

**Royal Holloway, University of London**  
**Course specification for an undergraduate award**  
**BSc Digital Geosciences (F640)**

**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 Digital Geosciences 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, this course is also available in part time mode, whereby you would normally take 60 credits per year.

The course also has a strong compulsory spine of fieldwork including a specialised project in Digital Geosciences in the second year and culminating in an independent mapping project in the final year. 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 geological sciences akin to those required by a professional geologist. Specialist modules 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).

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 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  |   |  |  |
|---|---|--|--|
| Date of specification update  | April 2020  | Location of study  | Egham Campus   |
| Course award and title  | BSc Digital Geosciences   | Level of study   | Undergraduate  |
| Course code   | 3032  | UCAS code  | F640   |
| Year of entry   | 2020/21   |  |  |
| Awarding body   | Royal Holloway, University of London  |  |  |
| Department or school  | Earth Sciences  | Other departments or schools involved in teaching the course | N/A  |
| Mode(s) of attendance   | Full-time   | Duration of the course                                       | Three years  |
| Accrediting Professional, Statutory or Regulatory Body requirement(s) | N/A   |  |  |
| Link to Coursefinder for further information:                         | <a href="https://www.royalholloway.ac.uk/studying-here/">https://www.royalholloway.ac.uk/studying-here/</a> | For queries on admissions:                                   | <a href="mailto:study@royalholloway.ac.uk">study@royalholloway.ac.uk</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   | Contact hours* | Self-study hours | Written exams | Practical assessment | Coursework | Credits** | FHEQ level | Module status (see below) |
| 1   | GL1100      | Global Tectonics                                     | 50             | 100              | 80%           | 0                    | 20%        | 15        | 4          | MC                        |
| 1   | GL1200      | Introductory Sedimentology                           | 50             | 100              | 70%           | 0                    | 30%        | 15        | 4          | MC                        |
| 1   | GL1460      | Igneous and metamorphic Geology                      | 50             | 100              | 60%           | 30%                  | 10%        | 15        | 4          | MC                        |
| 1   | GL1500      | Physics and the Chemistry of the Earth               | 60             | 90               | 70%           | 0                    | 30%        | 15        | 4          | MC                        |
| 1   | GL1600      | Earth Structures                                     | 57-66          | 93-84            | 60%           | 0                    | 40%        | 15        | 4          | MC                        |
| 1   | GL1800      | Introductory Palaeontology                           | 80             | 70               | 60%           | 0                    | 40%        | 15        | 4          | MC                        |
| 1   | GL1900      | Scientific and Geological Field Skills               | 122            | 28               | 0             | 0                    | 100%       | 15        | 4          | MC                        |
| 2   | GL2210      | Regional Geology                                     | 48             | 102              | 60%           | 0                    | 40%        | 15        | 5          | MC                        |
| 2   | GL2500      | Applied Geophysics                                   | 24             | 126              | 60%           | 40%                  | 0          | 15        | 5          | MC                        |
| 2   | GL2520      | Computational Earth Sciences                         | 90             | 60               | 0             | 90%                  | 10%        | 15        | 5          | MNC                       |
| 2   | GL2550      | Independent Research in Computational Earth Sciences | 11             | 139              | 0             | 20%                  | 80%        | 15        | 5          | MNC                       |
| 3   | GL3020      | Frontiers in Earth Sciences                          | 62             | 88               | 50%           | 50%                  | 0          | 15        | 6          | MC                        |
| 3   | GL3030      | Advanced Techniques in Digital Geoscience            | 38             | 112              |               | 50%                  | 50%        | 15        | 6          | MC                        |
| 3   | GL3131      | Independent Project                                  | 13             | 227              | 0             | 10%                  | 90%        | 30        | 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.

\*Contact hours come in various different 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.

### 3.2 Optional modules

In addition to mandatory modules, there will be a number of optional modules available during the course of your degree. The following table lists a selection of optional modules that are likely to be available. However, not all may be available every year. 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, so it is important that this specification is read alongside your department's Student Handbook, which you can access via their [webpage](#).

| Year 1                                 | Year 2  | Year 3                            |
|--|---|-----------------------------------|
| GL1300 Environmental Issues with Maths | GL2600 Structural Analysis and Remote Sensing | GL3210 Advanced Sedimentology     |
| GL1750 Petroleum Geology with Maths    | GL2200 Stratigraphy and History of Life       | GL3250 Sedimentary Basin Analysis |
|  | GL2251 Sedimentary Basin Analysis             | GL3200 Marine Geology             |

|  |   |  |
|--|---|--|
|  | GL2320 Geohazards   | GL3300 Aqueous Geology                         |
|  | GL2400 Igneous and Metamorphic Petrology  | GL3330 Meteorology                             |
|  | GL2410 Geochemistry   | GL3340 GIS and Remote Sensing                  |
|  | GL2330 Meteorology  | GL3460 Volcanology                             |
|  | GL2340 GIS and Remote Sensing   | GL3510 Planetary Geology and Geophysics        |
|  | GL2930 Advanced Scientific and Geological Field Skills for Environmental Students | GL3600 Tectonics and Structural Interpretation |
|  | GL2901 Advanced Scientific and Geological Field Skills                            | GL3700 Petroleum Geology                       |
|  |   | GL3750 Mineral Resources                       |
|  |   | GL3800 Advanced Palaeontology                  |
|  |   | GL3850 Engineering Geology                     |

#### 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](#). As part of your degree course you will also be required to complete a module to develop your academic writing skills. This module does not carry credit but passing it is a requirement to progress to the next year of study.

### Section 5 – Educational aims of the course

- to study the interaction of physical, chemical and biological processes relating to the Earth as a dynamic system through time (crust-mantle processes, surface processes, biosphere, atmosphere and hydrosphere);
- to examine geological materials (minerals, rocks, fluids) and the use of geological maps to represent three-dimensional spatial variations and their interpretation in a temporal framework;
- to consider the application of earth sciences and its social and political role to resource exploitation (hydrocarbons, minerals, water), civil and environmental engineering (construction, waste disposal) and environmental hazards (earthquakes, volcanic eruptions, floods, landslides);
- to use open source programming language to analyse digital geological data, create computer based models of geological processes, and generate and modify digital geological field maps;
- to learn about managing a research project including identification of milestones, time and resource management, and feasibility demonstration.

### 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 (\*))**

1. A strong understanding of interaction of physical, chemical and biological processes relating to the Earth as a dynamic system through time **(K)**;
2. A strong understanding of the internal structure of the Earth and the link between deep Earth processes and surface processes **(K)**;
3. Understanding the origin of different geological materials, and ability to identify the source of these materials based on their characteristics **(K)**;
4. Basic knowledge of computer scripting languages such as MATLAB or python to manipulate geological data, carry out basic digital data analysis, and create digital data using basic geological models **(K)**;
5. Some knowledge of creating and editing digital geological maps and carry out independent research project involving digital geological data **(K)**;
6. You will be trained in the application of earth sciences and its social and political role to resource exploitation (hydrocarbons, minerals, water), civil and environmental engineering (construction, waste disposal) and environmental hazards (earthquakes, volcanic eruptions, floods, landslides). This training will prepare you for future employment opportunities in energy and environmental sectors, Government geological surveys, and positions related to environmental and scientific policy making **(S\*)**;
7. You will also learn programming in high level computer languages, a skill set that they can use to find positions in the software industry **(S\*)**.

### Section 7 - Teaching, learning and assessment

Teaching and learning is mostly by means of lectures, seminars, essay consultations, oral presentations, fieldwork, practicals, and guided independent study. Assessment of knowledge and understanding is typically by formal examinations, coursework, assessed essays, practical exercises, assessed project proposals, oral presentations, assessed fieldwork, and independent research projects. In addition, students may be involved in workshops and may produce various forms of creative work. Full details of the assessments for individual modules can be obtained from the [Department](#).

### 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 mandatory field trips in year 1, for which you will be asked to make a contribution towards costs of £250.

There are optional field trips in years 2 and 3. You will be asked for the following contributions, if you choose to attend these –

GL2930 = £120

GL2901 = £200

The remaining costs towards field work are subsidised by the department.

**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 – Further information  |
|---|
| <p>This specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate when taking full advantage of the learning opportunities that are available. More detailed information on modules, including teaching and learning methods, and methods of assessment, can be found via the online <a href="#">Module Catalogue</a>. 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).</p> <p>Your course will be reviewed regularly, both by the university as part of its cyclical quality enhancement processes, and/or by your department or school, who may wish to make improvements to the curriculum, or in response to resource planning. As such, your course may be revised during the course of your study at Royal Holloway. However, your department or school will take reasonable steps to consult with students via appropriate channels when considering changes. All continuing students will be routinely informed of any significant changes.</p> |



**Section 11 – 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 |

**Section 12 - Associated award(s)**

BSc Digital Geosciences (F640)