Programme Title: Aquatic Ecology by Research

Programme Specification

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)
QM Programme Code / UCAS Code(s): C156
QAA Benchmark Group: Biosciences (but no subject benchmark is available at Masters level)
FHEQ Level of Award: Level 7
Programme Accredited by: N/A
Date Programme Specification Approved: 
Responsible School / Institute: School of Biological & Chemical Sciences

Schools which will also be involved in teaching part of the programme
- School of Biological & Chemical Sciences
- School of Geography

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

Programme Outline

1. To provide an advanced, multidisciplinary programme, that draws upon expertise in aquatic biology and ecology in the SBCS and the Department of Geography, for those who wish for a practical training in research.

2. To exploit established expertise in the SBCS and a wealth of cutting edge PhD research and young researchers to provide a new and challenging programme as a dedicated route of training in aquatic sciences that rivals the European universities approach to MSc by research.

3. To provide a thorough grounding in the broad range of general and specific scientific skills with a diverse array of specialist aquatic skills that will enable students to move into further post-graduate research or a career in, inter alia: fisheries management, aquaculture, environmental management and protection, environmental impact assessment, ecotourism, the media and journalism, environmental legislation and policy or consultancy.

4. To enhance postgraduate recruitment into SBCS programmes via a truly novel route (there are currently no aquatic-themed MSc by research) and create a base of well trained and qualified young researchers with tried and tested practical skills for the
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5. To maintain the range and scope of environmental disciplines being studied at QMUL: by drawing on the expertise of new young staff to cover novel areas and approaches to aquatic ecosystems.

Aims of the Programme

Environmental issues such as climate change, biodiversity loss, species introductions and pollution threaten the sustainability of aquatic resources. There is a great national and international need to understand the implications of global environmental change on our aquatic resources and to develop policy for their protection, management and use. Building upon a taught element of three of the four core modules for the Freshwater And Marine Ecology (FAME) taught programme, the MSc Aquatic Ecology by Research is designed to hone the ‘hands on’ practical skills and enhance the fieldwork experience which is generally in decline at undergraduate level and relatively limited within taught MSc programmes. Further, it aims to rigorously prepare students for a research career in this field via further doctoral study or for prospective employment with environmental protection and conservation agencies, the water industry and environmental consultancies.

What Will You Be Expected to Achieve?

The specific objectives of the Programme are to provide its students with:
• An advanced, inter-disciplinary understanding in aquatic sciences and biostatistics and an appreciation of the current research issues.
• A training in cutting-edge research techniques, contemporary approaches, and practical skills that engage with user needs
• An enhanced experience of a true research environment by alignment of their dissertation work with current PhD student projects
• A range of transferable and generic skills including research planning and experimental design, data analysis and statistics, reporting and research paper preparation

Academic Content:

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>A1</td>
<td>critically evaluate aquatic ecological theory</td>
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<tr>
<td>A2</td>
<td>comprehend cutting edge technologies and how these contribute to the development of the field</td>
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<tr>
<td>A3</td>
<td>adapt understanding to novel settings</td>
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<tr>
<td>A4</td>
<td>use quantitative data competently and confidently</td>
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Disciplinary Skills - able to:

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<tr>
<td>B1</td>
<td>critically assess and evaluate methodology and experimental design</td>
</tr>
<tr>
<td>B2</td>
<td>rigorously apply field survey and laboratory analytical skills</td>
</tr>
<tr>
<td>B3</td>
<td>robustly and critically interpret statistics applied to large and complex datasets</td>
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| B4 | assess the issues governing good practice in both the laboratory and the field |
| B5 | Complete a 9 month research project from design to reporting |

Attributes:

| C1 | to operate and conduct oneself in complex and unpredictable and/or specialized contexts |
| C2 | to exercise initiative and personal responsibility in professional practice |
| C3 | 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?

The three modules making up the taught element of the programme 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 lectures during the morning of each day and then the afternoons are dedicated to 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 on a residential field course, which will comprise site visits, presentations from practitioners and stakeholders, and practicing field skills.

Practical skills will be learned from activities associated with field trips (day-long) and in more-extensive laboratory sessions, 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.

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 element:
- The two Aquatic systems modules are assessed by continuous assessment (lab report / essay; 50%) and 2x examinations (50%).
- Statistics is assessed by continuous assessment (2x MCQs and 1x data exercise; 100%)
- The field course is not assessed but provides further training in field techniques introduced during the two aquatic science modules

Independent Research Project:
- Literature review and project plan – 20%
- Seminar presentation – 10%
- Thesis – 60%
- Oral viva – 10%

The dissertation comprises 80% of final grade.

How is the Programme Structured?

Two specialist aquatic sciences modules introducing the state-of-the-art, followed by a contemporary statistics for the biosciences module including an introduction to bioinformatics. These are followed up by a field training week. These modules are within Semester A
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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 should have a good idea about their topic for research but can have until the end of January to develop plans. The remainder of the academic year is given over to the substantive research project.

## Academic Year of Study 1

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>Credits</th>
<th>Level</th>
<th>Module Selection Status</th>
<th>Academic Year of Study</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Catchment Systems and Management</td>
<td>GEG7311</td>
<td>15</td>
<td>7</td>
<td>Compulsory</td>
<td>1</td>
<td>Semester 1</td>
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<tr>
<td>Ecosystem Structure &amp; Functioning</td>
<td>SBSM004</td>
<td>15</td>
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<td>7</td>
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<td>Semester 1</td>
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<tr>
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<td>135</td>
<td>7</td>
<td>Compulsory</td>
<td>1</td>
<td>Semester 2 &amp; 3</td>
</tr>
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**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.

**How Do We Listen 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...
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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.

Academic Support

Academic and pastoral care will be provided by personal academic tutors and advisors in the SBCS, as is current policy with other MSc programmes. In the first instance, Drs Grey, Trimmer & Woodward will be providing ideas for the individual research projects aligned to their PhD studentships, and so some academic support will be defrayed via those PhD students and/or associated Post Doctoral Assistants.

Programme-specific Rules and Facts

N/A

Specific Support for Disabled Students

No special considerations: the programme will comply with College policy on disabled students

Links With Employers, Placement Opportunities and Transferable Skills

Throughout each module (except for the Statistics & Bioinformatics module) there is opportunity 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, Thames21, or the Centre for Ecology & Evolution at IoZ.

Programme Specification Approval
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<table>
<thead>
<tr>
<th>Person completing Programme Specification</th>
<th>Dr Jonathan Grey</th>
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<tr>
<td>Person responsible for management of programme</td>
<td>Dr Jonathan Grey</td>
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<tr>
<td>Date Programme Specification produced/amended by School Learning and Teaching Committee</td>
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<tr>
<td>Date Programme Specification approved by Taught Programmes Board</td>
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