

PROGRAMME SPECIFICATION	 Newcastle University
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1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MEnv (Hons)
4	Programme Title	Master of Environmental Science Master of Environmental Science with Placement Year Master of Environmental Sciences with Honours in: Agricultural and Environmental Science Agricultural and Environmental Science with Placement Ecosystem Management Ecosystem Management with Placement Environmental Geochemistry Environmental Geochemistry with Placement Clean Technology Clean Technology with Placement
5	UCAS/Programme Code	F900, 1624U, F8D4, FD84, F8C1, FC81, F8F6, FF86, F8H8, FH88
6	Programme Accreditation	None
7	QAA Subject Benchmark(s)	Earth Sciences, Environmental Sciences and Environmental Studies, 2014
8	FHEQ Level	7
9	Last updated	May 2023

10	Programme Aims
1	To recruit students from varied educational backgrounds who wish to study a breadth of natural and social science subjects in an integrated way within a holistic frame to an advanced level.
2	To produce graduates with: <ul style="list-style-type: none"> i. an ability to apply an advanced understanding of a range of natural and social sciences pertinent to the study, understanding and management of environmental systems; ii. an ability to carry out scientific research investigations and an ability to handle information flexibly from a variety of disciplines in an integrated manner; iii. the necessary key skills and knowledge to gain employment as an environmental scientist or in other fields requiring good investigative and problem-solving skills. iv. an ability to act autonomously to advance their own skills and knowledge to a high level.
3	To provide a programme of study which provides appropriate knowledge and technical skills base to address the needs of employers and to enable graduates to develop the interdisciplinary background needed for effective careers in research, management and development in the environmental sector.
4	Provide, in the later stages, specialisation in the specified area of environmental science to enhance professional capability in the chosen field as demonstrated by a major final year individual project.

	<ul style="list-style-type: none"> • <i>Agricultural and Environmental Science</i> - advanced interdisciplinary and holistic understanding of the scientific principles and technical skills required to analyse farming systems and the rural environment in relation to soils, ecology and environmental systems and to assess their sustainability in the context of social acceptability and environmental change. • <i>Ecosystem Management</i> - advanced understanding of the range of temperate zone ecosystems and wildlife species, and a critical awareness of contemporary conservation issues and/or insights, much of which is informed by, the forefront of knowledge about how environmental, management and land-use factors influence ecosystems and wildlife species. • <i>Environmental Geochemistry</i> - advanced understanding of environmental biogeochemistry in particular of the low temperature geochemistry of waters, soils and sediments; fundamental role played by micro-organisms; the origins, toxicity and ultimate fates of pollutants and modern techniques for the analysis of environmental materials. • <i>Clean Technology</i>- advanced understanding of the environmental, economic and social issues associated with the operation of industrial processes and the need for and application of cleaner technologies required to implement practical solutions to minimise pollution and resource usage whilst operating a productive and sustainable company.
5	To provide a flexible programme of study which meets the FHEQ at level 6 at the end of Stage 3 and the FHEQ at level 7 at the end of Stage 4 and which takes appropriate account of the Quality Assurance Agency Benchmark Statement for 'Earth Sciences, Environmental Sciences and Environmental Studies
For students on the Placement Year programme:	
6	Provide students with the experience of seeking and securing a position with an employer.
7	Facilitate independent self-management and proactive interaction in a non-university setting.
8	Provide a period of practical work experience that will benefit current academic study and longer term career plans.
9	Enable students to ethically apply their knowledge and skills in the work place, reflect upon their development and effectively evidence and articulate their learning in relevant future settings.

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.

Knowledge and Understanding

Students will be introduced to the study of the terrestrial, aquatic and atmospheric environment and human interaction with it. In particular on completing the programme students should have gained and be able to apply their knowledge of:

- A1 Fundamental physical and biological processes within global ecosystems and their complexity and inter-relationships
- A2 The political, social and economic implications of human interaction with the environment
- A3 Human responses to environmental problems at local to global scales including environmental impact assessment and the implications of paradigms of sustainability and sustainable development.
- A4 An understanding of legislative and policy frameworks concerned with human interaction with the environment

A5 Measures of biodiversity and strategies for its maintenance at a range of temporal and spatial scales

For students on the Placement Year programme:

- A6 Apply personal and professional development strategies to prioritise, plan, and manage their own skills development and learning.
- A7 Research, select and apply relevant knowledge aimed at enhancing their own skills and effectiveness in specific duties at their placement.
- A8 Demonstrate an understanding of a work environment, how it functions and their contribution to it.
- A9 Relate their work based learning to other areas of personal development, including academic performance.

Teaching and Learning Methods

Throughout the four year programme, the primary mechanism for teaching knowledge and understanding is via lectures supported by case studies. These learning outcomes are also developed through fieldwork and case studies and given currency by the use of outside speakers and other practitioners.

The integrated nature of the global environment (A1, A5) and the structures shaping human interactions with the environment (A2-A4) are introduced in a range of modules at Stage 1 and developed in subsequent stages. The application of this knowledge is further developed through fieldwork and site visits. Biodiversity and environmental management (A4-A5) are addressed by specific modules at all Stages. The global focus and issues of sustainable resource use are taken forward in 'Pollution of Air Water and Soil' at Stage 2 and Sustainability and Environmental Valuation' at Stage 3. The practice of environmental science and environmental impact assessment (A3) is introduced in 'Investigating Agri-Food Systems from Farm to Folk' at Stage 1. The themes are further developed in 'Environmental Impact Assessment' later in the programme.

At Stage 4, students on each programme have a tailored curriculum with the particular emphasis and the most appropriate means to deliver the learning outcomes dependent on the programme focus. For example the extension of understanding of legislative and policy frameworks concerned with human interaction with the environment (A4) is a major focus in MEnv (Clean Technology) whereas increased understanding of measures of biodiversity and strategies for its maintenance at range of temporal and spatial scales (A5) is a focus of MEnv (Ecosystem Management).

Students are encouraged to engage in independent reading to support information delivered in lectures and seminars; they are provided with reading lists to guide them. In many Modules, tutorials follow-up on material covered in lectures and support student-student interaction. Students are encouraged to ask questions during lectures. Case-studies and discussion are used to consolidate less objective elements (A2-A3) and encourage reflection on personal values. Field observation, the writing of reports and reflection on collated data and case studies aid the development of understanding. By Stages 3 and 4 students are expected to take responsibility for their own learning and that of the class with an increased proportion of student-led seminars.

Assessment Strategy

Most modules are assessed by a combination of in-course assessment and a written examination taken at the end of the semester in which the module finishes. At Stage 4 much of the teaching takes place in "blocks" with assessment directly associated with each block. A variety of assessment methods are used including assessment of précis, essays, case studies and research reports, oral presentations and posters, unseen examinations and open book examinations. Most work is produced individually but some is team-based. Peer assessment is used both to moderate team marks and to encourage critical appraisal of work and a better understanding of assessment criteria. The methods of assessment, their relative weighting, their links to learning outcomes and their timing appear in every module description.

Intellectual Skills

On completing the programme students should be able to:

B1	Handle data from a variety of disciplines and integrate information to provide interdisciplinary insights
B2	Select and apply a range of methods to solve problems and produce reasoned solutions.
B3	Develop appropriate search strategies and critically appraise primary and secondary data, information and viewpoints to produce a reasoned evaluation.
B4	Relate investigations to prior work and the state-of-the-art in the field and reference sources appropriately.
B5	Interpret and effectively communicate using both quantitative and qualitative data
Teaching and Learning Methods	
<p>Encouraging students to consider data in a critical manner and justify their interpretation develops cognitive skills. This is done during tutorials, fieldwork and lectures throughout Stages 1 to 4. Students learn through problem-solving, handling data, and discussion.</p> <p>From early in Stage 1 there is a focus on understanding rather than learning facts in 'Earth systems Science' and 'Environment and Land Resources', with an emphasis on problem-solving (B2, B3). This approach, and an emphasis on integrating materials across disciplines (B1), continues particularly in field classes. Subsequently in case studies and their research project, students practice production of reasoned arguments. For the student-led seminars in "Soils in Terrestrial Ecosystems" they are required not only to present a reasoned argument to introduce the topic but also to develop materials to support further class discussion.</p> <p>Information literacy is integrated, developed and assessed throughout the course with the support of the library and information centre support staff with a 'golden thread' running from "Academic and professional skills 2" and embedded within "Investigating agri-food systems from farm to folk", to 'Environmental Science Dissertation' (B3, B4). The ability to handle, interpret and communicate quantitative and qualitative data (B5) is developed progressively with specific practice at Stage 1 in 'Academic and Professional skills' and 'Earth Systems Science' through to increasingly independent handling of data in 'Research methods in environmental pollution' and "Environmental Science Dissertation". In Stage 3 students develop a comprehensive review of current research in an area of particular interest and apply it to a case study /issue, this provides an opportunity to develop all the intellectual skills developed throughout the programme in an integrated way.</p> <p>At Stage 4, the final MEnv project allows students to practice, develop and consolidate all the intellectual skills developed within the programme with particular application to a topic of relevance to their specific interests. This process is supported by a series of class tutorials as well as student-supervisor meetings.</p>	
Assessment Strategy	
<p>Intellectual skills are assessed by means of examinations, essays, oral presentations and contributions to discussion, case studies, laboratory and field reports. The ability of students to support their answers with reasoned argument, application and critical analysis and reference to previous studies is a key marking criteria for assessed work at all Stages. The written and oral reports for the MEnv project provide an integrated final assessment of all the intellectual skills developed within the programmes.</p>	
Practical Skills	
<p>On completing the programme students should be able to:</p> <p>C1 Collect and record environmental data in the field and laboratory. This will require the application of a range of skills including: planning, organisation, observation and recording.</p> <p>C2 Select and use appropriate laboratory and field equipment competently and safely within an appropriate risk management framework.</p> <p>C3 Design research investigations to address clearly stated objectives and to allow formal testing of hypotheses where appropriate.</p> <p>C4 Collate data, apply statistical analysis and interpret data appropriately to address defined objectives</p>	
Teaching and Learning Methods	
<p>At stages 1 to 3, data collection and taxonomic skills (C1, C2) are developed through laboratory-based practicals, field visits and field classes. These also reinforce the data handling and experimental design principles (C3, C4) first introduced in lectures.</p> <p>Students acquire skills (C1-C4) through hands-on practical experience, problem exercises and the projects in 'Environmental Science Dissertation' and 'Research Methods in Environmental</p>	

Pollution'. Fieldwork becomes progressively less structured beginning with field visits in 'Investigating rural landscapes' and finishing that module with student led project planning. At Stage 3 'Environmental Science Dissertation" requires student led design and management of the research.

At Stage 4, student-led design and management of the final research MEnv project is supported by the development of project development management skills at Stage 3 and 'Data Preparation, Analysis, Interpretation and Presentation' at the beginning of Stage 4. The MEnv project allows students to design a major research investigation, select and use appropriate methods and collate and analyse the data. This process is supported by regular student-supervisor meetings.

Assessment Strategy

Assessment is mostly through reports and practical write-ups (C1-C4). Reports have an element of reporting on process as well as results at Stage 1 and 2. As part of the final report for the Environmental Science Field Class 2, students are required to detail their process of scoping and then designing a short field-based project. Laboratory skills are assessed by means of a laboratory reports (in Research Methods in Environmental Pollution and a number of other modules). Reports at Stage 3 are required to be in a technical/ consultancy format or presented as outline research papers. The final MEnv project provides an integrated assessment of the practical skills developed within the programmes.

Transferable/Key Skills

A successful student will be able to:

- D1 Summarise and communicate in writing and orally in a manner appropriate to the target audience.
- D2 Work effectively both independently and as a member of a team.
- D3 Plan work and handle logistical constraints,
- D4 Reflect on learning experiences, take responsibility for personal learning and professional development.
- D5 Use computing and information technology effectively.

For students on the Placement Year programme:

- D6 Reflect on and manage own learning and development within the workplace.
- D7 Use existing and new knowledge to enhance personal performance in a workplace environment, evaluate the impact and communicate this process.
- D8 Use graduate skills in a professional manner in a workplace environment, evaluate the impact and communicate the personal development that has taken place.

Teaching and Learning Methods

Students are encouraged and supported to develop and enhance their key (graduate) skills at all stages of the programme. Varied requirements for assessments reinforce this and give the opportunity to practice directed report writing skills for a range of work-relevant contexts. The 'Blackboard' managed learning environment is used to support learning throughout the programme.

Communication skills (D1) are developed through tutorials and student-led seminars (which require both written and oral contributions). Team-based exercises are used throughout the course and the development of team-working skills supported by reflective tutorials (D2). In parallel, effective independent working (D2, D3) is encouraged and supported through the development of individual areas of interest in 'Investigating Agri-Food Systems from Farm to Folk' and through supported independent working in many other Modules throughout the programme. C&IT skills (D5) are developed 'Academic and Professional Skills 1&2' and then practised through group projects in Stage 2 and 3.

Emphasis is placed on effective study habits and time management at the very beginning of the programme with 'Academic and Professional Skills' serving to encourage and monitor good practice. Students are encouraged to consider the key skills required of environmental science and to put into place their own development strategy to enable them to deliver such skills before seeking formal employment. At Stage 2 all students are encouraged to reflect on their own

development of employability using exercises which have been particularly designed to facilitate the development of key skills in work-relevant contexts.

Assessment Strategy

Key skills are assessed through the production of coursework, case studies and project reports. Oral and poster presentations, reports and précis test the ability to communicate in a variety of media and in a manner appropriate to the target audience (D1). The effective use of information sources (D4) is assessed throughout the programme using essays and case studies and, at Stage 3, through the literature review required for 'Environmental Science Dissertation'. Teamwork Skills (D2) are assessed formatively through tutorial debriefs; peer-assessment forms one element of summative assessment. Planning Skills (D3) are summatively assessed Academic and Professional Skills 2 with formative assessment earlier in feedback on core studies and fieldwork. C&IT skills (D5) are assessed in coursework exercises in 'Academic and Professional Practice', subsequently in the production of case studies (e.g. in 'Ecosystem management'), and especially in the production of project reports for Environmental Science Dissertation early in Stage 3), and especially in the production of the final MEnv project report.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

This is a four year full-time modular programme consisting of 120 credits a year for four years. 10 credits are equivalent to 100 hours of study time (including both contact time and private study). Taught modules vary in valency from 10 to 20 credits.

Stages 1 to 3 are common to all programmes ensuring a firm foundation across the full spectrum of disciplines necessary to practise environmental science.

At Stage 1 modules are compulsory and hence common to all students. These include laboratory and fieldwork, individual and team problem-solving and the study of contemporary issues in environmental management. There is an emphasis on good study practice, with particular modules focusing very much on developing understanding rather than just facts, and the development of C&IT and literature search skills.

In Stages 2 and 3 there is a common spine of compulsory modules with a range of optional modules available to all students so that they can develop individual specialisms. Stage 2 includes a choice of Modules specifically to support the development of employability skills. Stage 3 includes three major project-based Modules requiring students to develop their organisational, communication, team working and problem solving skills.

Students on the Careers Placement Year programme will take their placement between stage 2 and stage 3 for their studies.

Students may also opt to take up ERASMUS and study abroad opportunities at Stage 2 or 3.

Stage 4 allows students to develop the essential skills and knowledge base achieved by students studying at Level 7 in the chosen specialist area. The students undertake a substantial literature review and project on a topic selected and developed by the students in their specialist area demanding high level organisational, communication and problem-solving skills.

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

Particular features of the programme are:

- field work modules at each Stage.
- interdisciplinary structure and insights into the study of real-world environmental problems.

At Stages 1 to 3:

- a focus on the rural environment and the interaction of agriculture, ecology and ecosystem services;
- the opportunity to study environmental law, policy and management;
- the opportunity to engage with local organisations involved in environmental management.
- for students taking the route with placement there is an opportunity to undertake a 9-12 month placement between stages 2 and 3.

At Stage 4:

- opportunity to develop the essential skills and knowledge base of a specialist area of environmental science
- the opportunity to undertake an individual research project with groups active in environmental research.

Programme regulations (link to on-line version)

[-RF900_1624U.pdf \(ncl.ac.uk\)](#)

13 Support for Student Learning

Generic information regarding University provision is available at the following link.

[Generic Information](#)

14 Methods for evaluating and improving the quality and standards of teaching and learning

Generic information regarding University provision is available at the following link.

[Generic Information](#)

Accreditation reports

Additional mechanisms

15 Regulation of assessment

Generic information regarding University provision is available at the following link.

[Generic Information](#)

In addition, information relating to the programme is provided in:

The University Prospectus: <http://www.ncl.ac.uk/undergraduate/degrees/#subject>
Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

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.

