

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	
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 Law

School of Engineering & Materials Science

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 (with further options to take modules in other Schools). 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 centres of environmental and ecological research, the School of Geography and School of Biological and Chemical Sciences' mission is to teach their students to the very highest academic standards, drawing in creative and innovative ways on their research.

Through our teaching and learning we aim to:

- share our enthusiasm for environmental learning and scholarship with our students;
- introduce our students to a range of geographical, ecological 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, ecology 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 the Earth Surface Science research theme in the School of Geography. Some modules are taught by members of staff who specialise in aquatic ecology and organismal biology 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.

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

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A5	the operation of physical systems – their complexity and interrelationship
A6	human systems and their interaction with global systems
A7	the role of institutions, organisations and other stakeholders in managing and regulating the human impact on the environment
A8	the significance of spatial and temporal scale
A9	the role and significance of change as central process in the physical world
A10	the diverse forms of representations of the physical world
A11	the main methodological strategies used in the acquisition, interpretation and analysis of environmental information with a critical understanding of appropriate contexts for their uses
A12	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:	
B1	planning, designing and executing a piece of rigorous research or enquiry, including the production of a piece of original research
B2	describing and commenting upon particular aspects of current geographical and environmental research
B3	undertaking effective field work (with due regard to safety and risk assessment)
B4	working safely in a scientific laboratory, with awareness of standard procedures
B5	preparing effective maps and diagrams using appropriate technologies
B6	employing a variety of technical and laboratory-based methods for the collection and analysis of spatial and environmental information
B7	combining and interpreting different types of geographical evidence

Attributes:	
C1	motivation
C2	the ability to work autonomously and with others
C3	self-awareness and self-management
C4	empathy and insight
C5	intellectual integrity
C6	initiative and personal responsibility

C7	interest in life-long learning
C8	flexibility
C9	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, QMPlus (QM's on-line learning environment), and online reading lists
- encouraging active participation by students in small group discussions
- research methods training
- appropriate use of AV teaching technologies, including video

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 select level 5 modules. Students in Developmental Year 3 will

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normally select level 6 modules, but are permitted to take some level 5 modules up to the value of 30 credits. Further information on College rules governing progression and award of degrees can be found at 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. 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.

Note that not all of the elective modules listed in the following table will be offered every year. Some level 5 and level 6 modules can only be taken if certain pre-requisite level 4 or level 5 modules have already been completed; these requirements are detailed in handbooks and module descriptions on-line.

Academic Year of Study 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Ideas and Practice in Geography and Environmental Science	GEG4002	15	4	Compulsory	1	Semesters 1 & 2
Research Methods for Geographers and Environmental Scientists	GEG4004	30	4	Compulsory	1	Semesters 1 & 2
Fieldwork in Physical Geography and Environmental Science	GEG4204	15	4	Compulsory	1	Semester 2
Earth Surface Science	GEG4209	15	4	Compulsory	1	Semester 1
People and the Environment	GEG4005	15	4	Compulsory	1	Semester 2
Evolution	BIO113	15	4	Compulsory	1	Semester 2

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Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Ecology	BIO123	15	4	Compulsory	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
Ecological Interactions	SBC224	15	5	Compulsory	2	Semester 2
Evolutionary Genetics	SBC633	15	5	Compulsory	2	Semester 1
Global Environmental Change	GEG5206	30	5	Elective	2	Semesters 1 & 2
Digital Cartography	GEG5221	15	5	Elective	2	Semester 1
Animal and Plant Diversity	BIO211	15	5	Elective	2	Semester 1
Society, Culture and Space	GEG5110	30	5	Elective	2	Semesters 1 & 2
Spaces of Uneven Development	GEG5111	30	5	Elective	2	Semesters 1 & 2
Health, Biomedicine and Society	GEG5113	30	5	Elective	2	Semesters 1 & 2
Environmental Management Applications	GEG5219	30	5	Elective	2	Semester 2
Alpine Environments: Physical Processes in the NZ Southern Alps	GEG5220	30	5	Elective	2	Semester 2
GIS: Remote Sensing and Modelling	GEG5222	15	5	Elective	2	Semester 2

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
International Environmental Law for Environmental Scientists	LAW6059	15	6	Elective	3	Semester 1
Tropical Ecology and Conservation	SBC711	15	6	Elective	3	Semester 3
Environmental Management Applications	GEG6219	30	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
Geographies of Nature	GEG6128	15	6	Elective	3	Semester 2
Global Change Biology	SBC326	15	6	Elective	3	Semester 2
Behavioural Ecology	SBS216	15	6	Elective	3	Semester 1
Geographies of Democracy	GEG6133	15	6	Elective	3	Semester 2

What Are the Entry Requirements?

The School considers each candidate individually and conducts admissions interviews. Entry requirements are as follows:

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A-levels

Tariff/Grades requirement: 300–340 points from the best three A-levels. If you do not perform well in one subject and do better in others, that is acceptable providing you gain the minimum number of points required for the degree programme. One science A-level at grade B is, however, required for F850 BSc Environmental Science. Excluded subjects: General Studies.

Vocational or applied A-levels

The following Applied A-levels and Double Awards only are acceptable: Art and Design; Business; Information and Communication Technology; Leisure and Recreation; Media; Performing Arts; Science; Travel and Tourism.

BTEC National Certificate (12 units)

Acceptability: Acceptable only when combined with other qualifications. Subjects and grades required: Overall Double Award DD.

BTEC National Diploma (18 units)

Acceptability: Acceptable on its own and combined with other qualifications. Subjects and grades required: Overall DDM.

International Baccalaureate

Acceptability: Acceptable on its own and combined with other qualifications. Subjects and grades required: 32 points overall. Additional information: 35 points overall and higher level at grade 5 in Geography preferred.

European Baccalaureate

Acceptability: Acceptable on its own and combined with other qualifications. Subjects and grades required: 75 per cent.

Access Qualifications

Subjects and grades required: Achieve Access to HE Diploma including at least 45 credits at Level 3, with 24 at Distinction and 12 at Merit.

All students must meet Queen Mary's English language requirements. Students from outside the United Kingdom must give evidence of their English language ability by producing an English language test score. Requirements are as follows:

IELTS 7.0

TOEFLIBT 100

PTE Academic 68

How Do We Listen and Act on Your Feedback?

The Staff-Student Liaison Committee provides a formal means of communication and discussion between the Schools of Geography and Biological and Chemical Sciences and their students. The committee consists of student representatives from each year group together with appropriate representation from staff within each School. 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.

The Schools of Geography and Biological and Chemical Sciences each operate a Teaching and Learning Committee which advises their respective 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 committees' work through the reporting of minutes from the Staff-Student Liaison Committees and via the consideration of module evaluations and student surveys.

Like all schools/institutes at Queen Mary, the Schools of Geography and Biological and Chemical Sciences operate an Annual Programme Review (APR) 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 Plans (TPAP) which are the summary of the Schools' 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 and through the comments of Staff-Student Liaison Committee student members who are invited to comment on the TPAP.

Academic Support

The Schools of Geography and Biological and Chemical Sciences are welcoming and friendly departments and all academic and professional support staff play a role in ensuring that students are supported through their studies.

Programme Induction is provided for all incoming students during Welcome Week. This is used as an opportunity to acquaint new students with the format of the programme and expectations of them. Students also receive a library induction. All students meet with a designated Personal Tutor in the School of Geography during this week to talk about module selection and how to manage the registration process. Students with special educational needs have the opportunity to talk to their adviser about how the College can best support them, and to agree with the students how to communicate those needs to appropriate members of staff. In week 1 of the first year we also run a week of intensive fieldwork and other activities called 'Investigating London'. This provides an opportunity for extended induction and for staff and students to get to know one another.

All students are allocated a Personal Tutor in Geography with whom they will meet for an hour weekly or fortnightly during Semesters A and B in their first and second developmental years. In the final year, Personal Tutors also act as students' Project in Environmental Science supervisors and regular one-to-one meetings take place. The Personal Tutor also acts as the student's study adviser offering guidance on study choices and providing feedback on progress. All staff have weekly office hours when they are available to see students on a one-to-one basis.

Further academic support can be obtained from Year Tutors in Geography who are responsible for specific year cohorts of undergraduate students, dealing with problems and pastoral care issues as well as monitoring attendance and engagement. The Senior Tutor has overall responsibility for matters concerning student support and welfare within the School and can be consulted in relation to more serious issues and problems. Finally, the Schools of Geography and Biological and Chemical Sciences both participate in the College's PASS scheme -- a peer-mentoring system where new students can seek advice and support for students at later stages in their degree programme.

Programme-specific Rules and Facts

N/A

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.

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

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

- good knowledge and understanding of key processes 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

Throughout their period of study, students are encouraged to reflect upon the acquisition of skills and their future employability. Tutorials in all three years deal with issues such as CV planning, skills development and applying for internships and graduate positions. Working with Queen Mary's Careers Service, the School of Geography also hosts employability forums (or similar) with recent graduates who offer insights and advice and encourage students to apply for internships and other activities that provide relevant work experience. Some modules include visiting speakers from industry and/or visits to commercial companies and environmental research organisations.

Graduates of this programme work in a wide range of careers, including water treatment, landscape conservation, environmental engineering, quantity surveying, transport planning teaching and research.

Programme Specification Approval

Person completing Programme Specification

Dr Kate Heppell

Person responsible for management of programme

Professor Cathy McIlwaine

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

6 February 2015

Date Programme Specification approved by Taught Programmes Board