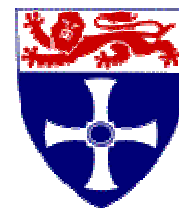


UNIVERSITY OF  
NEWCASTLE UPON TYNE

FACULTY OF  
SCIENCE, AGRICULTURE & ENGINEERING

DEGREE PROGRAMME SPECIFICATION

UNIVERSITY OF  
NEWCASTLE



1. <b>Awarding Institution</b>	University of Newcastle upon Tyne
2. <b>Teaching Institution</b>	University of Newcastle upon Tyne
3. <b>Final Award</b>	MSc
4. <b>Programme Title</b>	Agricultural and Environmental Science
5. <b>Programme Accredited by:</b>	N/A
6. <b>UCAS Code</b>	N/A
7. <b>QAA Benchmarking Group(s)</b>	N/A
8. <b>Date of production/revision</b>	1 <sup>st</sup> December 2004

**9. Programme Aims:**

The programme aims to provide biology, agriculture, geography, earth science, environmental science and other natural science graduates with a specialised advanced interdisciplinary training in the scientific principles required for understanding the interactions of agriculture with the environment, with particular emphasis on concepts of sustainability and the ecological consequences of unsound management. The programme includes an element of conversion to allow students from a wide range of backgrounds to progress to the advanced science training commensurate with the focus of this Masters degree and also aims to offer opportunities for personal subject specialisation to aid career positioning. The training will provide candidates with an appropriate but flexible knowledge and technical skills base required for them to follow successful careers in agricultural research or extension, environmental management and rural development, with opportunities to specialize in either temperate or tropical environments. It also forms an excellent introduction to both temperate and tropical environments, ecology and farming systems for those students with little previous experience wishing to follow a research or development oriented career path.

Specifically, the course aims to provide an advanced understanding of:

- (a) the analysis of farming systems and agroecology in relation to sustainability and natural ecosystems;
- (b) the assessment of land and water resources considering soils and hydrology in both natural and managed ecosystems, including soil recognition, physical, chemical and biological properties, soil processes and interactions with climate and the water environment in the context of their potential use, and the sustainability of different land/habitat management systems;
- (c) a range of field and laboratory techniques used in environmental survey to assess soil conditions, hydrology, vegetation and animal ecology, atmospheric conditions and stresses on plant growth;
- (d) the assessment of the sustainability of land use practices in the context of environmental change and sound sustainable development;
- (e) the application of a systems approach to analysing and modelling the environment;
- (f) appropriate quantitative skills and a background to experimental design and data analysis.
- (g) a range of appropriate optional subject specialisations to suite personal interests and career positioning including: soil and water conservation; land reclamation; soil fertility in organic systems; sustainable land management; pesticides, use and environmental properties; techniques in pest management; weed control; GMOs; tropical environments, soils, ecology and land use; tropical animal production; trees, growth, management and environmental impacts; ecosystem management; wildlife conservation policy and practice; GIS and remote sensing; environmental and rural resource economics; and sustainable livelihoods analysis.

In addition to these academic and technical skills, the course aims to equip its graduates with a suite of key skills including the

ability to communicate effectively, the ability to employ IT and library resources appropriately, the ability to prioritise work and to meet deadlines, the ability to work alone and with others, and the ability to use initiative and to solve problems.

The course will address the needs of employers such as national departments of agricultural extension and rural development or environment and natural resource management in the temperate zone and/or the tropics, environment agencies, farming and wildlife managers; international development agencies such as the UK the Department for International Development (DFID), university departments and research institutes, non-governmental organisations (NGOs) in agricultural and rural development or sustainable environmental management, and international agricultural and environmental consultancies. These organisations need suitably trained staff with a specialised interdisciplinary background to implement their research, management and development programmes. Graduates will be suitable employees because they will have:

- (a) a systematic understanding of the range of temperate and tropical zone ecosystems and farming systems, and a critical awareness of contemporary sustainability and conservation issues in land and environmental management;
- (b) a comprehensive understanding of scientific survey and experimental techniques appropriate for application in tropical environments;
- (c) originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to develop effective management plans for sustainable agricultural development and environmental conservation;
- (d) conceptual understanding that enables the student: to evaluate critically current research and advanced scholarship in the discipline; and to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses.

The programme will enable students to meet the Masters level (M, level 4) of the QAA framework for higher education qualifications for England, Wales and Northern Ireland.

## **10. Intended Learning Outcomes; Teaching and Learning Strategies and Methods; Assessment Strategies and Methods**

### **A Knowledge and understanding**

- A1** an advanced systematic and critical understanding of farming systems in relation to their sustainability and their interaction with natural ecosystems and the agricultural economy;
- A2** an appropriate knowledge and understanding of the diversity and assessment of land and water resources, including the origin, properties and environmental/ecological relationships of soils; the assessment of hydrological parameters; the interaction of soils and hydrology from the soil profile to the river catchment scale, and the potential behaviour of soils under different land and water management systems.
- A3** a critical awareness of contemporary issues of sustainability and environmental change in the context of agricultural development and environmental management
- A4** an understanding of the principles, applications and limitations of scientific environmental survey and of appropriate analytical and experimental techniques for analysing components of (agro) ecosystems
- A5** an understanding of appropriate quantitative techniques, experimental design and data analysis and of the application of a systems approach to analysing and modelling the environment;
- A6** an advanced knowledge and understanding of a range of appropriate optional subjects to suite personal interests and career positioning including: soil and water conservation; land reclamation; soil fertility in organic systems; sustainable land management; pesticides, use and environmental properties; techniques in pest management; weed control; GMOs; tropical soils, environments, ecology and land use; tropical animal production; trees, growth, management and environmental impacts; ecosystem management; wildlife conservation policy and practice; GIS and remote sensing; environmental and rural resource economics; and sustainable livelihoods analysis.

### *Teaching Strategy*

A foundation knowledge and understanding of quantitative techniques, data analysis, and environmental systems modeling (A5) underpins the specialist material of the degree programme and is taught via lectures, practical and computer classes, and case studies in specific compulsory modules AES827 and AES828 in Semester 1. Specialist knowledge and understanding of the core material is taught via lectures (A1-A4), practical classes (A2, A4), seminars (A1-A3), case studies (A1-A3) and field classes (A2,A4) in the compulsory modules AGR804, AGR805, AES829 and AES835. Compulsory field classes embedded within module AES835 allows students to experience a wide range of generic field techniques employed in professional environmental surveys (A4) for assessing soil conditions/variability, landscape hydrology, vegetation and wildlife ecology. The 80-credit MSc research project AES893 enables survey, experimental design, systems analysis and/or development and management knowledge to be taught in the context of a location of interest to the student and gives them the opportunity to extend their knowledge and practical application of some of the material covered in A1-A6. Optional modules enable students to concentrate on advanced specialist material of individual interest (A6) such as tropical environments (AES838 and AGR801), soil and water conservation (AES813), pest control and the use of pesticides use and their environmental impacts (AES837 and AES846), tree growth, management and the impacts of trees on the environment (AES845), ecosystem

management (AES854), impact of GMOs on crop protection (AES831), GIS and remote sensing for environmental and ecological surveys (AES806), techniques of weed control (AES840) and sustainable livelihood analysis in an agricultural development context (AEF806), and/or remedy deficiencies in specific background knowledge, such as environmental and rural resource economics (AEF873). The Diploma Dissertation AES794 (20 credits) allows Diploma candidates to be taught how to undertake a more in depth and critical analysis of any of topics A1-A6 based on library research or secondary data.

### *Learning Strategy*

The understanding of lecture material is encouraged through independent reading (A1-A6) in all modules, assisted by the provision of prioritised reference lists. Such learning is reinforced by formative feedback provided by practical exercises (A2, A4, A6) in AES827, AGR805, AES828, AES835, AES838 AES845, and AES846, seminars (A1-A3, A6) in AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873 case studies (A1-A3, A6) in AGR805, AES829, AES813, AES838, AES806, AES837, AEF806, and AGR801, or the Diploma Dissertation (AES794) for Diploma candidates (A1-A6), with active participation in fieldwork and a major research project (A1-A6) leading to the MSc thesis AES893 for MSc candidates, with some workshops (A6) and independent problem solving exercises (A4-A6) in AES827, AES828 and AES835.

### *Assessment strategy*

Assessment of some modules (A3, A4) is entirely by in-course assessed work including practical class exercises, seminars, case studies, and problem solving exercises (AES827, AES829, AES813, AES845, AES854, AES831, AES806, AES846, AGR801, AES840 and AEF806). Assessment of specialist knowledge and understanding is by formal unseen examinations (AGR804, AGR805, AES835) and by coursework exercises that provide a fuller test of student understanding of the relevant literature (A1-A2, A4, A6). Both employ a range of approaches in order to accurately assess student abilities. Written papers include essay (AGR804, AGR805, AES829, calculation (AES828), multi-part questions (AGR804, AGR805, AES835). Assessed coursework comprises practical exercises (AES827, AGR805, AES828, AES835, AES838 AES845, and AES846), seminar presentations (AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873), case studies (AGR805, AES829, AES813, AES838, AES806, AES837, AEF806, and AGR801), literature reviews, scientific/technical reports and essays (AGR804, AES838, AES831, AES845, AES835, AEF873, AES806, AGR801, AES893 and AES794). Field class and other reports are also assessed (A4) for AGR805, AES835 and AES846. Some of A1-A6, (depending on the topic of the MSc project or Diploma Dissertation), are also examined by means of a written MSc thesis, or the Diploma Dissertation for Diploma candidates (A1-A6), and (at the discretion of the External Examiner) by *viva voce* examination.

## **B Subject –specific/professional skills**

A successful student will be able to:

- B1** ability to research and critically assess the functioning and management of contemporary farming systems within an interdisciplinary, holistic framework and to analyse their interaction with edaphic, biological, climatic and hydrological components of agroecosystems and with socio-economic conditions, and their impact on the natural environment;
- B2** ability to assess soil and water resources and their potential under different land management systems, to analyse their function in relation to land management units, habitats or ecosystems from the local to the catchment level, and to consider appropriate management systems for their sustainable use;
- B3** ability to assess the sustainability of a range of agricultural and environmental management systems, including techniques for the development of indicators, benchmarks and critical thresholds, and to incorporate concepts of sustainable development into all stages of project management;
- B4** practical experience in modern environmental survey techniques, experimental design, modelling and analytical techniques in a range of appropriate disciplines, and the ability to critically assess the data generated by these techniques and to present and summarise the results in professional reports;
- B5** ability to plan a research project and to develop a logical framework for funding of a sustainable development project proposal;
- B6** a range of subject-specific specialised skills appropriate for specific career goals.

### *Teaching Strategy*

Research, classification and critical assessment skills (B1- B3) are taught via lectures, seminars, case studies and practical classes within compulsory modules AGR804, AGR805, AES829 and AES835, with opportunities to specialise further in optional modules AES838, AES837, AES845, AES854, AES806, AES840 and AES831. Experimental design, survey and analytical techniques, systems modelling, and data handling, presentation and appraisal (B4) are taught initially in hands-on computer or laboratory-based practical or problem solving classes and in field classes within the Phase 1 modules AES827, AGR805, AES828 and AES835. These skills are consolidated by more advanced training in the lectures, practical classes and case studies of subject-specific specialised modules and in the field classes for environmental survey techniques (AES835). Project planning skills (B5) are introduced as practical exercises to produce a logical framework and a full project proposal in the sustainable development module (AES829). Further specialised skills (B6), such as techniques in pest management (AES837), soil and water conservation (AES813), or economic analysis of rural resources (AEF873), are taught within optional specialised modules. More advanced training in several of skills B1-B6 is provided on an individual basis during the MSc thesis project (AES893), for which students usually work within the existing research group. Individual

training for some of the skills B1-B6 are provided for Diploma candidates in the Diploma Dissertation (AES794).

### *Learning Strategy*

Independent reading of recommended references is important in understanding how knowledge is applied and techniques used (B1-B3). However, students are encouraged to acquire skills through active participation in project planning, experimental and survey design and data interpretation as part of the coursework covered initially in the Phase 1 modules AES827, AGR805, AES828 and later in Phase 2 optional modules, and through participation in field sampling, analysis and data interpretation (B4) in the specialised field techniques in environmental survey module AES835. Learning is reinforced and further developed, in either temperate or tropical environments, as MSc students apply their skills in data collection, analysis, interpretation and presentation (B1-6) in their MSc project and thesis AES893.

### *Assessment strategy*

Formal examinations (B1, B2, B4) are used to assess some subject specific/professional skills, particularly when additional reading reinforces learning (AGR804, AGR805, AES828 and AES835). However, most of these skills are assessed by coursework reports and presentations (B1-B6). Some of the skills (B1-B6) are further practiced and assessed by means of the MSc thesis, (AES893) or the Diploma Dissertation (AES794), and (at the discretion of the External Examiner) by *viva voce* examination.

## **C Cognitive skills**

A successful student will be able to:

- C1** critically evaluate current research and advanced scholarship in the area of the interaction of agriculture, soils, ecology and environment;
- C2** critically evaluate the sustainability of agricultural and environmental management systems and have a holistic awareness of current thinking and practice in development;
- C3** develop logical thinking and a structured approach to problem-solving, using and developing computer models where appropriate;
- C4** comprehend and critically interpret a range of agricultural, environmental and ecological data, present and summarise such data to critically assess its significance, using statistical techniques where appropriate, and produce a reasoned argument;
- C5** formulate and design agricultural, environmental and ecological surveys and develop integrated project proposals against different types of objectives;
- C6** formulate and test hypotheses using logical and consistent quantitative or qualitative criteria.

### *Teaching Strategy*

The cognitive skills C2-C6 are developed initially in the degree programme's Phase 1 modules through a combination of lectures, practical classes exercises (AES827, AGR805, AES828, AES835, AES838 AES845, and AES846),, problem-solving exercises (AES827, AES828, AES835) , case studies (AGR805, AES829, AES813, AES838, AES806, AES837, AEF806, and AGR801) and field classes (AGR805, AES835, AES845, AES846). They are progressed in the specialised compulsory modules and in optional specialised modules, where they are applied to specific research or management issues, sometimes in a field-based environment (C5). Cognitive skills C1 are particularly developed in specific specialised compulsory modules through lectures, seminars (AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873), and case studies (AGR805, AES829, AES813, AES838, AES806, AES837, AEF806, and AGR801) involving literature reviews, guided reading and critical analysis of presentations. The MSc project and thesis (AES893) allows cognitive skills C1-C6 to be applied to a specific research problem or issue guided by individual supervision, sometimes in a tropical location. The Diploma Dissertation (AES794) teaches the use of cognitive skills C1-C6 in the context of an in-depth and critical review of research results.

### *Learning Strategy*

Students are encouraged to acquire cognitive skills in a variety of ways including: the development of a project proposal and development of a logical framework for a development project during their sustainable development module AES829 (C2); through developing computer models to simulate environmental systems in AES828 (C3); through experience of case studies, course work and discussion following seminars (C1-C6) in (AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873), ; and through designing a sampling and analysis strategy and analysing the data from an environmental field survey and reflecting on field exercises (C4-C5) in AES835. The design and practice of the MSc research project AES893 is also important and is particularly useful for further developing all these cognitive skills but particularly for understanding the development of and testing of hypotheses (C6). The Diploma Dissertation AES794 is useful in developing some of the cognitive skills C1-C5.

### *Assessment strategy*

Cognitive skills C2-C3 are assessed by coursework (case studies, problem-solving exercises, in-course tests, scientific/practical reports, project proposals, seminars and presentations). Cognitive skills C1-C6 are further assessed in specialised modules by written formal examination (C1-C5) in AGR804, AGR805, AES828, AES835, seminars (AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873), and case study reports (C1-C4) in AGR805, AES829, AES813, AES838, AES806, AES837, AEF806, and AGR801, field survey or professional reports (AGR805, AES835, AES845, AES846), project proposals (AES829, AES893) and the MSc thesis AES893 (C4-C6). Many other of the skills C1-C6 are also examined by means of the MSc thesis and (at the discretion of the External Examiner) by *viva voce* examination. Diploma candidates skills C1-C5 are also tested by means of the Diploma Dissertation.

### **D Key (transferable) skills**

A successful student will be able to:

- D1** communicate conclusions clearly to specialist and non-specialist audiences;
- D2** plan, organise and prioritise work activities in order to meet deadlines;
- D3** show originality and initiative in tackling and solving problems;
- D4** act autonomously in planning and implementing tasks at a professional or equivalent level;
- D5** take personal responsibility to independently advance their knowledge and understanding, and to develop new skills to a high level;
- D6** use library and other information sources skilfully and appropriately;
- D7** use IT resources skilfully and appropriately;
- D8** to make decisions in complex and unpredictable situations.

### *Teaching Strategy*

The teaching of transferable skills is an important part of the MSc and Diploma throughout many modules. Verbal presentation skills and dealing with critical feedback are developed in seminars (D1) associated with several modules seminars (AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873). All skills (D1-D8) are important in planning, carrying out, presenting and being examined in the research project and MSc thesis AES893. Field classes (D1-D4) in AES835, AGR805 and AES845, development of project proposals (D1, D3-D5, D7 and D8) in AES829, AES893 and independent problem solving (D2-D8) in AES827, AES828, AES835 teach students about the importance of communication skills, information sources and originality and independence in the professional implementation of their knowledge.

### *Learning Strategy*

A wide range of methods is used to reinforce the teaching of key skills and aid understanding. Whilst there is some recommended reading (D1-D8) most key skills (D1-D6) are better developed through field work (AGR805, AES835, AES845), case studies (D1-D4, D6-D8) in AGR805, AES829, AES813, AES838, AES806, AES837, AEF806, and AGR801, the MSc research project (AES893) or Diploma Dissertation (AES794) (D1-D8), seminars (D1, D3-D5, D7) in AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873, problem solving exercises in AES827, AES828, AES835 and logical framework development in AES829 (D2-D8) and communicating information in short oral presentations in AGR804, AES829, AES835 and the MSc project (D1).

### *Assessment strategy*

Key skills are rarely assessed by formal examination (D5-D7). Scientific/technical reports (D1-D8) in AGR805, AES835, AES829, AES813, AES845, project proposals (AES839, AES829), a logical framework for a development project (AES829), the MSc thesis (AES893) and oral examination, or the Diploma Dissertation (AES794), and other elements of assessed coursework (D1-D4, D6-D8) are the main methods of assessment. Assessed seminar presentations seminars (AGR804, AES829, AES813, AES838, AES845, AES831 and AEF873) test oral communication and presentation skills, as does the final *viva voce* examination of the MSc thesis. (D1).

## **11 Programme Features, Structure and Curriculum**

### **A Programme Features**

This is a one-year, fulltime modular Masters degree programme (180 credits) based in the School of Agriculture, Food and Rural Development. It conforms to the modular structure of other MSc programmes taught in the School of Agriculture, Food and Rural Development and the School of Biology over three 'Phases' (See Figure 1), and is delivered through inter-school collaboration. It consists of 100 credits in the taught component, with approximately 70 credits in MSc Phase 1 (September-January) and 30 credits in MSc Phase 2 (January-March). A research project worth a further 80 credits, is undertaken in MSc Phase 3 (April-September). Of the taught modules, 70 credits are compulsory modules appropriate to the focus of the degree, whilst the remaining 30 credits are chosen from options offering flexibility and opportunity for personal specialisation and career positioning. 60 or 70 credits of taught modules are normally taken during Semester 1 (MSc Phase 1) and most are examined in January. These consist mainly of compulsory modules (60 credits), including a field class, but may include one 10 credit module option. A further compulsory specialist module (10 credits) and module options (20 or 30 credits) are given over a shorter 8 week period in Semester 2 (MSc Phase 2). All taught modules given in MSc Phase 2 are assessed by coursework only. The MSc thesis has to be submitted by 31 August.

Students will have to satisfy the standard University regulations that apply to MSc degrees in Agricultural and Biological Sciences. Decisions on fail, pass, diploma, MSc merit and MSc distinction awards will be made by the Joint MSc Board of Examiners in late September and will be based on overall performance in all aspects of the subject.

The MSc degree utilises a wide range of agricultural and environmental expertise available in the Faculty of Science, Agriculture and Engineering, including the opportunity to specialise in the tropical environment. It is innovative in adopting an holistic approach taught across Schools strongly underpinned by science, combining agricultural and ecological approaches to environmental management with the objective of sustainable development that is physically and biologically viable and socio-economically acceptable. Additionally it offers opportunities for students to develop skills in framing sound development projects and to understand how their expertise might be used in subsequent employment. The MSc project provides a unique opportunity for students to gain first-hand practical and field experience, much in demand from employers both in the development and consultancy field, and to apply their newly learnt skills in field situations. In this context, students usually undertake their project with an existing research group, or in collaboration with an overseas research institution. Practical skills are also emphasised

### **B Programme Structure**

Five compulsory modules (60 credits) are given during Phase 1 (see Figure 1). These include AGR804 Farming Systems and Agroecology (10 credits) and AES835 Field Techniques in Environmental Survey (20 credits) that form key components of the programme. One 10 credit specialist optional module is normally taken in Phase 1 and another 20 credits in Phase 2. Most taught 'compulsory' and 'optional' modules given over Phase 1 are assessed both by coursework and written examinations in January. All modules given over Phase 2 are assessed by coursework only. The learning outcomes described previously in Section 10 are mapped against module synopses below.

Certain compulsory modules delivered in Phase 1 provide an element of conversion, to allow students from a wide range of backgrounds to take each module, and the necessary scientific knowledge and skills base to progress with more advanced specialised compulsory modules. They also include vocational elements to provide a suitable background and skills for employment. AES827 Quantitative Techniques, Experimental Design and Data Analysis (10 credits) provides students with the expertise necessary to design field and laboratory experiments, to give them the skills necessary to analyse observational and experimental data using a variety of statistical software, and to understand and interpret the results of their analyses (A4, B4, C4, C6, D3). AGR805 Environmental Assessment: Land and Water Resources (10 credits) provides an introduction to soils and water resources; the environmental variables influencing soil and hydrological processes; the assessment of data sources and methods of interpretation; progressing to an analysis of soil variability, land use potential and habitat assessment, and culminating in a case study involving land suitability and/or environmental impact assessment (A2-A4, B2, B4, C1, C3, C5). AES828 Environmental Systems and Modelling (10 credits) explores the systems approach to understanding the environment and shows how key biophysical processes and their interactions can be analysed with the help of quantitative models (A5, B4, C3, C6, D3-D5).

Other compulsory taught specialised modules continue to provide a conversion element but proceed to advanced science training commensurate with Masters-level teaching and include vocational elements appropriate to the specific aims and objectives of the degree programme. AGR805 Farming Systems and Ecology (10 credits) examines the interface between farm management practices, techniques and technologies and the environment from a systems perspective and considers the degree to which farming systems are shaped by agro-ecological constraints and/or socio-economic factors. This module provides some of the key concepts that underpin the philosophy of the degree programme (A1-A3, B1-B3, C1-C2, D6, D8). AES835 Field Techniques in Environmental Survey (20 credits) provides students with the theoretical background and field

techniques to design and carry out integrated environmental, ecological, soils and hydrological surveys. It includes a programme of field classes that allow students to gain experience in specialist field techniques and develop skills in the analysis and interpretation of data (A4, B4, CC4-C6, D1-D8). AES829 Sustainable Development and Environmental Change (10 credits) evaluates concepts of sustainability and their application in agricultural and environmental management in the context of development in a dynamic, changing biophysical, economic and socio-cultural environment. A holistic and interdisciplinary approach is adopted to examine how natural resources can be better managed to maintain or increase productivity, profitability and stability, whilst still conserving or enhancing the resource base (A1, A3, B1, B3, B5, C2, D2, D4, D8).

Optional modules allow students to develop specialised interests and to enhance their employment opportunities in specific fields of agricultural and environmental management. One particular feature of the programme is the opportunity to specialise in the tropics through opting for AES838 Tropical Environments, Ecology and Land Use (10 credits). This module reviews the environmental characteristics of the major tropical ecosystems, their vegetation, soils and land use systems, treating soils as components of both natural and managed ecosystems, and assesses the sustainability of land use practices and threats to ecological stability under low input and more intensive land management systems (A2-A4, B1-B4, C1-C2, C4-C5, D1-D6). Other module options include: AES 813 Soil and Water Conservation; AES 837 Pesticides, Use and Environmental Properties; AGR 801 Tropical Animal Production; AES 840 Weeds and Their Control; AEF 873 Environmental and Rural Resource Economics; AES854 Ecosystem Management; AES806 GIS and Remote Sensing; AES 845 Trees, Growth and Management; and AES813 Genetically Modified Organisms: impact, evaluation and crop protection (A6, B6, C1-C6, D1-D8).

## C Programme Curriculum

The curriculum for this MSc programme, and for related programmes in 'Environmental Resource Assessment' and in 'Sustainable Land Management and Rural Development' appear together in the University Regulations as shown below.

Agricultural and Environmental Science MSc: 5021; Diploma: 3307

Environmental Resource Assessment MSc: 5023; Diploma: 3302

Sustainable Land Management and Rural Development MSc: 5025; Diploma: 3311

1. (a) All candidates on all three degree programmes shall take the following compulsory foundation modules:

<i>Code</i>	<i>Credits</i>	<i>Descriptive title</i>
AGR805 (10)		Environmental Assessment
AES827 (10)		Quantitative Techniques, Experimental Design and Data Analysis
AES829 (10)		Sustainable Development and Environmental Change

(b) Candidates on the Environmental Resource Assessment degree in addition to the compulsory foundation modules listed in 1(a) above must also take the following compulsory modules:

<i>Code</i>	<i>Credits</i>	<i>Descriptive title</i>
AES806 (10)		GIS and Remote Sensing
AES835 (20)		Field Techniques in Environmental Survey
AES828 (10)		Environmental Systems and Modelling

(c) Candidates on the Agricultural and Environmental Science degree in addition to the compulsory foundation modules listed in 1(a) above must also take the following compulsory modules:

<i>Code</i>	<i>Credits</i>	<i>Descriptive title</i>
AES835 (20)		Field Techniques in Environmental Survey
AES828 (10)		Environmental Systems and Modelling
AGR804 (10)		Farming Systems and Agroecology

(d) Candidates on the Sustainable Land Management and Rural Development degree in addition to the compulsory foundation modules listed in 1(a) above must also take the following compulsory modules:

<i>Code</i>	<i>Credits</i>	<i>Descriptive title</i>
AES835 (20)		Field Techniques in Environmental Survey

AES836 (10)	Land-Water Interface
AES838 (10)	Soils in the Tropical Environment
AEF806 (10)	Sustainable Rural Livelihoods Analysis
AES813 (10)	Soil and Water Conservation
AES873 (10)	Environmental and Rural Resource Economics
AGR804 (10)	Farming Systems and Agroecology

(e) All candidates shall select, subject to the approval of the Degree Programme Director, further modules to a total value of 30 credits, normally chosen from the following:

<i>Code</i>	<i>Credits</i>	<i>Descriptive title</i>
AES845 (10)		Trees: Growth, Management and Environmental Impacts
BIO803 (10)		Wildlife Conservation: Policy and Practice
AES831 (10)		Genetically Modified Organisms: Impact Evaluation and Crop Protection
AES854 (10)		Ecosystem Management
AES837 (10)		Pesticides: Uses and Environmental Properties
AES838 (10)		Tropical Environments, Ecology and Land Use
AES846 (10)		Techniques in Pest Management
AES856 (10)		Ecological Survey and Identification Field Class
AES840 (10)		Weeds and Their Control
AGR802 (10)		Tropical Animal Production
AGR330 (10)		Sustainable Land Management
CIV958 (10)		Hydroecology
AGR335 (10)		Soil Fertility Management in Organic Systems
AGR806 (10)		Land Reclamation

Students may also, subject to the approval of the Degree Programme Director, elect to choose optional modules from the lists given in 1(b), 1(c) and 1(d) depending on their degree programme.

*Note: not all modules will necessarily be available in every year. Alternative modules may, subject to the approval of the Degree Programme Director, be substituted for any of the optional modules listed.*

(f) All candidates shall undertake the following 80 credit research project:

AES893 (80) MSc Thesis

Details of the assessment are provided in the Degree Programme Handbook.

2. MSc programmes are normally 12 months' full-time study but with the permission of the Degree Programme Director, can also be taken part time.

3. Diploma programmes normally require nine months' full-time study and require the candidate to undertake study equivalent to 120 credits. Diploma students would not do a research project but, with the approval of the Degree Programme Director, would be expected to take additional optional modules from the lists given in paragraph 1(e) above, or undertake a short, library-based dissertation (AES794). With the permission of the Degree Programme Director, the Diploma programme may also be taken part time.

Development of specific Intended Learning Outcomes occurs through the following modules (compulsory modules in bold text, optional modules in normal, italic text)

A1	An advanced systematic and critical understanding of farming systems in relation to their sustainability and their interaction with natural ecosystems and the agricultural economy	<b>AGR804</b> ; <i>AES838</i>
A2	An appropriate knowledge and understanding of the diversity and assessment of land and water resources, including the origin,	<b>AGR805</b> ; <i>AES838</i> ; <i>AES813</i>



	properties and environmental/ecological relationships of soils; the assessment of hydrological parameters; the interaction of soils and hydrology from the soil profile to the river catchment scale, and the potential behaviour of soils under different land and water management systems.	
A3	A critical awareness of contemporary issues of sustainability and environmental change in the context of agricultural development and environmental management	<b>AES829</b> ; <i>AES838</i> ; <i>AGR804</i> ; <i>AEF806</i>
A4	An understanding of the principles, applications and limitations of scientific environmental survey and of appropriate analytical and experimental techniques for analysing components of (agro) ecosystems	<b>AES835</b> ; <b>AGR805</b> ; <i>AES838</i>
A5	An understanding of appropriate quantitative techniques, experimental design and data analysis and of the application of a systems approach to analysing and modelling the environment	<b>AES827</b> ; <b>AES828</b> ; <b>AES893</b>
A6	An advanced knowledge and understanding of a range of appropriate optional subjects to suite personal interests and career positioning including: tropical environments, ecology and land use; soil and water conservation; pesticides, use and environmental properties; trees, growth, management and environmental impacts; techniques in pest management; weed control; GMOs; tropical animal production; ecosystem management; wildlife conservation policy and practice; GIS and remote sensing; environmental and rural resource economics; land reclamation; soil fertility in organic systems; sustainable land management; and sustainable livelihoods analysis	<i>AES838</i> ; <i>AES813</i> ; <i>AES837</i> ; <i>AES845</i> ; <i>AES846</i> ; <i>AES840</i> ; <i>AES831</i> ; <i>AGR801</i> ; <i>AES854</i> ; <i>BIO803</i> ; <i>AES806</i> ; <i>AEF873</i> ; <i>AGR806</i> ; <i>AGR335</i> ; <i>AGR330</i> ; <i>AEF806</i>
B1	Ability to research and critically assess the functioning and management of contemporary farming systems within an interdisciplinary, holistic framework and to analyse their interaction with edaphic, biological, climatic and hydrological components of agroecosystems and with socio-economic conditions, and their impact on the natural environment	<b>AGR804</b> ; <b>AGR805</b> ; <b>AES829</b> ; <i>AES838</i> ; <i>AEF873</i> ; <i>AEF806</i>
B2	Ability to assess soil and water resources and their potential under different land management systems, to analyse their function in relation to land management units, habitats or ecosystems from the local to the catchment level, and to consider appropriate management systems for their sustainable use	<b>AGR805</b> ; <b>AES835</b> ; <b>AES829</b> ; <b>AGR804</b> ; <i>AES838</i> ; <i>AEF806</i> ; <i>AEF873</i>
B3	Ability to assess the sustainability of a range of agricultural and environmental management systems, including techniques for the development of indicators, benchmarks and critical thresholds, and to incorporate concepts of sustainable development into all stages of project management	<b>AES829</b> ; <b>AGR804</b> ; <i>AEF806</i> ; <i>AES838</i>
B4	Practical experience in modern environmental survey techniques, experimental design, modelling and analytical techniques in a range of appropriate disciplines, and the ability to critically assess the data generated by these techniques and to present and summarise the results in professional reports	<b>AES835</b> ; <b>AES827</b> ; <b>AES828</b> ; <b>AGR805</b> ; <i>AES806</i> ; <i>AES838</i> ; <i>AEF806</i> ; <i>AEF873</i>
B5	Ability to plan a research project and to develop a logical framework for funding of a sustainable development project proposal	<b>AES829</b> ; <b>AES893</b> ; <b>AES794</b>
B6	A range of subject-specific specialised skills appropriate for specific career goals	<b>AES893</b> ; <b>AES794</b> ; <i>AES838</i> ; <i>AES813</i> ; <i>AES837</i> ; <i>AES845</i> ; <i>AES846</i> ; <i>AES840</i> ; <i>AES831</i> ; <i>AGR801</i> ; <i>AES854</i> ; <i>BIO803</i> ; <i>AES806</i> ; <i>AEF873</i> ; <i>AGR806</i> ; <i>AGR335</i> ; <i>AGR330</i> ; <i>AEFG806</i>
C1	Critically evaluate current research and advanced scholarship in the area of the interaction of agriculture, soils, ecology and environment	<b>AGR804</b> ; <b>AGR805</b> ; <b>AES835</b> ; <b>AES893</b> ; <i>AES854</i> ; <i>AES845</i> ; <i>AES837</i> ; <i>AES845</i>
C2	Critically evaluate the sustainability of agricultural and environmental management systems and have a holistic awareness of	<b>AGR804</b> ; <b>AES829</b> ; <i>AES838</i> ; <i>AES845</i> ; <i>AES854</i> ; <i>AES813</i> ; <i>AEF806</i> ; <i>AEF873</i>

	current thinking and practice in development	
C3	Develop logical thinking and a structured approach to problem-solving, using and developing computer models where appropriate	<b>AES827; AES828; AGR805; AES893; AES806</b>
C4	Comprehend and critically interpret a range of agricultural, environmental and ecological data, present and summarise such data to critically assess its significance, using statistical techniques where appropriate, and produce a reasoned argument	<b>AES827; AES828; AES835; AGR805; AES893; AES813; AES838; AGR801; AES840; AES846; AES831; AES854</b>
C5	Formulate and design agricultural, environmental and ecological surveys and develop integrated project proposals against different types of objectives	<b>AES835; AGR804; AGR805; AES829; AES893; AEF806</b>
C6	Formulate and test hypotheses using logical and consistent quantitative or qualitative criteria	<b>AES827; AES828; AGR805; AGR804; AES893; AES813; AES838; AES837; AES813; AES806; AES840</b>
D1	Communicate conclusions clearly to specialist and non-specialist audiences	<b>AGR804; AGR805; AES829; AES835; AES893; AES838; AES845; AES813; AGR801; AES831;</b>
D2	plan, organise and prioritise work activities in order to meet deadlines	<b>AGR804, AGR805, AES827, AES828, AES829, AES835, AES893</b>
D3	show originality and initiative in tackling and solving problems	<b>AES827, AES828, AES835, AES893</b>
D4	act autonomously in planning and implementing tasks at a professional or equivalent level	<b>AGR805, AES829, AES835</b>
D5	take personal responsibility to independently advance their knowledge and understanding, and to develop new skills to a high level	<b>AGR804, AGR805, AES829, AES835, AES893</b>
D6	use library and other information sources skilfully and appropriately	All modules
D7	use IT resources skilfully and appropriately	<b>AGR805, AES827, AES828, AES829, AES835, AES893, AES794, AES838, AES806</b>
D8	to make decisions in complex and unpredictable situations	<b>AES893</b>

## 12 Criteria for Admission:

GCSEs required N/A

A-Level Subjects and Grades N/A

Alternative entry qualifications.

A 2<sup>nd</sup> class degree from a UK University, or its overseas equivalent, is normally the minimum qualification for entry. Preferred first-degree subjects are biology, geography, environmental science or agriculture. Other relevant science degrees, or an economics degree are also acceptable.

Admissions policy

Offers of places will be made to suitably qualified candidates based on information provided in the application form and will be conditional upon a satisfactory reference and upon the applicant achieving a minimum of a 2<sup>nd</sup> class degree, if they do not hold such a degree at the time of the application.

Arrangements for non-standard entrants

Applicants who hold non-standard qualifications, and/or have relevant experience, will be considered on an individual basis.

Any Additional Requirements.

Applicants for whom English is not a first language must provide evidence of a satisfactory command of English, preferably by means of a TOEFL score of 575 or greater, or by an IELTS score of 6.5 or greater.

## 13 Support for Students and their Learning:

*Induction*

The first week of the first term/semester is an Induction Week with no formal teaching. During this period all students will be

given detailed programme information relating to their Stage and the timetable of lectures/practicals/labs/ tutorials/etc. In particular all new students will be given general information about the School and their course, as described in the Degree Programme Handbook. The International Office offers an additional induction programme for overseas students (see [http://www.ncl.ac.uk/international/coming\\_to\\_newcastle/orientation.phtml](http://www.ncl.ac.uk/international/coming_to_newcastle/orientation.phtml)).

Induction includes

- An introduction to the modular MSc and Diploma Programme from the Degree Programme Director and meeting with other staff and students.
- An interview with the degree Programme Advisor/Personal tutor.
- Registration in the Agricultural and Environmental Science Department with the Degree Programme Director – collect Degree Programme Handbook etc..
- Tour of Department and the City of Newcastle.
- Language Centre test if English is not the students' first language.
- Report to the Registrar's and the Finance Office staff in the University Ballroom to collect Union and Library cards, etc.
- Module selection with Degree Programme Director and/or Advisor/Personal Tutor
- Faculty introduction to services and facilities and Faculty reception.
- Tour of University field stations and/or farms.
- Normally a selected skills audit.
- Library skills session.
- Field excursion to consider techniques in environmental survey as part of the module AES835, or a tour of University field stations and/or farms..

Formal introduction to the use of computers is provided during Induction Week. Students will register for access to the computer system, and receive a personal e-mail address,.

### *Study skills support*

- The Robinson Library houses the major book and journal collection in the University and has a large section dedicated to the biological sciences. These books are located on the fourth floor of the library and the liaison librarian is available on the fourth floor to provide help if necessary. A library card will be issued at the beginning of the academic year. The library has a wide range of library material from 'study skills', 'speed reading', through 'exams' to 'writing essays and dissertations'. These are available on a self study basis and are located on Level 2. There is a range of leaflets describing usage of the library, either as hard copy or through the Library's Web pages. In addition there are private study rooms, general work space and clusters of PCs. A series of Library and information skills workshops will be arranged for the MSc programmes during September and October and will be introduced in a special session during Induction Week (see timetable).
- The University Computing Service provides a large number of 'Common User' computers located in clusters in various buildings around the University. The largest of these clusters is in the Old Library User Area (OLUA) where there is also a member of computing staff available to provide help if required but there are also clusters in the Robinson Library and elsewhere on campus. Access to a machine is *via* a booking sheet located in the cluster room. For PCs, attempts are being made to standardise word processing and spreadsheet software across all Computing Service machines to Word for Windows and Excel but a range of other software is also available for use, e.g. graphics packages, reference managers with some available on the Apple-Mac system. The Computing Service provides help sheets in the use of this software and these can be obtained from the OLUA or from the Computing Service Office in the basement of Claremont Tower. Before using the machines students must register with the Computing Service at the Computing Service Office and obtain a unique identifier and password. The Faculty runs two computing facilities of workstations that are linked to the University Network. One facility, containing 82 workstations, is located in the Centre Block of the 2nd Floor of the King George VI Building and the other, containing 25 workstations, is located in Room 472 of the Ridley Building
- The Language Centre is in the Old Library and provides facilities for learning English and a wide variety of other languages. Overseas students on arrival in Newcastle will be required to take an English language test in the Centre. The results of this test will be used to assess whether further English language training is required. The Language Centre provides this training at specific times of year, however, remedial English classes can be arranged as and when required.
- Some students will already be in jobs, taking secondment to undertake the MSc programme. For others the University provides a Careers Service which is located on the 2nd Floor of the Armstrong Building where advice on all aspects of careers is available. There is a good reference section giving detailed information about potential employers, pamphlets to help you produce good CVs and letters of application, lists of potential vacation employment, etc. In addition, there are a number of Careers Advisors who are available to provide advice, help and guidance throughout your time in Newcastle. Although one Careers Advisor has particular responsibility for the students in the Schools of Biology and of Agriculture, Food and Rural Development, any immediate help required can be obtained throughout the day from whichever Advisor is on Duty and if necessary an appointment can be made to have a longer interview. Full details of all services are available on the University web site. The computer-aided careers guidance system, PROSPECTS PLANNER, is available on open access at reception.

### *Academic support*

The initial point of contact for a student is with a lecturer or module leader, or their tutor (see below) for more generic issues. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Staff/Student Committee, and/or at the Board of Studies. A system of regular fortnightly meetings with the Degree Programme Advisor provides an opportunity to discuss progress and option choices.

### *Pastoral support*

All students are assigned a personal tutor whose responsibility is to monitor the academic performance and overall well-being of their tutees. Details of the personal tutor system can be found at <http://www.ncl.ac.uk/undergraduate/support/tutor.phtml>. In addition the University offers a range of support services, including the Student Advice Centre, the Student Counselling Service, the Mature Student Support Service, and a Childcare Support Officer, see <http://www.ncl.ac.uk/undergraduate/support/welfare.phtml>.

### *Support for Special Needs*

Support for students with special needs is provided as required and the University's Disability Support Service can be consulted where appropriate. For further details see <http://www.ncl.ac.uk/undergraduate/support/disability.phtml>.

### *Learning resources*

The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and Information Systems and Services, which supports campus-wide computing facilities, see <http://www.ncl.ac.uk/undergraduate/support/acfacilities.phtml>.

All new students whose first language is not English are required to take an English Language test in the Language Centre. Where appropriate, in-session language training can be provided. The Language Centre houses a range of resources for learning other languages which may be particularly appropriate for those interested in an Erasmus exchange. See <http://www.ncl.ac.uk/undergraduate/support/langcen.phtml>.

## **14 Methods for Evaluating and Improving the Quality and standards of Teaching and Learning:**

### *Meetings with the Degree Programme Advisor*

A system of regular meetings with the Degree Programme Advisor, allows regular monitoring of comment/feedback from students. This may relate to: the course structure; individual modules; teaching techniques; administration of modules; administration of degree programmes; timetables; and efficiency of centralised facilities (such as the library or computing provision).

### *Module reviews*

All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the School Teaching and Learning Committee and at the Board of Studies. Student opinion is sought at the Staff/Student Committee and/or the Board of Studies. New modules and major changes to existing modules are subject to approval by the Faculty Teaching and Learning Committee.

### *Programme reviews*

The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to Faculty Teaching and Learning Committee. Both individual modules and the MSc programme are periodically reviewed in the light of the following:

- Student evaluation data
- Feedback from past graduates
- Feedback from the external examiner
- Feedback from the University Annual Monitoring Review
- Feedback from the Internal Subject review
- Feedback from independent Institutional Audit (QAA, HEFCE)
- Relevance of the programme in relation to key issues
- Relevance of programme in relation to employability of graduates
- Relevance of the programme in relation to funding sources

### *Committees Responsible for Monitoring and Evaluating Quality and Standards*

- Staff/Student Committee

This meets once a term and provides a forum for raising any academic-related concerns. All degree programmes run by the Department are considered. It is also an opportunity for staff to consult students about course developments. Students will need to elect a representative for their degree programme, this person task will be to consult student colleagues and then represent their views at meetings.

- Board of Studies

There is a Joint Board of Studies for the MSc and Diploma degrees taught by the Schools of Agriculture, Food & Rural Development, Biology and Civil Engineering & Geosciences.. It oversees the academic content of the course. The Degree Programme Director chairs this Board and the membership includes those involved in the teaching. It meets approximately once a term. There is student representation on the Board.

- Board of Examiners It is the responsibility of the Board of Examiners to assess students' progress and to recommend the successful award of degrees. There are internal and external examiners for the course.
- School Teaching and Learning Committee
- Faculty Teaching and Learning Committee
- University Teaching Committee

### *External examiner reports*

External Examiner reports are considered by the Board of Studies under Reserved Business, in the absence of the student representatives. The Board responds to these reports through Faculty Teaching and Learning Committee.

### *Accreditation reports*

There is no suitable professional body accrediting programmes of this nature.

### *Student evaluations*

All modules, and the degree programme, are subject to review by student questionnaires. Informal student evaluation is also obtained at the Staff/Student Committee, and the Board of Studies.

### *Feedback mechanisms*

Feedback to students is effected via the Staff/Student Committee and the Board of Studies.

### *Faculty and University Review Mechanisms*

The Programme is subject to the University's Internal Subject Review programme, see <http://www.ncl.ac.uk/internal/academic-quality/qualityhome.htm#2>.

## **15 Regulation of Assessment:**

Progress in the taught parts of the course is assessed by continuous assessment and/or by in-course examinations held in January during MSc Phase 1. The Board of Examiners considers progress at the end of Phase 1, after which students will be advised of their progress. The Board of Examiners advises progress in most of the other taught modules after the end of Phase 2. Individual modules vary in the relative weighting of examination and continuous assessment of course work, which may include practical classes, case studies, seminars or essays. Details are given in the module outlines. Feedback on the quality of submitted coursework will vary according to the type of assignment and is the responsibility of the individual module leaders. It may take the form of written comments or verbal feedback during seminars or tutorials. The MSc project is assessed by examination of the final MSc consultancy project report (AES 892) at the end of the course in August. MSc candidates are normally required to attend an oral examination in May that covers both their course work and the planning for their project work. For further details see *Regulations for Taught Postgraduate Masters Degrees* under Faculty Regulations for Higher Degrees on the University's Web site <http://www.ncl.ac.uk/calendar/university.regs/>

### ***Written Examinations***

Candidates will normally be examined by means of two hour examination papers for each of the taught modules taken in Phase 1. Titles of the examinations will be the same as module titles and examination numbers will be the same as module codes. Each examination script submitted is assessed independently by one internal and one external examiner. A second internal examiner may moderate marks. The contribution of the continuous assessment marks to the overall module mark will vary according to each module (see Module Outlines). Examination Timetables will be published by the Examinations Office.

The pass mark for the MSc degree shall be 50% (Table 1) on all papers or their equivalent. Normally there is opportunity to resit failed modules. In the case of failed modules, marks in the range 40-49 shall be condoned in accordance with the Faculty Regulations 6 (i), (ii) and (iii) (*see relevant section of University Calendar 2004-2005; this can be accessed on the University Website given above*). That is, the Board of Examiners may permit a candidate to qualify for the award of MSc provided that modules with a total value of no more than 40 credits have a mark between 40-49, and the average mark for all modules,

including the project report, is at least 50. Candidates who fail to satisfy the Board in the written modular examinations may be awarded a Diploma in accordance with Faculty Regulations 8 (a), (b) or (c). Past examination papers, for the last two years, can be viewed on The School of Biology website: <http://www.ncl.ac.uk/biol/>

### ***MSc Project Report Examination***

Assessment is undertaken by at least two internal examiners, the principal of which is the candidate's supervisor, and the external examiner and considered by the Board of Examiners meeting in September. To satisfy the examiners in the project report, candidates must normally achieve an MSc Pass mark of 50%.

### ***MSc Oral Examination***

The oral examination covers all aspects of the course and may be held in May at the time of the interim Board of Examiners Meeting. The Examiners may wish to raise the major questions they have identified in their examination of the taught modules and the candidate's project preparation and engage with the candidate in discussion of them.

### ***Consequences of Failure of MSc Project***

In accordance with Faculty Regulations, a candidate who achieves a mark of 40-49 for the assessment of the project report may, at the discretion of the examiners, be permitted to re-submit the report in a revised form for assessment. This must be by such a date as the Board of Examiners shall specify and within 12 months of the date of the original submission. Where a student fails to meet the criteria for the award of a MSc degree in sections 4-7 of the University regulations for Master of Science in the Agriculture and Biological Sciences, the student will be entitled as of right to the award of a Diploma provided that they meet the criteria specified in *Diploma Regulations in Agriculture and Biological Sciences*.

### ***MSc with Merit***

MSc degrees may be awarded with merit if, in the opinion of the Examiners, the candidate has achieved an average mark of 60-69 for both written papers and the project report.

### ***MSc with Distinction***

MSc degrees may be awarded with distinction if, in the opinion of the Examiners, the candidate has achieved excellence in all components prescribed for the award of the degree, with an average mark of  $\geq 70$  for both written papers and the project report.

### ***Assessment Criteria***

All postgraduate work is marked on a University scale ranging from 0-100, as explained in the Postgraduate Marking Criteria on the Faculty of Science, Agriculture and Engineering Website at:

<http://www.ncl.ac.uk/sage/internal/teaching/admin/exams/index.htm>, which sets out the criteria to be used to assign marks.

Most postgraduate work will be in three broad categories (Distinction, Merit and Pass) corresponding to First, Upper Second and Lower Second Class work at undergraduate level.

Assessments are made in one of three ways, as is appropriate to the teaching technique:

- marks given to papers sat during the January examination period in Phase 1. Unless stated otherwise on the paper, each answer will be given equal weight.
- marks given to submitted work from laboratory and field classes.
- marks given to assigned work such as projects, case studies, essays or problem solving exercises.

The module description and Module Leader will explain to students what form the assessment will take and the weighting of each separate element.

University General Regulations state that:

*'Candidates are responsible for retaining all forms of assessed work returned to them after marking by examiners. Assessed work so retained may be recalled from candidates, if required by external examiners, or for examination review purposes, or for Quality Assessment or Audit purposes.'* For MSc examination candidates will submit a dossier of coursework, after marking, for consideration by the external examiner.

### ***Role of the External Examiner***

Within the modular structure of the cross-school suite of taught course some modules are common to a number of taught MSc degrees. Therefore, FTC appoints external examiners to both the MSc degree programme and a set of modules, according to the relevant subject expertise and workload of the External Examiner. The appointment to the degree programme will be to

assure the quality of the programme as well as the performance of the students on the programme. The Board of Examiners undertakes the initial allocation of modules to Externals, with FTC acting as an arbiter if required.

The external examiner is a distinguished member of the scientific community whose knowledge covers the range of activities covered by the course. The external examiner is a moderator and to do this he/she:

- Sees and approves examination questions
- Sees examination scripts and comments upon standards of marking
- Sees coursework and comments upon standards of marking
- Examines projects
- Performs *viva voce* examinations of some or all students
- Attends the May meeting of the Board of Examiners
- Reports to the University regarding standards and comparability of standards

## 16 Indicators of Quality and Standards:

Professional Accreditation Reports

*Not applicable*

Internal Review Reports

This programme is due for Internal Subject Review in 2007-08 when programmes in the School of Agriculture, Food and Rural development will be reviewed. <See the timetable at <http://www.ncl.ac.uk/internal/academic-quality/schdlisr.doc>> However, the programme is reviewed annually as part of the 'Annual Monitoring Review' process, which is subsequently approved by Faculty Teaching and Learning Committee.

Previous QAA Reports

This programme received a QAA Subject Review in April 1998 and achieved a score of 22 out of 24.

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. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

## 17 Other Sources of Information:

The University Postgraduate Prospectus (see <http://www.ncl.ac.uk/postgraduate/>)

The University and Degree Programme Regulations for Higher degree Programmes in Agriculture and Biological Sciences (see <http://www.ncl.ac.uk/calendar/pdf/uniregs.pdf> and <http://www.ncl.ac.uk/calendar/sae/>)

The University's web page <http://www.ncl.ac.uk/external.phtml>

The School of Biology web page: <http://www.ncl.ac.uk/biol/>

The School of Agriculture and Food and Rural Development  
web page: <http://www.ncl.ac.uk/afrd/>

The Degree Programme Handbook

QAA Subject Review Report The University Postgraduate Prospectus

- The University of Newcastle upon Tyne's Masters' Degree Programme Entrance and Progress Regulations