



## Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and programme title:	Master of Science (MSc)
Name of interim award(s):	Postgraduate certificate (PG Cert)
Duration of study / period of registration:	12 months (FT), 24 months (PT)
Queen Mary programme code(s):	
QAA Benchmark Group:	Biosciences (but no subject benchmark is available at Masters level)
FHEQ Level of Award:	Level 7
Programme accredited by:	
Date Programme Specification approved:	
Responsible School / Institute:	School of Biological & Behavioural Sciences

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

Collaborative institution(s) / organisation(s) involved in delivering the programme:

### Programme outline

The programme will focus on concepts and theory essential to understanding global ecological change, including: state-of-the-art techniques for environmental process research and conservation biology. With ecosystems under threat from multiple stressors, we have designed a programme to equip you with the necessary interdisciplinary practical skills and theoretical understanding for direct employment or further research. Students will learn how to convert science to policy or management, and how to consult with stakeholders. Students will learn how ecology and evolution coincide to generate the complex natural world around us. Students will learn about our multidisciplinary research teams before conducting a substantive research project. These projects may be jointly supervised by colleagues at related institutes or within industry. We will equip science graduates with the essential skills to proceed to further research via PhD or careers in consultancy and industry.

#### Why study with us?

The course is taught by expert staff with world class research profiles from the School of Biological and Behavioural Sciences, the School of Geography, and from external organizations, especially the Royal Botanic Gardens, Kew.

- The programme is designed to balance the latest in ecological theory with practical application in freshwater, marine and terrestrial systems

- A field-course to Borneo for 'hands-on' training in tropical forest ecology (note, we reserve the rights to change field sites given unpredictable circumstances).

- Excellent research supervision undertaken either alongside established PhD students or with potential employer organizations.

## Aims of the programme

The overarching aim of the programme is to provide a thorough grounding in cutting-edge research in Ecological and Evolutionary Biology, during a period of unprecedented environmental change. Students will learn about research by practical applications, via their research process and formal teaching.

There is a combination of five compulsory taught modules of contemporary science, including a residential field course to Borneo (or similar tropical forest habitat). The remainder of the programme is given over to a substantive research project, and the complete programme leads to the MSc qualification. Thus, it should provide a comprehensive preparation for students wishing to progress onto a research degree or into employment in a research-oriented environment.

The programme aims to:

- enable candidates to develop a portfolio of experimental skills and practical techniques, and thereby provide them with the confidence to tackle more extended research studies (e.g. PhD);
- provide a sound knowledge base in the fields studied and develop key transferable skills in the areas of communication, numeracy, information technology, working with others, problem solving, time and task management;
- foster the development of an inquiring, open-minded and creative attitude, tempered with scientific discipline and social awareness, which encourages lifelong learning.

## What will you be expected to achieve?

You will develop good scientific principles alongside independent and innovative thought. You will be expected to achieve an advanced, inter-disciplinary understanding of techniques and methodologies applicable to the fields of ecological and evolutionary genomics, and an appreciation of the current research issues which are driving the science forward.

In particular, you should be able to demonstrate:

- skills in bioinformatics, statistics and coding.
- the ability to synthesize information with critical awareness in a manner that may be innovative, utilizing existing knowledge or cutting-edge, contemporary processes from the forefront of the discipline
- a level of conceptual understanding that will allow you critically to evaluate evolutionary and ecological genomics research, advanced scholarship and methodologies, and to argue alternative approaches
- initiative and originality in problem solving, and be able to act autonomously in planning and implementing tasks at a professional or equivalent level

From a practical training perspective, you will:

- acquire technical expertise, and be able to perform tasks smoothly with precision and effectiveness;
- be able to adapt skills and design or develop new skills and/or techniques, for new applications that engage with user needs
- develop coding and bioinformatic skills
- develop field skills

Students taking the Postgraduate Certificate will achieve a substantial subset of the above skills through completion of four of the five compulsory modules, but will not complete an independent research project and will thus not have the experience of combining all of the above to produce a thesis.

Academic Content:

A 1	critically evaluate ecological and evolutionary theory
A 2	comprehend cutting edge technologies and how these contribute to the development of the field
A 3	adapt understanding to novel settings
A 4	use quantitative data competently and confidently

Disciplinary Skills - able to:	
B 1	critically assess and evaluate methodology and experimental design
B 2	rigorously apply field survey and laboratory analytical skills
B 3	robustly and critically interpret statistics applied to large and complex datasets
B 4	evaluate the process by which science informs policy and management
B 5	assess the issues governing good practice in both the laboratory and the field

Attributes:	
C 1	to operate and conduct oneself in complex and unpredictable and/or specialized contexts
C 2	to exercise initiative and personal responsibility in professional practice
C 3	acquire a range of personal and professional transferable skills in project design and management, team-working, report writing, communication and presentation skills and IT skills

### How will you learn?

Five modules make up the taught element of the programme. Four of these will be taught in blocks of two weeks with a subsequent week long study break to use for independent learning and fulfilling the requirements of continuous assessment exercises. Most modules comprise blended teaching, involving, for example, on-line material and face-to-face activities including seminars, breakout discussion groups, workshops, and laboratory or computer-based practicals. Much of the theory gleaned from formal teaching during the modules will be placed in 'real-world' context, including presentations from practitioners and stakeholders, and practicing field skills. Practical skills will be learned from activities associated with extensive laboratory and on-line activities associated with most modules. This training in practical skills will build towards the completion of a substantive research project which should coalesce theoretical, practical and transferable skills. A further module will be a residential field trip, where students will learn, in the field, about field surveying techniques and real-life examples of conservation in action.

In addition, there will be a substantial research project. Alignment of that research project to the current work of funded researchers within the School or with an industrial or charitable partner will provide the most informative environment for students wishing to embark on the next step of a research career.

## How will you be assessed?

### Taught component

- Module on Research Frontiers in Biodiversity, Evolution and Conservation (15 credits, 2 exercises, a group talk and an essay-style report, collectively amounting to 100%)
- Module on Statistics and Data Analysis (15 Credits, MCQ (20%), Data analysis exercise and report (40%), Programming coursework (40%))
- Module on Ecosystems Structure and Function (15 Credits)
- Module on Biodiversity Loss, Challenges and Solutions (15 credits, 2 exercises, an analysis of a case study, and a red-listing exercise collectively amounting to 100%)
- Field course in Biodiversity and Conservation (15 credits, Borneo)
- Literature Review in Conservation and Evolution (15 credits, 5000 word report)

### Independent Research Project, (90 credits), comprising:

- Oral presentation - 10%
- Thesis (10,000 words) - 90%

## How is the programme structured?

Please specify the structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

The taught element has five modules, each delivered as two weeks of taught material, and one week of self-directed learning leading to the completion of an exercise(s). The modules comprise:

1. A module Research Frontiers in Biodiversity, Evolution and Conservation in Semester 1 presents the latest cutting-edge research questions and problems. The students will develop skills in communication, both written and spoken.
2. A module Statistics and Data Analysis in Semester 1 develops the student's skills in these areas, including learning how to code in R
3. A module in Semester 1 that develops reveals how ecosystems are structured and function, and the development of modules that predicts how ecosystems respond to perturbations, including anthropogenic impacts
4. A module in Semester 1 that present separate case studies as to how research translates into policy in conservation, case studies reflecting the Schools research in freshwater biology feeds into this exercise. The work also includes developing skills in red-listing species, and the work is assessed by continuous assessment.
5. A field trip module, to develop the student's skills in field work.
6. A literature review in conservation and evolution as preparation for the research project.

In the research project students are encouraged throughout to develop contacts and links within the research groups with whom they would like to conduct a research project. By the end of Semester A, students will have a good idea about their topic for research. The remainder of the academic year is given over to the substantive research project and its write up in a form as if it were to be submitted for publication.

## Academic Year of Study

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Research Frontiers in Biodiversity, Evolution and Conservation	BIO771P	15	7	Compulsory	1	Semester 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Ecosystem Structure and Functioning	BIO737P	15	7	Compulsory	1	Semester 1
Statistics and Data Analysis	BIO773P	15	7	Compulsory	1	Semester 1
Biodiversity Loss, Challenges and Solutions	BIO774P	15	7	Compulsory	1	Semester 1
Biodiversity and Conservation Field Course	BIO775P	15	7	Compulsory	1	Semester 2
Problems and Analysis in Biodiversity, Evolution & Conservation	BIO788P	15	7	Compulsory	1	Semester 2
Biodiversity and Conservation Research Project	BIO791P	90	7	Compulsory	1	Semesters 2 & 3

### What are the entry requirements?

All students will be admitted via SBCS

For the MSc programme, an upper second-class honours degree in a relevant subject such as Biology, Ecology, Zoology, Genetics, Environmental Science, or Environmental Geography will be required. Preference will be given to candidates with a first-class degree. Applicants with relevant professional experience in ecological or environmental management will also be considered.

This programme involves a compulsory overseas field course. Applicants for the programme from outside the UK should ensure that there are no residency or travel restrictions that would prevent them from attending this course.

Individuals with relevant professional qualifications or other relevant experience and qualifications will also be considered. English Language proficiency is required at the standard level for PGT S&E entry (IELTS 6.5, TOEFL 92, PTE Academic 62).

### How will the quality of the programme be managed and enhanced? How do we listen to and act on your feedback?

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

The School operates a Teaching and Learning Committee, chaired by the School's Director of Taught Programmes, which oversees and advises on all matters relating to the delivery of taught programmes at school level. This includes 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 this Committee's work in a number of ways, such as through consideration of items referred by the SSLC and by consideration of student surveys, including module evaluation questionnaires.

All schools operate an Annual Programme Review of their taught undergraduate and postgraduate provision. Students' views are considered in this process through analysis of the results from the National Student Survey (NSS), module evaluations and other internal Queen Mary surveys.

### What academic support is available?

Academic and pastoral care will be provided by personal academic tutors and advisors in the SBBS, as is current policy with other MSc programmes. In the first instance, the module organiser is the port of call for any problems. But if that is unsuitable or does not resolve the problem, students are asked to contact the Post Graduate Taught Programme Director. Thereafter, for more serious or unresolved problems, students should refer to the Director of Learning and Teaching for School of Biological and Behavioural Sciences (SBBS) and/or the Head of SBBS. Some individual research projects will be closely aligned to PhD studentships or post-doctoral research projects, and in these cases, some academic support will be defrayed to staff and students in those positions.

### Programme-specific rules and facts

Students wishing to be awarded the PG Certificate in Ecology & Evolutionary Biology must complete the four modules listed as taking place in Semester 1.

### How inclusive is the programme for all students, including those with disabilities?

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.

This programme involves an integral field-course during which students should expect to have to undertake physically demanding work in remote locations. Applicants with any disability that impacts upon their ability to undertake such activities should seek advice from the School before applying for this programme.

### Links with employers, placement opportunities and transferable skills

There are opportunities for the students to engage with potential employers and enhance their employability. This is achieved in a number of ways: by including guest lecturers from partner institutions such as the Environment Agency, the Centre for Ecology & Hydrology, Natural England, or the Wild Trout Trust; by engaging in workshop discussions with invited speakers from industry; by encouraging uptake of projects with either of the above; and by active networking opportunities at the various society meetings around London - for example, The Linnean Society, The Institute of Fisheries Management, The Royal Botanic Gardens, Kew, or the Centre for Ecology & Evolution at Institute of Zoology.

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## Programme Specification Approval

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Programme Title: MSc Ecology & Evolutionary Biology

**Person completing Programme Specification:**

Chris Bray

**Person responsible for management of programme:**

Andrew Leitch

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

4 Feb 2021

**Date Programme Specification approved by Taught Programmes Board:**