate skills relating to distinctive research specialisms;
- to offer a range of specialist modules and research projects which allow you to develop expertise and research interests in your chosen field;
- to equip you with the knowledge and employable skills appropriate for a career in the Earth, Climate or Environmental Sciences, and generally to provide you with a range of personal attributes relevant to the world beyond Higher Education, enabling you to engage in lifelong learning and to contribute to the wider community.

## Section 6 - Course learning outcomes

In general terms, the courses provide opportunities for students to develop and demonstrate the following learning outcomes. (*Categories – Knowledge and understanding (K), Skills and other attributes (S), and Transferable skills (\*)*)

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| <ol style="list-style-type: none"> <li>1. The scientific, interdisciplinary study of the physical, chemical and biological processes operating on and within the Earth and solar system (K);</li> <li>2. 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) (K);</li> <li>3. The structure and composition of the Earth (K);</li> <li>4. The study of geological materials (minerals, rocks, liquids and gases) (K);</li> <li>5. The use of maps to represent three-dimensional spatial variations and their interpretation in a temporal framework (K);</li> <li>6. The techniques of investigation in the Earth, Climate and environmental sciences (geophysical, geochemical, remote sensing, climatic, environmental, geological data collection and analysis) (K);</li> <li>7. The evolution of life and changing environments through the study of palaeobiology, palaeoecology, palaeoenvironmental and sedimentological analysis (K);</li> <li>8. Metrological and oceanographic techniques (K);</li> <li>9. The application of the Earth Sciences to resource exploration, use and management (hydrocarbons, minerals, water), civil and environmental engineering (construction, waste disposal) and environmental hazards (earthquakes, volcanic eruptions, floods, landslides) (K);</li> <li>10. The social and political role of the Earth Sciences in the exploitation and conservation of geological resources (K);</li> <li>11. Preparing effective maps and diagrams using a range of appropriate technologies (S*);</li> <li>12. Taking responsibility for own learning, and developing habits of reflection on that learning (S*);</li> </ol> | <ol style="list-style-type: none"> <li>13. Develop a strategy for tackling a scientific problem (S);</li> <li>14. Collect, document and analyse different types of data using appropriate techniques and methodologies (S);</li> <li>15. Synthesise data and information, and recognise or formulate hypotheses for the interpretation of this information (S);</li> <li>16. Recognise the importance of applying professional standards in scientific work (S)</li> <li>17. Understand uncertainty with regard to numerical measurements and its application to Earth, Climate and environmental problems (S);</li> <li>18. Reduction and interpretation of geophysical and other remotely sensed data (S);</li> <li>19. The design and analysis of experiments in a safe and effective manner (S);</li> <li>20. The recording of relevant Earth, climatic and environmental data in spatial context (S);</li> <li>21. The collection of rocks, minerals, fossils and environmental media in a safe, efficient and environmentally sensitive manner (S);</li> <li>22. The attainment of certain standards of numeracy (S*);</li> <li>23. The ability to use appropriate computer technology and communication using the internet (S*);</li> <li>24. The use of libraries and the retrieval of information from diverse sources (S*);</li> <li>25. 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; (S*);</li> <li>26. Working in a team, setting goals by discussion, and sharing information and ideas to develop a collective outcome to a problem (S*);</li> <li>27. The use of multiple mediums to communicate science to a wide range of audiences (S*).</li> </ol> |
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## Section 7 - Teaching, learning and assessment

### *What*

The course will allow the participant to become knowledgeable and skilled in the mechanisms and systems behind modern climate change, Earth and environmental Sciences. The course will take participants on a hypothetical journey from the centre of our own Earth through the lithosphere, atmosphere, hydrosphere and out into space and other planets. The course will equip students with the knowledge of these systems and skills to describe model and make predictions about these systems. A progression of knowledge and understanding is achieved by starting with a basic grounding in Earth, Environment and Climate processes and skills, which is subsequently reinforced and developed through application to specialist topics.

### *How*

In stages one and two, the principles, mechanism and topics of Earth Sciences are introduced and surveyed as 15 credit modules. These modules are linked through tutorial exercises, practical classes and two field courses where the application of theory and practical skills learnt are used to understand, synthesize, and model Earth, climate and environmental problems. In stage three, specialist topics utilise this broad Earth Science grounding to build more in-depth knowledge and understanding of advanced sub-disciplines. Options in stages two and three allows participants to pick topics they wish to explore in more detail and mechanisms in which they wish their understanding to become more deeply enriched. Integration of all aspects of the stage three taught modules occurs through a research project allowing deep focus into an Earth Science topic and the opportunity to learn sub-discipline skills in an area that fascinates the participant, and a field module that demonstrates how ideas and models can be applied to the real world by exploring the real world and applying often basic concepts to understand and explain to others what is being observed. The field work will also teach critical skills in observation science enabling course participants to be able to read observational data and to take useful quantitative measurements of a studied environment. Practical classes comprise the majority of the timetabled study time showing how Earth science principles can be applied to understand and predict the behaviours of the planet; and reflecting the emphasis on learning through studying class work exercises. Practical classes will also deliver skills in Earth Science through handling, observation, measurement and thinking through Earth Science problems. Lectures are used to introduce the principles, mechanisms and models of Earth Science and survey the components that make up Earth Science from deep mantle to the planets around other stars and provide a structure around which to undertake private study. Tutorials supplement and reinforce knowledge and understanding, and allow students to revise, reinforce and explore deeper ideas learnt in other parts of the curriculum. Field, laboratory, practical and project work carried out as individuals or in teams represents an opportunity for the participant to develop in-depth knowledge and skills of and in specialist areas. Transferable, laboratory and field skills are identified within the learning outcomes of modules and summarized in a skills progression chart in the undergraduate handbook.

### *Assess*

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. There will be a range of methods of assessing participants understanding from weekly "homeworks" to larger and more complex pieces of work produced in formats and styles needed for life after the degree (i.e. FAQ, reports, web pages and journalistic pieces). Independent research projects in stage three provide opportunities to develop and integrate a wide range of discipline-specific and transferable skills in a topic of the participants choosing and allows time and guidance for the participant to use the skills they have gained in the course to full effect and you are encouraged to regard these as an important forum for demonstrating your abilities. Full details of the assessments for individual modules can be obtained from the Department. A breakdown of assessment types for individual modules is shown in section 3.

Contact hours come in various forms and may take the form of time spent with a member of staff in a lecture or seminar with other students. Contact hours may also be laboratory or, studio-based sessions, project supervision with a member of staff, or discussion through a virtual learning environment (VLE). These contact hours may be with a lecturer or teaching assistant, but they may also be with a technician, or specialist support staff.

The way in which each module on your degree course is assessed will also vary, however, the assessments listed above are all 'summative', which means you will receive a mark for it which will count towards your overall mark for the module, and potentially your degree classification, depending on your year of study. On successful completion of the module you will gain the credits listed. 'Coursework' might typically include a written assignment, like an essay. Coursework might also include a report, dissertation or portfolio. 'Practical assessments' might include an oral assessment or presentation, or a demonstration of practical skills required for the particular module

More detailed information on modules, including teaching and learning methods, and methods of assessment, can be found via the online [Module Catalogue](#). The accuracy of the information contained in this document is reviewed regularly by the university, and may also be checked routinely by external agencies, such as the Quality Assurance Agency (QAA).

#### **Section 8 – Additional costs**

The department will provide you with a set of essential fieldwork equipment, for example a hard hat, compass in your first year.

There are no single associated costs greater than £50 per item on this degree course.

**These estimated costs relate to studying this particular degree course at Royal Holloway. General costs such as accommodation, food, books and other learning materials and printing etc., have not been included, but further information is available on our website.**



Section 9 – Indicators of quality and standards	
<b>QAA Framework for Higher Education Qualifications (FHEQ) Level</b>	4-6
Your course is designed in accordance with the FHEQ to ensure your qualification is awarded on the basis of nationally established standards of achievement, for both outcomes and attainment. The qualification descriptors within the FHEQ set out the generic outcomes and attributes expected for the award of individual qualifications. The qualification descriptors contained in the FHEQ exemplify the outcomes and attributes expected of learning that results in the award of higher education qualifications. These outcomes represent the integration of various learning experiences resulting from designated and coherent courses of study.	
<b>QAA Subject benchmark statement(s)</b>	<a href="http://www.qaa.ac.uk/quality-code/subject-benchmark-statements">http://www.qaa.ac.uk/quality-code/subject-benchmark-statements</a>
Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of courses in a specific subject or subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated.	

Section 10– Intermediate exit awards (where available)		
You may be eligible for an intermediate exit award if you complete part of the course as detailed in this document. Any additional criteria (e.g. mandatory modules, credit requirements) for intermediate awards is outlined in the sections below.		
Award	Criteria	Awarding body
Diploma in Higher Education (DipHE)	Pass in 210 credits of which at least 90 must be at or above FHEQ Level 4 and at least 120 of which must be at or above FHEQ Level 5	Royal Holloway and Bedford New College
Certificate in Higher Education (CertHE)	Pass in 120 credits of which at least 90 must be at or above FHEQ Level 4	Royal Holloway and Bedford New College