

PROGRAMME SPECIFICATION



1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc
4	Programme Title	Ecological Consultancy
5	UCAS/Programme Code	5054
6	Programme Accreditation	Not applicable
7	QAA Subject Benchmark(s)	Not available
8	FHEQ Level	Level 7
9	Date written/revised	September 2021

10 Programme Aims

The primary purpose of this programme is to provide ecological and related science graduates with the advanced conceptual understanding, detailed factual knowledge, specialised technical skills and professional awareness for them to follow successful careers as ecological consultants or a range of other environmentally related careers. The programme also forms an advanced training in a range of ecologically related areas and skills that extend graduates' capabilities for further studies.

Specifically, the course aims to:

- Provide a professionally–focussed postgraduate qualification that bridges the gap between academic undergraduate programmes and an area of employment that recruits many natural science graduates;
- Develop quantitative techniques, GIS, field survey and problem-solving skills;
- Develop advanced understanding of ecology, investigating a range of coupled human-natural systems and applying this knowledge to find solutions for global challenges such as food security, climate change and sustainable use of natural resources;
- Introduce environmental impact assessment, the business environment of ecological and related consultancies, and further develop knowledge of environmental policy, conservation and environmental management;

Develop specialist skills in chosen areas of importance to ecological consultants such as habitat assessment (including phase 1 and 2 survey), invasive species and field ID skills.

The programme will also enable students to meet the Masters level (level 7) of the QAA framework for higher education qualifications for England, Wales and Northern Ireland which takes appropriate account of the subject benchmark statements in Earth Sciences, Environmental Sciences and Environmental Studies

Graduates will have demonstrated:

1.

- (i) a systematic understanding of and a critical awareness of current environmental problems and new insights, much of which is at, or informed by, the forefront of the practice of ecological science.
- (ii) a comprehensive understanding of techniques applicable to ecological consultancy

- (iii) originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in ecological science.
- (iv) conceptual understanding that enables the student to evaluate critically current research and advanced scholarship to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

In addition to these academic and technical objectives, the course aims to equip its graduates with a suite of key skills, including the ability to communicate effectively, to employ IT and library resources appropriately, the capacity to prioritise work and to meet deadlines, the ability to work independently and in collaboration with others, and the capacity to use initiative and to solve problems.

2. The qualities and attributes of graduates will be such that they are able to:

- (i) deal with complex environmental issues both systematically and creatively, making sound judgements in the absence of complete data, and to communicate their conclusions clearly to specialists and non-specialists alike;
- (ii) demonstrate self-direction and originality in tackling and solving problems, and act independently in planning and implementing tasks at a professional level;
- (iii) continue to advance their knowledge and understanding, and to develop new skills to a high level; and will have
- (iv) the qualities and transferable skills necessary for employment requiring: the exercise of initiative and personal responsibility; decision making in the complex and unpredictable situations; and the independent learning ability required for continuing professional development.

3. Provision will address the needs of employers in both small and large ecological consulting companies, in higher education, and in governmental and non-governmental regulatory and research institutes, in the UK and other countries, and also the background needs for those interested in starting their own consultancy business. These situations need suitably trained staff with a specialised interdisciplinary background to implement their client's brief and develop environmentally sound programmes. Graduates will be suitable employees because they will have acquired skills and demonstrated proficiency in:

- (i) understanding key concepts and technical procedures that underpin ecological science and practice in the regulatory framework
- (ii) a comprehensive understanding of appropriate scientific survey, experimental and data analysis techniques
- (iii) the presentation and communication of results of a project investigation in both spoken and written form;
- (iv) the ability to critically review and assess scientific research and survey reports and assess papers relevant to their area of expertise.

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Biosciences.

Knowledge and Understanding

On completing the programme students should have acquired detailed knowledge and thorough understanding of :

- A1 the complex interactions between human and natural systems, and know how to quantify their relationships

A2	the mathematics, statistics and models necessary to analyse and interpret environmental and ecological data
A3	the skills to manage complex spatial and remote-sensed data
A4	the structure of an environmental business and the function of its component parts
A5	the legal and policy frameworks which define the operating limits of the practice of ecological consultancy.
A6	the methods of ecological survey and assessment.
A7	how to scope and prioritise environmental studies related to development projects and follow guidelines for the implementation of environmental impact assessment (EIA)
A8	how scientific evidence is used to support decision making in the context of wildlife management, policy and licensing.

Teaching and Learning Methods

Specialist knowledge and understanding is taught via lectures (A1-A8), practical classes (A2-A4, A6), case studies (A4-A5, A7-A8) and field classes (A6, A7), which allows students to experience a wide range of techniques in identifying environmental properties and problem-solving solutions to environmental impacts. The MSc consultancy project enables independent experimental design and analysis to be taught in the context of a project combining research and the interests of the industrial client, with carefully-defined objectives, timeline and deliverables. The understanding of lecture material is encouraged through independent reading (A1-A8) assisted by the provision of prioritised reference lists. Such learning is reinforced by formative feedback provided by practical exercises (A2-A4, A6) and during case studies (A4, A5, A7, A8). The Consultancy Report reinforces these learning strategies through applying the learning to a designed and executed major project (A1-A8). The scoping of the project aims, objectives and implementation plan is supported by a specific project preparation module.

Assessment Strategy

Assessment of specialist knowledge and understanding is by coursework exercises that provide a full test of student understanding of the material and relevant literature (A1-A8) both in conjunction with oral presentation assessment and some modules that are assessed only by coursework exercises. This is intended to provide continuous assessment and develop proficiency in reporting, both in written reports and oral forms. Assessed coursework comprise practical exercises, seminar presentations, case studies, literature reviews, scientific/technical reports and essays. Field class and other reports are also assessed (A6, A7) by practical reports. Some of A1-A8 (depending on the topic of the MSc project), are also examined by means of the written MSc consultancy thesis.

Intellectual Skills

On completing the programme students should be able to:

- B1 synthesise key findings and knowledge from across natural and social sciences, in particular those relating to ecological management and associated policy and regulatory frameworks
- B2 critically evaluate the quality of data and information offered from different sources
- B3 develop logical thinking and a structured approach to problem solving
- B4 plan and conduct applied research projects either individually or as a team and critically evaluate results
- B5 determine the appropriate method for analysis and modelling of data and interpret results.
- B6 formulate hypotheses and test hypotheses using logical and consistent quantitative or qualitative criteria.
- B7 present and summarise experimental and project data, and critically appraise its significance, using appropriate statistical techniques, draw logical conclusions and propose directions for further study.

Teaching and Learning Methods

Both lectures and hands-on computer practical sessions are used to impart knowledge and understanding of analysis and presentation of quantitative information (B1-B7) usually in the context of lab or field data. Individual and group work including integrated case studies

develop problem solving skills (B5, B6). Group work is backed up by additional support from academics involved providing time for reflection and review.
Assessment Strategy
Cognitive skills are mainly continuously assessed in the form of practical reports and group and individual consultancy reports and form an important part of the assessment of such reports. The main emphasis is in the use of data analysis and review skills as tools within the framework of a logical, structured approach, rather than memorising methodologies.
Practical Skills
On completing the programme students should be able to: C1 undertake systematic reviews of the scientific literature, and report findings to a high standard in written English, for both specialist and generalist readers. C2 design and undertake ecological surveys and monitoring schemes to collect robust and appropriate data C3 manage and critically analyse data using advanced statistical and modelling approaches C4 prepare and present information, in both written and verbal formats, to stakeholders (e.g. policy makers, advisors and consumers) with different backgrounds and levels of subject knowledge.
Teaching and Learning Methods
Literature search, critical review and synthesis (C1, C4) is practiced in essays, specialist reports and case studies, with formative feedback throughout the course. Independent reading of recommended references is important in understanding how knowledge is applied and techniques used (C1, C4). However, students are encouraged to acquire skills through active participation in the project planning, experimental and survey design and data interpretation as part of the coursework covered initially in the specialised modules, and later through participation in field sampling, analysis and data interpretation in the field classes (C2-4). Learning is reinforced and further developed, as MSc students apply their skills in data collection, analysis, interpretation and presentation in their MSc consultancy project (C1-4).
Assessment Strategy
Knowledge and understanding are assessed by continuously assessed material including project proposals, group reports (including written and oral presentations) and a consultancy thesis.
Transferable/Key Skills
On completing the programme students should be able to: D1 communicate and present research and contracted studies clearly to both specialists and non-specialists both in writing and orally D2 manage projects, including writing proposals, planning and implementation using effective time and resource-management practices D3 work independently or contribute actively to a team in planning and implementing tasks at a professional level D4 use library, IT and other information sources skilfully and appropriately
Teaching and Learning Methods
<i>Teaching and learning strategies</i> Communication skills (D1) are developed extensively in several modules through written reports, essays, presentations, posters and case studies, with feedback provided to enhance learning. The ability to plan and prioritise activities (D2) and develop independence and initiative (D3) is inculcated in lab and field exercises and is integral to the development of the student's project proposal and eventually to the formulation of the project itself. Effective use of information (D4) is also practiced across all modules, including the MSc thesis.
Assessment Strategy
Written and oral communication skills are assessed in project reports and oral presentations. IT skills are assessed in both oral presentations and in several computer practical reports. Teamwork is formally assessed in group case studies and problem-

solving practicals involving teams. The final MSc thesis, as well as the project planning module develop independence as well as ability to engage professionally with the industrial client.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The programme runs for 12-months from late September, across 3 Semesters. It comprises 180 credits, including 120 credits taught (Semesters 1 and 2) with 60 credits allocated to the consultancy project (Semester 3). 160 credits of modules are compulsory, with taught modules either 10- or 20-credit valency, taught over 4-week blocks. 20 credits of optional skills based modules and specialist area modules are chosen from 40 credits. Where students have already acquired specific skills and knowledge taught in a module, either through professional work or on previous taught programmes, then an alternative may be selected in consultation with the Degree Programme Director.

The programme will be run as part of the suite of 'Ecology and Conservation' MSc programmes within the School of Natural and Environmental Sciences. These will include Ecological Consultancy, Global Wildlife Science & Policy, Wildlife Management and Ecology & Conservation. Students on all five degree programmes will take the same core of three 20-credit compulsory modules. This will ensure that all students on these degrees will have a solid foundation in both the quantitative and qualitative skills that are essential in modern ecological science. Two of these modules will be taught in Semester 1, so that students benefit from peer-support, and all reach a similar high technical standard before diverging into the different individual degree programmes. Other 10-credit modules are also shared by one or more of the five degree programmes, increasing collegiality amongst students, whilst also improving teaching efficiency through larger class sizes.

The knowledge and subject specific compulsory modules include general environmental based studies on Environmental Management and Sustainability and provide students with a solid environmental background. Content of these modules also involves development of key skills including GIS and understanding of key legal background. Major support for the delivery of the policy focussed modules will be provided by industry guest lecturers. All modules will be assessed by course work. Practical fieldwork elements of the course will take place through the year whenever it is most appropriate to carry out ecological fieldwork and sampling in the field. This will enable students to gain expertise ecological survey skills in the field and first-hand experience of some current ecological management during the one year MSc course.

The consultancy project will form a third of the degree credits and enables students to apply knowledge and understanding, subject specific skills, cognitive skills and key skills. It supported by a project planning module in semester 1 to familiarise the student with the key concepts of planning and conducting consultancy projects including the development of terms of reference. Discussions with the DPD and subsequently with their project supervisor and industrial partner enables them to develop a wide range of skills. Students are required to execute a full ecological consultancy project that can be laboratory, desk or literature based and may involve placement with a relevant industry partner. Students will be encouraged to pursue their own interests, develop contacts and/or be given names of potentially interested companies, with guidance from selected supervisors and degree programme director. The project planning phase is supported by a peer-review exercise of projects from previous cohorts (of varying quality) and detailed comments on Terms of Reference, and managed using a peer support network and timetabled structure (review activities) during the project timetabled period.

Key features of the programme (including what makes the programme distinctive)

Specifically, the course aims to provide:

- a professionally-focussed postgraduate qualification that bridges the gap between academic undergraduate programmes and an area of employment that recruits many natural science graduates, including quantitative techniques, GIS, environmental impact assessment, the environment business, ecological surveys, environmental law and environmental management.

<ul style="list-style-type: none"> • specialist skills in chosen areas of ecological science such as wildlife research, policy and the interface between science and policy. • skills needed to define and evaluate an ecological problem within a commercial and multidisciplinary framework that is constrained by regulation and limited resource • the knowledge base and workplace skills required for employment in small or large consultancy businesses and organisations, or to be self-employed. <p>The consultancy projects may be laboratory/desk-based or equally may be done in a relevant environmental industry, depending on students' individual interests and placement availability. The key to the research project is flexibility and students will be encouraged to pursue their own interests with assistance provided by academic staff. We will encourage publication of information produced by students where appropriate. The Consultancy project differs from a Research Project in being much more tightly defined in the Terms of Reference, and assessment being more heavily weighted on the planning process and delivery of the stated objectives and outputs, to provide more realistic training for real-world consultancy projects.</p>
Programme regulations (link to on-line version)
5054 Ecological Consultancy MSc:

13 Support for Student Learning
<p>Generic information regarding University provision is available at the following link:</p> <p>https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf</p>
14 Methods for evaluating and improving the quality and standards of teaching and learning
<p>Generic information regarding University provision is available at the following link:</p> <p>https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf</p> <p><i>Accreditation reports</i></p> <p><i>Additional mechanisms</i></p>
15 Regulation of assessment
<p>Generic information regarding University provision is available at the following link:</p> <p>https://www.ncl.ac.uk/ltds/assets/documents/qsh_progspec_generic_info.pdf</p>
In addition, information relating to the programme is provided in:
<p>The University Prospectus: http://www.ncl.ac.uk/undergraduate/degrees/#subject</p> <p>Degree Programme and University Regulations: http://www.ncl.ac.uk/regulations/docs/</p>

<p>Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided.</p>
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