

Programme Title: BSc Environmental Science



## Programme Specification

Awarding Body/Institution	Queen Mary, University of London
Teaching Institution	Queen Mary, University of London
Name of Final Award and Programme Title	BSc Environmental Science
Name of Interim Award(s)	
Duration of Study / Period of Registration	
QM Programme Code / UCAS Code(s)	F850
QAA Benchmark Group	Earth Science, Environmental Science and Environmental Studies
FHEQ Level of Award	Level 6
Programme Accredited by	
Date Programme Specification Approved	25 Feb 2013
Responsible School / Institute	School of Geography

Schools which will also be involved in teaching part of the programme

School of Biological & Chemical Sciences

School of Engineering & Materials Science

School of Law

School of Economics

Institution(s) other than Queen Mary that will provide some teaching for the programme

### Programme Outline

From global challenges such as climate change and the loss of biodiversity to protecting the quality of local waterways we are all affected by environmental issues. The BSc Environmental Science provides core training in physical and biological sciences, and will enable you to understand these complex problems and train you to protect and manage the environment.

This is a multi-disciplinary, flexible degree programme, reflecting the complexity of relationships within the natural environment and human interactions with it. You will be taught by staff from the School of Geography, as well as the School of Biological and Chemical Sciences. There will also be the opportunity to interact with industry and environmental practitioners. The programme provides core training in environmental science research skills and techniques. You will benefit from significant

recent investment in laboratory facilities and field equipment.

## Aims of the Programme

As a leading international centre of geographical research, the School of Geography's mission is to teach its students to the very highest academic standards, drawing in creative and innovative ways on its research.

The School of Geography, through its teaching and learning aims to:

- share our enthusiasm for geographical learning and scholarship with our students;
- introduce our students to a range of geographical and environmental knowledge and understanding shaped by staff research interests and by appropriate external frameworks such as the geography and environmental science benchmarking documents;
- enable students to specialise within particular fields (defined largely by staff research interests) of geography and environmental science;
- develop intellectual, discipline-specific and key skills as indicated, for example, in the benchmark statements for both geography and environmental science;
- encourage self-reflective awareness of the acquisition of these skills;
- foster critical thinking skills about the world and a continuing sense of enquiry;
- facilitate a range of personal attributes relevant to further achievement in the world beyond undergraduate and postgraduate education.

Our BSc Environmental Science degree programme provides students with the knowledge required to understand and manage the biological and physical processes that shape the environment around us and, in particular, to develop understanding of aquatic environments, utilising interdisciplinary expertise within the School of Geography and the School of Biological and Chemical Sciences. The programme also aims to develop and understanding of the spatial and temporal scales over which these processes operate while examining the complexity of relationships within the natural environment and human interaction with it. Students will also develop the intellectual and practical skills, including field and laboratory training, necessary to collect, analyse, interpret and understand a range of environmental data. The programme also develops key skills and attributes for further study and employment where environmental knowledge and skills will be applied.

## What Will You Be Expected to Achieve?

Teaching and learning in the programme are closely informed by the active research of staff particularly in relation to our key physical geography research themes: Environmental Change and Hydrogeomorphological and Biogeochemical Processes. Some modules are taught by members of the Ecology and Behavioural Biology research group in the School of Biological and Chemical Sciences.

The programme provides opportunities for students to achieve and demonstrate the following learning outcomes. These use the Benchmark Statement in Earth Science, Environmental Science and Environmental Studies as a framework interpreted in ways which reflect the distinctive nature of our research and teaching in geography and the other participating departments. Teaching and learning in the programme are closely informed by the active research of staff particularly in relation to our key physical geography research themes: Environmental Change and Hydrogeomorphological and Biogeochemical Processes. Some modules are taught by members of the Ecology and Behavioural Biology research group in the School of Biological and Chemical Sciences.

### Knowledge and understanding

The programme is designed to allow students to develop knowledge and understanding of:

- the need for a multi-disciplinary and an interdisciplinary approach in advancing knowledge and understanding of earth systems drawing from both the natural and social sciences
- processes which shape the natural world at different spatial and temporal scales and influences on and by human activities
- issues concerning the availability and sustainability of resources
- the different value sets relating the earth's resources as commodities or heritage
- the operation of physical systems – their complexity and interrelationship
- human systems and their interaction with global systems
- the role of institutions, organisations and other stakeholders in managing and regulating the human impact on the environment
- the significance of spatial and temporal scale
- the role and significance of change as central process in the physical world

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- the diverse forms of representations of the physical world
- the main methodological strategies used in the acquisition, interpretation and analysis of environmental information with a critical understanding of appropriate contexts for their uses
- the contribution of environmental science to the debate on environmental issues and how knowledge of these forms the basis for an informed concern about the earth and its people

### Intellectual skills

The programme is designed to allow students to develop competencies in:

- assessing the merits of contrasting theories, explanations and policies
- analysing and problem-solving
- decision making
- critically judging and evaluating evidence
- critically interpreting data and text
- abstracting and synthesising information
- developing and sustaining a reasoned argument
- appreciation of the uncertainty, ambiguity and limits of knowledge
- taking responsibility for their own learning, and developing habits of reflection upon that learning

### Discipline specific skills

The programme is designed to develop the following discipline-specific skills:

- planning, designing and executing a piece of rigorous research or enquiry, including the production of a piece of original research
- describing and commenting upon particular aspects of current geographical and environmental research
- undertaking effective field work (with due regard to safety and risk assessment)
- working safely in a scientific laboratory, with awareness of standard procedures
- preparing effective maps and diagrams using appropriate technologies
- employing a variety of technical and laboratory-based methods for the collection and analysis of spatial and environmental information
- combining and interpreting different types of geographical evidence

### Key skills

The programme will develop the following key skills

- learning and study
- written communication
- verbal presentation
- numeracy and computation
- spatial awareness and observation
- field and laboratory studies
- Information technology (including spreadsheets, databases, word processing, email and internet)
- Information handling and retrieval (including, identifying, retrieving, sorting and exchanging information, drawn from a wide range of sources e.g. online databases and other resources).
- Interpersonal working, including working with groups/teams and recognising and respecting the viewpoints of others

### Personal attributes and social skills

In addition, the programme fosters the development of a range of personal attributes important for the world beyond higher education: for employment, for future personal intellectual development and in order to contribute to the wider community. These include motivation, the ability to work autonomously and with others, self-awareness and self-management, empathy and insight, intellectual integrity, initiative and personal responsibility, interest in life-long learning, flexibility, adaptability and creativity.

Academic Content:	
A 1	the need for a multi-disciplinary and an interdisciplinary approach in advancing knowledge and understanding of earth systems drawing from both the natural and social sciences
A 2	processes which shape the natural world at different spatial and temporal scales and influences on and by human activities
A 3	issues concerning the availability and sustainability of resources
A 4	the different value sets relating the earth's resources as commodities or heritage
A 5	the operation of physical systems – their complexity and interrelationship
A 6	human systems and their interaction with global systems
A 7	the role of institutions, organisations and other stakeholders in managing and regulating the human impact on the environment
A 8	the significance of spatial and temporal scale
A 9	the role and significance of change as central process in the physical world
A 10	the diverse forms of representations of the physical world
A 11	the main methodological strategies used in the acquisition, interpretation and analysis of environmental information with a critical understanding of appropriate contexts for their uses
A 12	the contribution of environmental science to the debate on environmental issues and how knowledge of these forms the basis for an informed concern about the earth and its people

Disciplinary Skills - able to:	
B 1	planning, designing and executing a piece of rigorous research or enquiry, including the production of a piece of original research
B 2	describing and commenting upon particular aspects of current geographical and environmental research
B 3	undertaking effective field work (with due regard to safety and risk assessment)
B 4	working safely in a scientific laboratory, with awareness of standard procedures
B 5	preparing effective maps and diagrams using appropriate technologies
B 6	employing a variety of technical and laboratory-based methods for the collection and analysis of spatial and environmental information
B 7	combining and interpreting different types of geographical evidence

Attributes:

C 1	motivation
C 2	the ability to work autonomously and with others
C 3	self-awareness and self-management
C 4	empathy and insight
C 5	intellectual integrity
C 6	initiative and personal responsibility
C 7	interest in life-long learning
C 8	flexibility
C 9	adaptability and creativity

### How Will You Learn?

The programme will be taught in accordance with the School of Geography's Teaching and Learning Strategy. The School of Geography is committed to developing, maintaining and supporting excellence in teaching and learning, to innovation in teaching practice, and to fostering independent learning and critical thinking in our students, whilst providing appropriate levels of support to students in their learning.

The delivery of teaching will take a number of forms:

- lectures
- small group tutorials
- seminars
- workshops
- laboratory practical classes
- guest speakers
- individual supervision of projects, dissertations and internships
- fieldwork

Learning will be supported by:

- coherently designed and effectively delivered modules
- detailed module handbooks, providing learning outcomes and guided reading for each module
- the provision of key materials in libraries or through electronic resources
- individual feedback on written work
- appropriate assessment exercises within each module
- use of electronic teaching materials including Powerpoint, Blackboard and online reading lists
- encouraging active participation by students in small group discussions
- research methods training
- appropriate use of AV teaching technologies

### How Will You Be Assessed?

Assessment is varied and will take a number of forms within the programme. The nature of the assessment is closely connected to the desired learning outcomes and the mode of teaching within each module. Forms of assessment include:

- unseen examinations
- coursework essays
- research projects
- project synopses

- student presentations
- group projects and presentations
- literature reviews

## How is the Programme Structured?

The programme is structured around a set of compulsory modules and a range of optional modules, as identified in the diagram below.

Students take modules up to the value of 120 credits in each of their 3 Developmental Years. Students in Developmental Year 1 must only select level 4 modules. Students in Developmental Year 2 will normally select level 5 modules (in exceptional circumstances they might be permitted to take some level 4 modules up to the value of 30 credits). Students in Developmental Year 3 will normally select level 6 modules, but are permitted to take some level 5 modules up to the value of 30 credits. Students in Developmental Year 3 are not permitted to take level 4 modules. No students are permitted to take level 3 modules. Further information on College rules governing progression and award of degrees can be found at [www.arcs.qmul.ac.uk](http://www.arcs.qmul.ac.uk)

During Developmental Year 1, students take 105 credits of compulsory modules and 15 credits of optional modules. The compulsory modules are designed to provide a firm grounding in environmental issues, environment and ecology and in appropriate research methodologies, approaches to environmental study and fieldwork and generic skills training. The optional modules provide students with the potential to extend their knowledge and understanding in relation to environmental and physical geography research and understanding by drawing upon existing modules offered in the School of Geography.

During Developmental Year 2, students take 90 credits of compulsory and 30 credits of optional modules. The compulsory modules are designed to provide students with a more advanced understanding of the material cycles that are fundamental to the functioning of the earth system. They also offer an introduction to research strategies and project design (including research proposal writing) as well as experience in core field and laboratory techniques, in preparation for independent research undertaken at Level 6. Further compulsory modules cover populations, communities and ecosystems, including those in aquatic environments. The optional modules provide students with the potential to extend their knowledge and understanding of environmental, physical and human aspects of geographical research by drawing upon existing modules offered in the School of Geography and the School of Biological and Chemical Sciences.

During Developmental Year 3, students take 45 credits of compulsory modules and 75 credits of optional modules. One compulsory module is the Project in Environmental Science which is based on undertaking original research. This module is seen as the culmination of students' training in research design, methods, analysis and presentation and demonstrates their ability to deploy accurately techniques of analysis and enquiry using primary or secondary sources. The second compulsory module is Integrated Catchment Management. The remaining 75 credits are selected from a range of specialist 15 or 30 credit modules, which reflect the distinctive research expertise of Geography and Biological and Chemical Science staff teaching on the programme and may include opportunities to undertake overseas fieldwork.

## Academic Year of Study 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Introduction to Environmental Ideas and Practice	GEG4206	15	3	Compulsory	1	Semesters 1 & 2
Methods for Environmental Research	GEG4208	15	3	Compulsory	1	Semester 1

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Fieldwork in Physical Geography and Environmental Science	GEG4204	15	4	Compulsory	1	Semester 2
Earth Surface Science	GEG4209	15	4	Compulsory	1	Semester 1
Evolution and Ecology	SBC174	30	4	Compulsory	1	Semesters 1 & 2
Analysing geographical and environmental data	GEG4001	15	4	Compulsory	1	Semester 2
Global Environmental Issues	GEG4205	15	4	Elective	1	Semester 1
Environment, Nature and Society	GEG4102	15	4	Elective	1	Semester 1

Academic Year of Study 2

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Earth System Cycles	GEG5203	30	5	Compulsory	2	Semesters 1 & 2
Research Strategies in Physical Environments	GEG5211	30	5	Compulsory	2	Semesters 1 & 2
Population, Communities and Ecosystems	SBC209	15	5	Compulsory	2	Semester 1
Aquatic Ecosystems: Structure and Function	SBC212	15	5	Compulsory	2	Semester 2
Global Environmental Change	GEG5206	30	5	Elective	2	Semesters 1 & 2
Digital Worlds: Cartography, Modelling and GIS	GEG5202	30	5	Elective	2	Semesters 1 & 2
Global Change Biology	SBC203	15	5	Elective	2	Semester 2
Fish Biology and Fisheries	SBC214	15	5	Elective	2	Semester 2
Health, Inequality and Society	GEG5107	30	5	Elective	2	Semesters 1 & 2
Society, Culture and Space	GEG5110	30	5	Elective	2	Semesters 1 & 2

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Spaces of Uneven Development	GEG5111	30	5	Elective	2	Semesters 1 & 2

Academic Year of Study 3

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Project in Environmental Science	GEG6212	30	6	Compulsory	3	Semesters 1 & 2
Integrated Catchment Management	GEG6218	15	6	Compulsory	3	Semester 2
Environmental Hazards	GEG6203	15	6	Elective	3	Semester 1
Progress in Physical Geography and Environmental Science	GEG6221	15	6	Elective	3	Semester 2
Quaternary Palaeoenvironments	GEG6213	15	6	Elective	3	Semester 1
Science and politics of change	GEG6214	15	6	Elective	3	Semester 2
Environmental Engineering	DEN320	15	6	Elective	3	Semester 1
Behavioural Ecology	SBS216	15	6	Elective	3	
International Environmental Law	LAW6052	30	6	Elective	3	Semesters 1 & 2
Tropical Ecology and Conservation	SBC711	15	6	Elective	3	
Environmental Management Applications	GEG6219	15	6	Elective	3	Semesters 1 & 2
Cold Environments	GEG6202	15	6	Elective	3	Semester 2
Geographies of Science	GEG6124	15	6	Elective	3	Semester 2
Geo-ecology and geo-conservation	GEG6222	15	6	Elective	3	Semester 1

## What Are the Entry Requirements?

The department considers each candidate individually and conducts admissions interviews. We normally require a minimum of 300 points from 3 A2 (A-levels), including one science subject. We welcome well-motivated candidates with non-standard qualifications, including overseas and mature students.

Further details on admissions criteria including those for applicants with non-standard, overseas or other qualifications appear in the UCAS Handbook/College prospectus.

## How Do We Listen and Act on Your Feedback?

The Staff-Student Liaison Committee provides a formal means of communication and discussion between schools/institutes and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year.

Each school/institute operates a Learning and Teaching Committee, or equivalent, which advises the School/Institute Director of Taught Programmes on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in the committee's work in a number of ways, such as through student membership, or consideration of student surveys.

All schools/institutes operate an Annual Programme Review of their taught undergraduate and postgraduate provision. APR is a continuous process of reflection and action planning which is owned by those responsible for programme delivery; the main document of reference for this process is the Taught Programmes Action Plan (TPAP) which is the summary of the school/institute's work throughout the year to monitor academic standards and to improve the student experience. Students' views are considered in this process through analysis of the NSS and module evaluations.

## Academic Support

In the first and second years of their degree programme, our students are supported by small group (c. 6-8 students) tutorials (these form a component of modules GEG4206 and 5211) with their advisors. In the first semester of their final year of study our students have one-to-one sessions with advisors to discuss their dissertations, and in the second semester they will meet with their advisors to get careers advice and training, and to obtain feedback on their dissertations.

## Programme-specific Rules and Facts

## Specific Support for Disabled Students

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.

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Students can access advice, guidance and support in the following areas:

- Finding out if you have a specific learning difficulty like dyslexia
- Applying for funding through the Disabled Students' Allowance (DSA)
- Arranging DSA assessments of need
- Special arrangements in examinations
- Accessing loaned equipment (e.g. digital recorders)
- Specialist one-to-one "study skills" tuition
- Ensuring access to course materials in alternative formats (e.g. Braille)
- Providing educational support workers (e.g. note-takers, readers, library assistants)
- Mentoring support for students with mental health issues and conditions on the autistic spectrum.

## Links With Employers, Placement Opportunities and Transferable Skills

### Employer links

The best dissertation proposals are entered in a competition for the Mark Landskroner Prize for best dissertation proposal. The prize is sponsored by RPS group, an international consultancy providing advice upon the development of land, property and infrastructure; the exploration and production of energy and other natural resources; the management of the environment and the health and safety of people.

### Graduate skills and qualities

We would expect a successful graduate from the BSc Environmental Science programme to have:

- good knowledge and understanding of key process that shape the natural environment; of issues of environmental conservation and sustainability; and of appropriate ways of managing and regulating the human impact on the environment
- a variety of technical and laboratory-based methods for the collection and analysis of spatial and environmental data
- an ability to work safely in a scientific laboratory or in field settings, with awareness of standard procedures
- good written and verbal communication skills
- good numeracy and analytical skills
- confidence in using Information Technology
- competence in information handling and retrieval
- good interpersonal working skills
- the ability to work autonomously, showing initiative and demonstrating self-awareness and self-management
- flexibility, adaptability and creativity

## Programme Specification Approval

Person completing Programme Specification

Person responsible for management of programme

Date Programme Specification produced/amended by School Learning and Teaching Committee

8 Mar 2013

Date Programme Specification approved by Taught Programmes Board

25 Feb 2013