

Royal Holloway, University of London
Course specification for a postgraduate award
MSc Engineering Geology and Hydrogeology (Banner Code: 3661)

Section 1 – Introduction to your course

This MSc usefully combines the disciplines of Engineering Geology and Hydrogeology, which are intimately linked but very often approached separately, in response to clear industrial demand. You will be exposed to future-looking learning material that will equip you with the necessary tools and skills to combat the effects of climate change, and align with “New Green Deal” recovery programmes. The course features close contact with industry partners (in guest lectures, student sponsorship, internships, and professional practice modules) to enhance your employability, as well as an introduction to key transferable academic skills with students from Earth Sciences’ two existing MSc streams. Foundational modules including rock and soil mechanics, hydrogeology and fluid flow, GIS, near-surface geophysics, and sequence stratigraphy, are combined with multiple field trips throughout the year, allowing you to gain skills needed for site investigation. Towards the end of the course, you will conduct original and independent research, forming one-third of the course, potentially involving student-led fieldwork and/or industry placements, working on “real-life” engineering projects. You will join a friendly department with a thriving research and social community, and will be taught by academics conducting leading-edge research in a wide variety of environmental fields including geohazards, water engineering, remote sensing, structural analysis, and water management.

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. The course is delivered over one year of full-time study (52 weeks) or up to five years of part-time study (260 weeks). Teaching takes place during the day over two terms from September to April. The dissertation is submitted in September. Whilst being a self-contained degree, the course also provides a suitable and recognised qualification for entry to PhD study in the same or a closely related field.

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 – Also referred to as ‘course’, this term refers to the qualification you will be awarded upon successful completion of your studies. ‘Courses’ were formerly known as ‘programmes’ at Royal Holloway.

Section 2 – Course details			
Date of specification update	October 2022	Location of study	Egham
Course award and title	MSc Engineering Geology and Hydrogeology	Level of study	Postgraduate
Course code	3661	Year of entry	2023/24
Awarding body	Royal Holloway, University of London		
Department/ School	Earth Sciences	Other departments or schools involved in teaching the course	n/a
Mode(s) of attendance	Full-time and part-time	Duration of the course	One year (52 weeks) full-time Two to five years (104–260 weeks) part-time
Accrediting Professional, Statutory or Regulatory Body requirement(s)	N/A	For queries on admissions:	https://royalholloway.ac.uk/applicationquery
Link to Coursefinder for further information:	https://www.royalholloway.ac.uk/studying-here/		

Module – This refers to the credits you will study each year to complete your degree course. Postgraduate taught degrees at Royal Holloway comprise 180 credits. On some degree courses a certain number of optional modules must be passed for a particular degree title. 'Modules' were formerly known as 'course units' at Royal Holloway.

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				
Module code	Module title	Credits	FHEQ level	Module status
GL5510	Site Investigation and Ground Models	15	7	MC
GL5520	Rock and Soil Mechanics, Engineering and Fluid Flow	15	7	MC
EA5220	Hydrogeology and Water Quality	15	7	MC
GL5540	Professional Practice	15	7	MC
GL5550	Geomorphology and Hydrogeology for Site Investigation	15	7	MC
GL5560	Fieldwork and Site Visits	15	7	MC
GL5201	Geophysical Methods	15	7	MC
EA5110	Data Analysis and GIS	15	7	MC
GL5570	Independent Research Project	60	7	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. Mandatory modules fall into two categories: 'condonable' or 'non-condonable'. In the case of mandatory 'non-condonable' (MNC) modules, you must pass the module to successfully graduate with a particular degree title, or before you can proceed to the next year of your course where studying part-time. 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 (see Academic Regulations on condonable fails). 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

There are no optional modules on this degree course.

3.3 Optional module requirements

N/A

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 postgraduate taught students are required to take and pass the non-credit bearing Moodle-based Academic Integrity module SS1001 in order to be awarded. 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 otherwise meet the requirements for award as stipulated in the College's Postgraduate Taught Regulations (Section 15: Consideration and classification of candidates for the award) but fail to pass the Moodle-based Academic Integrity module will not be awarded

The part-time route through the degree will take the form of a two-year course, with the final Independent Research Project conducted during the last summer. Two more theoretical modules (of four) will be taken spread over term one; likewise, two more applied modules (of four) will be taken in term two.

Section 5 – Educational aims of the course

The aims of this course are to:

- Train students in fundamental and applied principles of sub-surface hydrology and engineering geology, and to explore the fundamental links between the two areas;
- Expose students to the latest cutting-edge research across both disciplines;
- Expose students to examples of good practice from recent major civil engineering projects, which depend upon an appreciation of sub-surface hydrology, stratigraphy, and structure;
- Obtain a critical understanding of both water and geology, which is increasingly important in tackling current and projected pressing environmental and societal challenges.
- Combine two disciplines (hydrogeology and engineering geology) that are naturally complementary yet tend to be siloed within separate academic departments (e.g., Geography and Civil Engineering). This holistic approach will be further enabled via an exciting combination of different teaching and assessment methods that include lectures, seminars, fieldwork, an independent dissertation, the potential for work experience, and the opportunity to benefit from Earth Sciences' two existing MSc streams.
- Enhance students' employability by (i) the intrinsic involvement of external industry partners, in the form of guest lectures and seminars, student sponsorship, potential internships and the proposal of dissertation topics; (ii) professional practice and transferable academic skills modules, the latter of which being shared across all MSc streams in Earth Sciences; (iii) exposure to real-world, current and cutting-edge engineering projects and hydrogeological research across the globe; (iv) exposure of students to a variety of active teaching methods, including opportunities for group work, seminar discussions, fieldwork, the "flipped classroom" approach, and independent, applied, student-led research (over the course of the final dissertation); (v) personalised support via a dedicated personal tutoring system that includes discussions about potential career pathways.
- Develop the subject-specific and generic skills and techniques that will facilitate progression to MPhil/PhD studies in distributed systems or a related field;

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. Appreciation of current best practice across the physical foundations of sub-surface hydrology and engineering geology, including site investigation considerations such as safety factors [K,S];
2. Understanding of groundwater flow and issues pertaining to water quality and quantity, such as saline incursions and groundwater flooding [K];
3. Understanding of soil and rock mechanics and its relationship to sub-surface stratigraphy and structure [K];
4. Theoretical understanding and practical application of key near-surface geophysical surveys & use of remotely sensed datasets [K,S];
5. Theoretical understanding and ability to use key research & industry computer programs e.g. MODFLOW for groundwater flow predictions [K,S];
6. Students will be equipped with the necessary tools and skills to combat the effects of climate change, including those that align with “New Green Deal” recovery programmes [S];
7. Understanding and ability to use GIS for a variety of purposes [K,S,*];
8. Experience working in small teams to deliver presentations and collaborate on field projects [S,*];
9. Ability to work independently on a major research project, forming one-third of the course, potentially involving student-led fieldwork and/or industrial placements, working on “real-life” engineering projects [K,S,*];
10. Development of key transferable skills (as part of a larger cohort of Earth Science MSc students) – including academic writing and oral presentations, computer programming/coding, and planning/executing field campaigns [S,*];

Section 7 - Teaching, learning and assessment

Teaching and learning in the courses are closely informed by the active research of staff, particularly in the areas of: hydrogeology and fluid flow, hydrological risk reduction & resilience building; near-surface remote sensing applications e.g. PS-InSAR; engineering geology for civil engineering applications. In general terms, the courses provide opportunities for students to develop and demonstrate knowledge of both core subject material and specialised research areas, and for students to develop and demonstrate the following learning outcomes. Teaching and learning is mostly by means of lectures, site investigations and fieldwork, coursework assignments, a supervised individual project, and guided independent study. Assessment of knowledge and understanding is typically by coursework assignments, examinations, and a dissertation. Details of the assessments for individual modules can be obtained from the [Module Catalogue](#).

Section 8 – Additional costs	
There will be no additional charge for the two main fieldtrips on this course; the fees for these trips are covered within the tuition fee. Multiple site visits are optional and not assessed; these are likely to be one-day visits to sites in London for which students will normally be required to pay for return train travel (anticipated costs £15 – 20 per visit).	
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	
QAA Framework for Higher Education Qualifications (FHEQ) Level	7
QAA Characteristics Statement (Master’s Degrees) – September 2015	https://www.qaa.ac.uk/en/quality-code/supporting-resources

Section 10 – Further information

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 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.

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.

Section 11 – Intermediate exit awards (where available)

Award	Criteria	Awarding body
PG Diploma	Passes in at least 120 credits, with fails of between 40% to 49% for up to 40 credits condonable (except for any course specific requirements).	Royal Holloway and Bedford New College
PG Certificate	Passes in at least 60 credits with no condonable fails	Royal Holloway and Bedford New College

Section 12 - Associated award(s) with Banner Codes

MSc Engineering Geology and Hydrogeology (Banner code 3661)

PGDip Engineering Geology and Hydrogeology (Banner code 3662)

PGCert Engineering Geology and Hydrogeology (Banner code 3663)