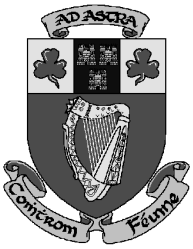
University College Dublin
An Coláiste Ollscoile Baile Átha Cliath

National University of Ireland, Dublin
Ollscoil na hÉireann, Baile Átha Cliath



Faculty of Agri-Food and the Environment

Postgraduate, Continuing and Professional Education Programmes

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Session 2004/05

NOTE

This booklet contains information relating to the Postgraduate, Continuing and Professional Education programmes in the Faculty of Agri-Food and the Environment.

Information on the Bachelor of Agricultural Science degree programmes in the Faculty of Agri-Food and the Environment is contained in a separate booklet.

Contents

Note: All programmes and courses listed in this booklet are offered at the discretion of the Faculty of Agri-Food and the Environment. Minimum or maximum limits may be placed on the numbers of students taking particular programmes or courses.

Degrees in the Faculty of Agri-Food and the Environment

The University may grant the following degrees to students who, under conditions laid down in the Statutes and Regulations, have completed approved courses of study, and have passed the prescribed examinations of the University, and fulfilled all other prescribed conditions.

In the Faculty of Agri-Food and the Environment:

Bachelor of Agricultural Science (BAgrSc)

Bachelor of Science in Rural Development (BSc(RD))

Master of Agricultural Science (MAgrSc)

Master of Science (Agriculture) (MSc(Agr))

Master of Landscape Architecture (MLArch) – Interfaculty

Doctor of Philosophy (PhD)

The MAgrSc and the MSc(Agr) Degrees may be obtained *(a) by thesis (Mode I)* or *(b) by examination (Mode II)*.

Application Procedure

Application Procedure for the PhD and MAgrSc/MSc(Agr) (Mode I) Degrees

Applicants for the PhD and MAgrSc/MSc(Agr) (Mode I) degrees must complete the Postgraduate Application Form for PhD and Masters Degrees (Mode I) by Research. The application form is available on the Faculty Website (address: www.ucd.ie/agri) and from the Faculty of Agri-Food and the Environment Office (Address: Room G12, Agriculture and Food Science Building, University College Dublin, Belfield, Dublin 4; Telephone: +353-1-7167194). Completed applications should be returned to the Faculty Office. Upon receipt of such an application, the Faculty Office will forward it to the relevant staff member/department for consideration.

Once the staff member and the relevant Head of Department is willing to recommend a candidate for admission, the staff member/Head of Department will submit the recommendation to the Faculty of Agri-Food and the Environment and to the Academic Council of the University for formal approval. Following consideration by the Faculty of Agri-Food and the Environment, the Dean of the Faculty will write to the candidate to inform them of the Faculty's decision.

In applying for the PhD/MAgrSc/MSc(Agr) Mode I degree programme, candidates are recommended to familiarise themselves with the areas of research carried out by Faculty staff – see the section Faculty of Agri-Food and the Environment *Staff Research Areas*.

Candidates should also familiarise themselves with the regulations that apply for the degree programmes – as detailed under the *Regulations for Postgraduate Programmes*.

Application Procedure for the Mode II MAgrSc/MSc(Agr) Degrees and Higher Diploma

Applicants for Mode II MAgrSc/MSc(Agr) degrees and Higher Diploma programmes should contact the relevant Programme Director to clarify the application procedures. The contact details for each programme are included in the *Syllabus of Postgraduate (Taught) Programmes*.

Once the Director is willing to recommend a candidate for admission, he/she will make the recommendation to the Faculty of Agri-Food and the Environment and the Academic Council of the University for formal approval. Upon recommendation for admission by the Faculty of Agri-Food and the Environment, the Dean of the Faculty will write to the candidate to inform them of such.

The programmes of study for the MAgrSc/MSc(Agr) Mode II degree and Higher Diploma programmes are detailed in the *Syllabus of Postgraduate (Taught) Programmes*.

General Regulations

Examination Regulations

Detailed regulations are included in the publication *Marks and Standards* (available on the UCD Website – address: www.ucd.ie/~exams).

Leave of Absence

Students in good academic standing must seek permission for leave of absence in advance. Students must submit their request in writing to the Dean of the Faculty. The leave of absence request should be supported by the Head of Department and in the case of postgraduates, the relevant research supervisor(s). Retrospective approval for leave of absence will only be granted in exceptional circumstances. Requests for leave of absence will be brought to the Faculty and to the Academic Council Executive Committee for approval.

Withdrawal

In order to withdraw officially from University you must notify the Registration Office, in writing and return your student card. It is recommended that you notify your Supervisor/Programme Director and the Head of Department.

General Information

Contact Points:

Departmental Offices:	Agribusiness, Extension and Rural Development Room 126, Tel: 7167096
	Animal Science Room 151, Tel: 7167771
	Crop Science, Horticulture and Forestry Room 141B or 143, Tel: 7167776 or 7167756
	Environmental Resource Management Room 209 or 210, Tel: 7167726 or 7167737
	Food Science Room 337, Tel: 7167708
	Biosystems Engineering Room 105A, Earlsfort Terrace, Tel: 7167484
Exams	Examinations Office, Michael Tierney Building Tel: 7161222; Email: examinations@ucd.ie
Fees	Fees Office, Michael Tierney Building Tel: 7161432; Email: fees@ucd.ie; Website: www.ucd.ie/fees
Registration	Registration Office, Michael Tierney Building Tel: 7161483 or 7161480; Email: registration@ucd.ie
Student Adviser	Ms Aoife Fitzgerald, Room 122, Science Lecture Building Tel: 7162863; Email: Aoife.Fitzgerald@ucd.ie

Student Awards

University/Faculty Scholarships and Awards

Information on the scholarships and prizes available to students of the Faculty is contained in the Student Awards Booklet, available from the Fees and Grants Office (Tel: 7161431 or 7161432; Email: fees@ucd.ie; Website: www.ucd.ie/~fees).

NUI Awards

The NUI offers a Bursary in Agriculture and a Travelling Studentship in Agriculture for competition. Further particulars are available from the National University of Ireland (Tel: 01-4392424; Email: registrar@nui.ie; website: www.nui.ie).

Regulations for Postgraduate Programmes

Degree of Doctor of Philosophy (PhD)

The degree of Doctor of Philosophy (PhD) may be awarded on the basis of research carried out by the candidate, under the supervision of a Professor or Lecturer, the results of which are submitted to the University in a thesis.

Admission to the PhD Degree Programme

To be eligible to enter on a programme of study and research for the degree of PhD, a candidate must have reached a high honours standard at the examination for the primary degree or presented such other evidence as will satisfy the Professor, or, where appropriate, the Head of Department, and the Faculty of his/her fitness.

Candidates for the degree of PhD are required to be admitted by the Faculty on the recommendation of the Professor, or, where appropriate, the Head of Department; their admission must then be confirmed by the Academic Council.

Candidates who have not graduated in this University may be admitted if suitably qualified. Candidates who are applicants for admission to the degree of PhD in the Faculty of Agri-Food and the Environment and who are not graduates of University College Dublin are required to supply an official academic transcript of their primary and other degrees. Candidates whose first language, or language of education, is not English, must have passed an approved test in the use of English. Candidates are required to supply an official Certificate of test results with the application form. The two approved tests are (1) TOEFL (Test of English as a Foreign Language); and (2) IELTS (International English Language Testing Service). Some other tests may be considered.

Candidates applying for admission to the PhD degree may initially be required to register for the MAgrSc or MSc(Agr) degree. Subject to satisfactory performance on the master's degree programme and the approval of the Faculty and the Academic Council, such applicants may have their registration upgraded to the PhD degree. This requirement applies particularly to applicants who do not hold a primary degree of high honours standard.

Direction and Supervision of Research for the PhD

The requirements for the degree of PhD (full-time) will normally be completed within 3 years (9 terms). In special cases, a candidate may complete the degree in a period of 2 years (6 terms), subject to the approval of the Faculty and the Academic Council on the advice of the Supervisor. Candidates for PhD degrees will be allowed 6 years (18 terms) from the date of registration in which to complete their degree. If the degree is not completed within six years, the candidate must re-apply to the Faculty, presenting justification for an extension to the 6 year (18 term) limit.

Candidates may also be permitted to register for the PhD on a part-time basis. In such cases the requirements for the degree will normally be completed within 5 years (15 terms). In special cases, a candidate may complete the degree in a period of 4 years

(12 terms), subject to the approval of the Faculty and the Academic Council on the advice of the Supervisor. Candidates for the PhD on a part-time basis will be allowed 8 years (24 terms) from the date of registration in which to complete their degree. If the degree is not completed within 8 years, the candidate must re-apply to the Faculty, presenting justification for an extension to the 8 year (24 term) limit.

The research work for the degree of PhD must be pursued in an area of relevance to Agriculture and under the direction of one or more of the Professors or Lecturers of the academic departments of the Faculty of Agri-Food and the Environment.

The Academic Council, on the nomination of the Professor, or, where appropriate, the Head of Department, and the recommendation of the Faculty, will assign a member of staff to supervise the candidate's research. The candidate's research must be carried out, and the thesis for the degree must be prepared, under the direction of the Supervisor.

Unless permission is given to the candidate by the Academic Council, on the recommendation of the Faculty, to work elsewhere under the general direction of the Supervisor, the research for the degree will be carried out in the department mainly responsible for the subject area concerned.

A candidate shall not submit his/her PhD thesis to the University until the final draft of the thesis has been approved for examination by the Supervisor, and such approval has been notified, on the prescribed form, by the Supervisor to (a) the Nominating Professor, or, where appropriate, the Head of Department and (b) the Registrar of University College Dublin. Where a candidate considers that such approval has been withheld unreasonably, he/she may appeal to the President of the University.

Degree of Master of Agricultural Science/ Master of Science (Agriculture)

The degree of Master of Agricultural Science [MAgrSc]/Master of Science (Agriculture) [MSc(Agr)] may be offered by research termed Mode I or by examination termed Mode II.

Admission to the MAgrSc/MScAgr Degree

Holders of the Bachelor of Agricultural Science degree with honours shall be eligible to enter for the degree of Master of Agricultural Science. The Faculty may, at its discretion, in certain circumstances, permit the holder of a Bachelor of Agricultural Science degree without honours, to enter for the Master of Agricultural Science degree. Such a candidate may be required to pass a special entry test.

Candidates for the Master of Science (Agriculture) degree must have the permission of the Faculty of Agri-Food and the Environment to enter the programme and must be holders of a primary degree with First or Second Class Honours (or equivalent) in a science or other subject of relevance to Agriculture.

Candidates who have taken their primary degree in another University may be admitted. Such candidates are required to supply an official transcript of their primary and other degrees. Candidates whose first language, or language of education, is not English, must have passed an approved test in the use of English. Candidates are required to supply

an official Certificate of test results with the application form. The two approved tests are (1) TOEFL (Test of English as a Foreign Language); and (2) IELTS (International English Language Testing Service). Some other tests may be considered.

Direction and Supervision of Research

Research work or programmes of study for the Master of Agricultural Science and the Master of Science (Agriculture) degrees must be pursued in an area of relevance to Agriculture and under the direction of one or more of the Professors or Lecturers of the academic departments of the Faculty of Agri-Food and the Environment.

Candidates for the MAgrSc and the MSc(Agr) Mode I degrees:

- must engage for at least three terms, full-time, on prescribed research in the University, or at an approved centre outside the University, and must submit a thesis on such research. The examiners may require the candidate to submit to an oral examination on the subject matter of the thesis. In cases where the candidate cannot devote his/her full time to research, a minimum of six terms will be required as fulfilment of the requirements.
- will normally be allowed twelve terms (4 years) from the date of registration in which to complete the degree. If they have not done so within that period, they must re-apply to the Faculty, presenting justification for an extension.

Candidates for the MAgrSc and the MSc(Agr)Mode II degrees:

- must attend a prescribed programme in the University for at least three terms and pass a written examination set on the programme.
- will normally be allowed three years (nine terms) from the date of registration in which to complete the degree. If they have not done so within that period the candidate must re-apply to the Faculty, presenting justification for an extension.

The programmes of study for the MAgrSc and the MSc(Agr) Mode II degree programmes offered by the Faculty are detailed in *the Syllabus of Postgraduate (Taught) Programmes*.

Where candidates are not following one of the 'designated areas of study' (e.g. Food Science), they must follow a prescribed programme of study approved by one or more of the Professors or Lecturers of the academic departments of the Faculty of Agri-Food and the Environment, the Faculty and the Academic Council and subject to the relevant Marks and Standards for the MAgrSc Degree and MSc(Agr) degree (Mode II). Candidates may be required to submit a dissertation on a project undertaken as part of their programme and this dissertation will be taken into account by the examiners in making their recommendation.

Higher Diploma

Candidates for a higher diploma must have the permission of the Faculty of Agri-Food and the Environment to enter the programme. Candidates must normally be holders of a primary degree or its equivalent in an area of relevance. In specific programmes additional criteria may be required for registration. Candidates who have taken their primary degree in another University may be admitted. Such candidates are required to supply an official transcript of their primary and other degrees. Candidates whose first language, or language of education, is not English, must have passed an approved test in the use of English. Candidates are required to supply an official Certificate of test results with the application form. The two approved tests are (1) TOEFL (Test of English as a Foreign Language); and (2) IELTS (International English Language Testing Service). Some other tests may be considered.

Candidates for higher diploma programmes will normally be allowed two years (six terms) from the date of registration in which to complete the Higher Diploma. If they have not done so within that period candidates must re-apply to the Faculty, presenting justification for an extension.

The programmes of study for the Higher Diploma offered by the Faculty are detailed in the *Syllabus of Postgraduate (Taught) Programmes*.

Faculty of Agri-Food and the Environment
Staff Research Areas

Department of Agribusiness, Extension and Rural Development

Head of Department: Mr Laurence Harte

Staff Member	*Title*	*Research Area*
Harte, Laurence N	Mr	Agribusiness, especially finance.
Kinsella, James	Dr	Communications, approaches and strategies for rural development.
Markey, Anne	Ms	Communications.
O'Connell, John	Dr	Marketing of agricultural produce.
O'Connor, Deirdre	Dr	Resource economics.
Phelan, James F	Professor	Rural development and research methods.
Ruane, Dermot J	Dr	Agribusiness, especially management and computer applications.
Wims, Pádraig	Dr	Rural development, planning and information technology in rural development.
Wallace, Michael	Dr	Farm household analysis, farm level modelling/policy analysis.

Department of Animal Science

Head of Department: Mr Patrick Brophy

Staff Member	*Title*	*Research Area*
Boland, Maurice	Professor	Fertility in cattle and sheep, embryo production in vivo, embryo storage and transfer, embryo mortality.
Brophy, Patrick O	Mr	Equine husbandry.
Crosby, T Francis	Dr	Sheep production systems; ruminant nutrition.
Evans, Alexander CO	Dr	Physiology and endocrinology of reproduction in farm animals with particular interest in ovarian follicle development, fertility, oocyte development and the regulation of intracellular signalling pathways.
Kenny, David	Dr	Interaction of nutrition with reproduction in cattle. Physiology of growth in cattle and the effect of animal diet on the biochemical composition of beef.
Lonergan, Patrick	Dr	Reproductive physiology with emphasis on oocyte and embryo development in vivo and in vitro.
MacHugh, David	Dr	Molecular genetic diversity of domestic animals with particular emphasis on cattle; comparative, structural and functional genomics of health and production traits in domestic cattle.
O'Doherty, John V	Dr	Nutrition and management of swine.
O'Mara, Frank	Dr	Ruminant nutrition, feed evaluation and animal nutrient requirements with particular emphasis on energy and protein rationing systems; greenhouse gas emissions from agriculture.
Rath, Myles	Dr	Nutrition of dairy cow in relation to milk yield and milk composition; evaluation of ingredients and rations for ruminant animals.

Department of Crop Science, Horticulture and Forestry

Head of Department: Dr Trevor Storey

Staff Member	*Title*	*Research Area*
Collins, James F	Dr	Soil morphology, genesis and distribution; properties and characteristics of Irish soils; soil-climate interactions; land evaluation and management.
Doyle, Owen	Dr	Mushroom cultivation, protected food crops, floriculture and vegetable production.
Fitzgerald, Desmond	Dr	Landscape design theory; morphology of cities and designed landscapes; landscape design and modernism.
Foley, Karen	Ms	Landscape planning, design and management.
Forrest, Mary C	Dr	Production and post harvest treatment of cut foliage, history of designed landscapes in Ireland, urban forestry, web based learning.
Hennerty, Michael J	Professor	Pre- and post-harvest physiology and biotechnology of fruits.
Hunter, Alan	Dr	Micropropagation of broad leaved deciduous and coniferous tree species, nutrition of amenity and sports turf; plant propagation.
Keane, George	Dr	Grassland: effects of sward composition on production and utilisation of grass; silage additive evaluation; production and utilisation of forage maize.
McCabe, Tomás	Dr	Optimisation of agronomic and quality aspects of cereal (wheat, barley, oats) production; modelling of production systems, N fertilisation programmes, pest and disease control. Management of environmental heritage.
Mac Siúrtáin, Máirtín	Dr	Remote sensing; geographic information systems; forest biometrics; multivariate analysis.
Ní Dhubháin, Áine	Dr	Wood science and farm forestry.
Nieuwenhuis, Maarten	Professor	Forest management; forest harvesting; operations research; transportation analysis; forest planning; work study.
O'Reilly, Conor	Dr	Vegetative and reproductive physiology of trees, planting stock quality and tree improvement.

Staff Member	*Title*	*Research Area*
Smillie, George W	Dr	Physical and chemical processes in soils in relation to agricultural, horticultural, forestry, industrial and amenity uses of land.
Storey, Trevor	Dr	Crop production, alternative and industrial crops, conversion from conventional to organic agriculture.
Walsh, Edward J	Professor	Spring wheat (*Triticum aestivum* L.) breeding. Evaluation and introgression of exotic germplasm. Resistance to *Fusarium* head blight. Germplasm collection, conservation and characterization in perennial ryegrass (*Lolium perenne*).

Department of Environmental Resource Management

Head of Department: Professor Edward P Farrell

Staff Member	*Title*	*Research Area*
Clancy, Kevin J	Dr	Epidemiology and control of mushroom diseases; needle cast diseases in Christmas tree crops; root diseases of woody plants; Phytophtora pathogens, fungicides.
Cooke, Bryan M	Professor	Novel disease management strategies in low-input cereal systems; epidemiology and pathometry of necrotrophic fungal diseases of cereals; development of in vitro systems for screening resistance to cereal necrotrophic pathogens; effect of necrotrophic pathogens on cereal growth and yield parameters; electron microscopy of fungal infection and reproductive processes in cereals; molecular epidemiology of Septoria nodorum, Septoria tritici and Fusarium complex on cereals.
Curry, James P	Professor	Ecology of invertebrates in arable land; influence of earthworms on soil fertility; ecology and control of pests of field crops.
Doohan, Fiona	Dr	Fusarium head blight of cereals and associated mycotoxin contamination. Functional genomics of plant pathogen interactions and disease control. Programmed cell death in the host response to mycotoxin contamination.
Farrell, Edward P	Professor	Forest ecosystem studies; nutrient cycling in forest ecosystems; forest-environment interactions; atmospheric deposition; pollution influences; peatland development for agriculture and forestry.
Feehan, John	Dr	Agricultural management systems which sustain biodiversity and the cultural diversity of the rural landscape. The ecological rehabilitation of cutaway bogs. Hygrocybe grasslands as indicators of old species-diverse grasslands. Irish environmental history and palaeobotany. Development of environmental resources for rural tourism.
Fry, John	Dr	Environmental impact assessment; environmental management; plant ecophysiology; photosynthetic productivity of woody species; selective tree improvement for biomass production.
Gray, Jeremy S	Professor	Biology and control of ticks and tick-borne diseases.

Staff Member	*Title*	*Research Area*
Hochstrasser, Tamara	Dr	Sustainable management of grasslands in Ireland. Biodiversity. Simulation modelling of plant-plant interactions. Effect of changes in disturbances and climate on vegetation. Invasive plant species. Rid land ecology, including grass-shrub interactions and processes of desertification.
O'Donovan, Grace	Dr	Biodiversity and ecosystem function in European grasslands; remote sensing and land use interpretation; landscape studies using GIS; ecological surveying for EISs, IPCLs and REPs; dynamics of Burren limestone grasslands; ecology of white clover.
O'Toole, Patrick	Dr	Nitrogen transformations in soil and soil-plant systems, nitrous oxide emissions, ammonia volatilization, soil urease activity, nutrient value of Irish biosolids.
Purvis, Gordon	Dr	Biology, ecology and control of agricultural field crop pests; effects of crop husbandry on beneficial invertebrates.
Schmidt, Olaf	Dr	Ecology and functions of soil invertebrates; carbon and nitrogen cycling in terrestrial plant-soil-animal systems; stable isotope techniques in animal ecology, agriculture and food research.
Whelan, John	Professor	Ecology and management of mammalian and avian species; distribution and behaviour of individual species relative to management and conservation, game management, population census, habitat conservation.

Department of Food Science

Head of Department: Professor Brian McKenna

Staff Member	*Title*	*Research Area*
Clarke, John J	Dr	Design and use of iron chelates; Nitrate and nitrite levels in food; Sulphur metabolism; effects of casein infusion on fatty acid synthesis.
Cronin, Denis A	Dr	Techniques for studying flavour compounds in foods; Applications of chromatographic and spectroscopic methods to the study of food lipids.
Lyng, James G	Dr	Alternative processing systems for meat and meat products with particular reference to Radio Frequency, Ohmic heating, Microwave heating, Cold Extrusion, Meat quality, Ultrasound for meat tenderisation, Physical properties of food products (in particular dielectric, thermal and textural properties of food).
McKenna, Brian M	Professor	Physical properties of foods; Rapid chilling of beef and lamb; Meat texture; Shelf-life prediction of foods.
Monahan, Frank J	Dr	Oxidation of muscle lipids and proteins, flavour and colour deterioration in muscle foods; impact of animal diet and production system on meat quality, meat authentication, functionality of food proteins in gels, emulsions and films.
Morgan, Desmond J	Dr	Factors affecting starch digestion. Effects of radio-frequency processing on the composition and nutritional value of meat products. Development of functional drinks.
O'Riordan, E Dolores	Dr	Chemistry, rheology and process technology of imitation cheese; Physico-chemical properties and function relationship of food ingredients – primarily protein or starch based ingredients; Sensory properties of foods; Interfacial behaviour of milk proteins.
O'Sullivan, Michael C	Mr	Chemistry of dairy products; Enzymes in foods, Microencapsulation technology; Alternative uses of food products.
Scannell, Amalia	Dr	Consumer Foods, Food Safety Evaluation/Pathogen detection; Fermented foods; Biopreservation/ Bioprotection. Development of functional food/drinks.

Syllabus of Postgraduate (Taught) Programmes

Engineering Technology [MSc(Agr)/HDip]

Postgraduate programmes in Engineering Technology are offered by the Faculty, in conjunction with the Department of Biosystems Engineering, leading to the degree of MSc(Agr) Mode II or to a Higher Diploma in Engineering Technology. Entry requirements for both programmes are as for the MSc(Agr) Mode II degree. The programmes are designed to provide an intensive treatment of the engineering technology involved in the following three streams – students must undertake one of the three streams in its entirety.

Bioprocess Technology
Process Engineering Principles, Product and Process Development, Food Process Engineering, Food Manufacturing Technology, Elective, Project.

Environmental Technology
Buildings and Environment, Environmental Engineering, Waste Management, Precision Agriculture, Information Technology, Project.

Mechanisation and IT
Power and Machinery, Precision Agriculture and Mechanisation, Information Technology, Process Engineering Principles, Elective, Project.

Each programme may be taken full-time or part-time. Full-time students will be required to complete the Higher Diploma or MSc (Agr) course work within one academic year. Part-time students in either programme will be required to sit at least 32 credits of course work in the first year, with the balance to be completed in the second year.

Applications should be submitted to the Academic Director, Engineering Technology Programme, Department of Biosystems Engineering, University College Dublin, Earlsfort Terrace, Dublin 2.

Programme

Bioprocess Technology

Process Engineering Principles **8 Credits** **AFEN P001**
Basic modes of heat transfer in biological materials. Heat exchangers. Heat transfer with phase change. Mass balances in separation processes including: distillation, leaching, filtration, ultrafiltration, reverse osmosis, electrodialysis, centrifugation. Psychrometrics in biological systems. Process laboratory practicals. Computer applications.

Product and Process Development **12 Credits** **ENGT P001**
Food product and process development incorporating sensory analysis, colour measurement, principal component analysis, statistical analysis, new products, shelf life analysis, plant layout, process engineering, quality control. Laboratory practicals.

Food Process Engineering **12 Credits ENGT P003**
Unit processes, heat and mass transfer systems in bioprocessing including pasteurisation, sterilisation, dehydration, freezing, fermentation, crystallisation, extrusion, emulsification, microwave and dielectric heating. Physical, chemical and microbiological changes in foods. Packaging and storage. Integrated food processing systems. Assignments.

Food Manufacturing Technology **12 Credits ENGT P004**
Food refrigeration: refrigeration cycles, equipment, thermal properties, cooling and freezing processes, mathematical modelling, chilled and frozen biomaterials. On-line measurement systems for physical properties of biological materials including optical (NIR, MIR, visible), rheological, ultrasonic and hot wire sensors. Process automation systems. Assignments.

Project and Research Methods [MSc(Agr) Students] **24 Credits ENGT P011**
Each student undertakes a major project under the direction of a supervisor, the findings of which are presented in the form of a written report. Initial guidance in project management will be provided by a series of lectures on research methods.

Project and Research Methods
[Higher Diploma Students] **4 Credits ENGT P012**
Each student undertakes a minor project under the direction of a supervisor, the findings of which are presented in the form of a written report. Initial guidance in project management will be provided by a series of lectures on research methods.

Elective **12 Credits ENGT P017**
A student must select any one of the 12 credit courses available in the other two streams that is not a required course for this stream.

Environmental Technology

Information Technology **12 Credits ENGT P010**
Introduction to PCs, word processing, spreadsheet analysis, databases, presentation graphics, 2D and 3D computer aided drafting. Introduction to computer programming with Visual Basic including syntax, logic, loops, functions, subroutines, visual components, debugging, macro programming. Computer information systems, information and the Internet, manufacturing and office systems, data to knowledge, data acquisitions systems. Assignments.

Project and Research Methods [MSc(Agr) Students] **24 Credits ENGT P011**
Each student undertakes a major project under the direction of a supervisor, the findings of which are presented in the form of a written report. Initial guidance in project management will be provided by a series of lectures on research methods.

Project and Research Methods
[Higher Diploma Students] 4 Credits ENGT P012

Each student undertakes a minor project under the direction of a supervisor, the findings of which are presented in the form of a written report. Initial guidance in project management will be provided by a series of lectures on research methods.

Waste Management 12 Credits ENGT P014

IPPC legislation. Waste minimisation. Environmental management systems. Risk management. Socioeconomic constraints. Agricultural waste characterisation. Collection, storage and treatment of agricultural wastes. Anaerobic digestion and composting. Land application techniques. Nutrient management planning. Rural Environment Protection Scheme. Assignments.

Precision Agriculture 8 Credits ENGT P015

The "cycle" of precision agriculture: spatial inventories and issues of error in spatial data; global positioning systems (GPS); yield mapping: sensors and time delay modelling: sensing systems: remote sensing and NIR sensors; and variable rate technology. 2 assignments.

Advanced Sustainable Buildings for Biological Systems 12 Credits ENGT P018

Planning and environmental legislation. Building design for animal production and crop storage. Structural materials. Environmental control systems. Atmospheric emissions abatement. Biofilters. Atmospheric dispersion modelling. Landscaping. Assignments.

Advanced Environmental Engineering Principles 12 Credits ENGT P019

Environmental ethics and legislation. Surface hydrology. Flow through porous media. Groundwater. Biogeotechnical cycles. Microbial growth dynamics. Diffuse water pollution. Water and industrial wastewater treatment. Soil as a bioreactor. Noise pollution. Atmospheric emissions. Assignments.

Mechanisation and IT

Process Engineering Principles 8 Credits AFEN P001

Basic modes of heat transfer in biological materials. Heat exchangers. Heat transfer with phase change. Mass balances in separation processes including: distillation, leaching, filtration, ultrafiltration, reverse osmosis, electrodialysis, centrifugation. Psychrometrics in biological systems. Process laboratory practicals. Computer applications.

Information Technology 12 Credits ENGT P010

Introduction to PCs, word processing, spreadsheet analysis, databases, presentation graphics, 2D and 3D computer aided drafting. Introduction to computer programming with Visual Basic including syntax, logic, loops, functions, subroutines, visual components, debugging, macro programming. Computer information systems, information and the Internet, manufacturing and office systems, data to knowledge, data acquisitions systems. Assignments.

Project and Research Methods [MSc(Agr) Students] 24 Credits ENGT P011

Each student undertakes a major project under the direction of a supervisor, the findings of which are presented in the form of a written report. Initial guidance in project management will be provided by a series of lectures on research methods.

Project and Research Methods
[Higher Diploma Students] 4 Credits ENGT P012

Each student undertakes a minor project under the direction of a supervisor, the findings of which are presented in the form of a written report. Initial guidance in project management will be provided by a series of lectures on research methods.

Precision Agriculture and Mechanisation 12 Credits ENGT P013

Precision Agriculture (6 credits)

The "cycle" of precision agriculture: spatial inventories and issues of error in spatial data; global positioning systems (GPS); yield mapping: sensors and time delay modelling: sensing systems: remote sensing and NIR sensors; and variable rate technology. 1 assignment.

Mechanisation (6 credits)

Agricultural machinery, system selection and operation: including tractors, tillage, seeding and planting: artificial fertiliser application; spraying techniques; crop harvesting. Assignments.

Power and Machinery 12 Credits ENGT P016

Engines. Energy sources, including biofuels. Power transmission and traction. Soil-vehicle interaction. Hydraulic systems. Electronics. Tractor-implement mechanics. Tillage and cultivation. Stress analysis and fatigue. International Standards. Properties of biological materials. Assignments.

Elective 12 Credits ENGT P017

A student must select any one of the 12 credit courses available in the other two streams that is not a required course for this stream.

Environmental Resource Management [MSc(Agr)]

This one-year, full-time programme leads to the degree of MSc(Agr) (Mode II) in Environmental Resource Management and provides postgraduate training in the development and utilization of land resources in an environmentally sensitive manner. The programme is concerned with the nature, utilization and conservation of land and biological resources, the impact of agricultural and industrial activities on the environment, and the planned development and management of the rural resource.

The programme is designed to accommodate candidates with a variety of academic qualifications including primary degrees in Agriculture, Engineering, Geography, Economics and Science. Insofar as is feasible, the programme content will be adjusted to take account of the background, interests and long-term aspirations of individual students. Entry requirements are as for the MSc(Agr) Mode II degree. The programme comprises nine months of formal teaching followed by a three-month project.

Applications should be submitted to the Director, Environmental Resource Management Programme, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Environmental Management Sciences **12 Credits** **ERM P001**
Principles of ecology and conservation; wildlife management; environmental ethics and education; management concepts; conservation strategies; sustainability and biodiversity; environmental engineering; environmental monitoring and analysis; data processing and ecological modelling.

Land Utilization **12 Credits** **ERM P002**
The nature and properties of land and landscapes; remote sensing and GIS; landscape evaluation; soil suitability and land use options; soil conservation; land improvement; fundamentals of major land management systems; land reclamation.

Resource Planning **12 Credits** **ERM P003**
Principles and techniques of rural-planning and design; criteria in countryside management; environmental policy and legislation; environmental impact assessment; resource allocation; resource and environmental economics; EU funding; local development; alternative enterprise; rural tourism.

Field Study **12 Credits** **ERM P004**
A nine-month guided group project addressing a topic of relevance to some local community, culminating in the production of a report and recommendations for local implementation.

Special Topics and Assignments **8 Credits** **ERM P005**
Students are required to prepare essays and seminars on a number of specially chosen topics.

Research Project **24 Credits** **ERM P006**

Food Science [MSc(Agr)]

A postgraduate programme in Food Science is offered in the Faculty leading to the degree of MSc(Agr) by Mode II. Candidates will be recommended for admission to the programme following an interview.

Applicants may be required, at the discretion of the Faculty, to undertake and successfully complete preliminary courses in specified subjects. Up to twenty applicants may be accepted to attend each course. The programme consists of three terms of formal teaching followed by a project period of four months. Other conditions pertaining to the MSc(Agr) Degree apply.

Applications should be submitted to the Academic Director, Food Science Programme, Department of Food Science, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Practical classes and demonstrations will be held where appropriate. In addition, each student will be required to carry out a research project.

Food Engineering **8 Credits FDSC P002**

Principles and practice of industrial processes of importance to the food industry; heat transfer; mass transfer; fluid flow; heat processing; sterilisation; freezing; centrifugation; crystallisation; emulsification; irradiation; drying; food plant and services; waste treatment; plant layout.

Nutrition **8 Credits FDSC P003**

Digestion and metabolism; nutrient availability; recommended intake; effects of processing and storage; nutrition and public health; problems associated with deficiencies and excesses of specific factors; metabolic disorders; errors of metabolism.

Food Chemistry I and II **12 Credits FDSC P006**

Food Chemistry I (8 Credits)

Chemistry of the major organic constituents of foods with emphasis on relationships between chemical structure and functional properties in their unmodified and chemically/ enzymatically modified forms. Minor components of sensory importance in foods including flavour compounds and pigments; selected aspects of chemical/biochemical processes of importance in relation to cooking, processing and storage; food additives.

Food Chemistry II (4 Credits)

Milk Products: Introduction of milk compositions and the factors which affect it. Detailed chemistry of the major milk components and their behaviour during processing. Casein, whey proteins, lipids and lactose. Minor milk constituents and their significance. Analysis of milk.

Dairy Products: Chemistry and technology of dairy products including: liquid milk products, cheese and fermented milks, concentrated and dehydrated milk products, butter and spreads. Milk protein products.

Fresh and Processed Meat Products: Definition of meat. Composition of muscle. Myofibrillar proteins. Thick and thin filaments. Regulatory and cytoskeletal proteins. Connective tissue. Collagen structure. Age-related toughening. Formation of gelatin. Cell sarcotubular system. Muscle contraction. Conversion of muscle to meat. Normal, PSE and DFD conditions. Cold shortening. Thaw rigor. Electrical stimulation. Meat quality. Myoglobin and meat colour. Factors affecting meat colour. Water holding capacity. Meat tenderisation. Calpains and cathepsins. Factors affecting and structural effects of tenderisation. Meat flavour. Key flavour impact compounds. Species effects on flavour. Non-sensory meat quality attributes. Curing processes. Massaging/tumbling. Fresh pork sausage manufacture. Emulsion-type meat products. Myofibrillar protein functionality. Effect of salt and phosphates on functionality. Low fat meat products.

Food Microbiology **8 Credits INDM P003**

The incidence and types of micro-organisms in foods and factors affecting their growth; preservation of foods; spoilage of food; food poisoning and food-borne disease; sanitation of food plants; bacteriology of water supplies; quality assurance including an introduction to quality systems, sampling and inspection; establishment and implementation of HACCP; the role of micro-organisms in the production of food and food supplements; the microbiology of dairy, meat, cereal, fruit and vegetable products.

Agribusiness **6 Credits BMGT P655**

Role of the manager; types of business in the food sector; analysis of agribusiness resources; developing a strategy in the food business. The operation of technological and engineering systems; studies of production and process with quantitative methods supporting decision making in these areas; statistical quality control; operations research; other analytical approaches.

Food Production and Legislation **8 Credits AGRD P001**

(i) CPSC P001: Food Production (4 credits)

Supply, quality and wholesomeness of raw materials; developments in manufacturing and processing; on-line control; by-product processing; storage; product evaluation; consumer protection; information sources; data retrieval on finished products. This course will be divided equally between animal and plant products.

(ii) FDSC P004: Food Legislation (4 credits)

Structure of food law in Ireland and the European Union; consumer protection; enforcement systems. Alimentarius Commission. US Food Law.

Marketing, Economics, Personnel (Human Resource Management) and Finance **10 Credits AGRD P002**

(i): Marketing (4 credits) MKT P619

Marketing applications in the food production system; market research and assessment; strategic marketing; pricing decisions and international marketing including national and international price stabilisation; new products for new markets; legal issues; future developments in international food marketing.

(ii): Economics (4 credits) AERD P002

The economics of the food production and distribution system and of consumer behaviour and trends; the impact of government interaction in that system in the form of the Common Agricultural Policy (CAP); the reform and future of the CAP.

Factors affecting the demand for food (identification and description, changes, quantified relationships with food consumption); product attributes and consumers; product attributes and food scientists; pricing of product attributes (hedonic pricing); food consumption patterns and trends in the EU; evolving structural characteristics of food chains and implications of these; individual Irish food processing sectors (size, growth, characteristics).

(iii) HRM P615: Personnel (Human Resource Management) and Finance (2 Credits)

(a) Personnel/Human Resource Management – An overview; the economic background; selection; employment law; industrial relations.

(b) Finance and Accounting: An introduction to the basic concepts of finance; financial control and accounting.

Project **20 Credits FDSC P005**

Forestry [MAgrSc/MSc(Agr)/HDip]

The Department of Crop Science, Horticulture and Forestry offers programmes leading to a Higher Diploma in Agriculture (Forestry) or to the degrees of MAgrSc and MSc(Agr) by Mode II. The Higher Diploma is an intensive part-time programme lasting one academic year. Study schedules are designed to facilitate participants with work commitments. The programme combines academic course work with particular projects which are designed to develop and enhance skills in a wide range of relevant areas of interest.

Entry to the Higher Diploma is restricted to applicants who hold a primary degree in Forestry or in another subject of relevance to Forestry, or equivalent qualifications. The Higher Diploma will be awarded at pass and honours level.

In the case of the MAgrSc and MSc(Agr) Degrees, candidates who obtain at least 60% in the Higher Diploma examination may opt to change their registration to the MAgrSc or MSc(Agr) Degree by Mode II.

Applications should be submitted to the Director, Higher Diploma/Masters Programme in Forestry, Department of Crop Science, Horticulture and Forestry, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Year 1

Communications **4 Credits** **AERD P001**

Introduction to role of communications. Written communication methods – to include the lecture/class handout; technical reports/papers; reports for management and clients; business letters. Oral presentation methods.

Silviculture **10 Credits** **FOR P011**

Species – identification, classification, characteristics, provenance.

Plant production – plant ecology, diseases, plant management (physical handling and susceptibility), transportation and storage.

Soil and site factors – soil types and classification, chemical and physical properties, hydrological characteristics, soil structure and fertility, topography, exposure and climatic effects, cultivation, natural vegetation and species selection, species mixtures.

Plantation Establishment and Management – planting methods, factors of mortality, nutrition, spacing, thinning, pruning, disease and pest control reforestation, mechanised and manual operations and costs, windthrow hazard classification, forestry and the environment.

Forest Harvesting and Forest Economics **8 Credits** **FOR P012**

Harvesting and Transport – harvesting methods, manual and mechanical options, site limitations, soil effects, roading, off-road and on-road extraction, haulage consideration.

Forest Economics – compounding and discounting, NDR/ROI/IRR, risk and return, cost benefit analysis. Forest Planning; applications of decision making techniques to forest management.

Forest Policy and Forest Management **8 Credits** **FOR P013**

Current Forest Policy – Ireland, EU; factors impacting on land use, environmental guidelines and policies.

International market trends, customer needs, competitor awareness.

Strategic and Logistics Management – strategic management, planning tools and techniques, decision-making and implementation.

Environmental Management – land use options and benefits, forest landscape design, environmental effects of operations, good environmental practices, statutory and legal requirements.

Tree Anatomy and Physiology **8 Credits** **FOR P019**

Introduction to wood structure, characteristics and features of wood, wood grading and quality. Physiology of tree growth, basic genetics and classical tree improvement, provenance, applied tree improvement and use of vegetative propagation.

Project* **10 Credits** **FOR P006**

Distance learning* **12 Credits** **FOR P015**

Year 2 (MAgrSc/MSc(Agr))

Computer Applications **4 Credits** **FOR P009**

The aim of this module is to develop the skills necessary for the utilisation of a number of computer packages and to help students develop an understanding of the use and applicability of these packages in their work. It will consist mainly of "hands-on" experience. A generic overview of word processing applications, spreadsheets.

Forest Biometrics **4 Credits** **FOR P016**

Principles of sampling populations, parameter estimation and statistical interference. Random sampling with and without replacement. Estimation of the mean, variance, standard deviation, variance of the mean, standard error of the mean and 95% confidence intervals for the mean for continuous and discrete weighted variables. Estimation of the required sample size.

Concept of regression. Fundamental equation of regression analysis. Method of least squares. Hypothesis testing. Analysis of variance. Statistical inference. Basic volume-basal area theory. Volume estimation and analysis using regression.

Introduction to the concept of experimental design. Use of EXCEL for data analysis.

GIS in Forest Resource Management I **4 Credits** **FOR P017**

Principles of remote sensing and integrated geographic information systems (IGIS). Computer mapping of spatially distributed forest resources. Creation of vector, attribute and raster georeferenced IGIS forest databases using ArcView 3.1. Applications of IGIS technology in forest inventory, design, management and planning.

Thesis **30 Credits** **FOR P018**

* *Higher Diploma students only*

Humanitarian Action [MAgrSc/MSc(Agr)/HDip]

A postgraduate programme leading to the degree of MSc(Agr) Mode II or a Higher Diploma in Rural Development (Humanitarian Action) is offered by the Faculty through the Department of Agribusiness, Extension and Rural Development, with the support of other Faculties in UCD and of a network of seven European universities. The purpose of the programme is to provide a postgraduate qualification for people who have worked or who intend to work in the area of humanitarian assistance and development.

Candidates for the MSc(Agr) Degree and the Higher Diploma must satisfy the entry requirements for the MSc(Agr) Mode II Degree.

Applications should be submitted to the Director, Humanitarian Action Programme, Department of Agribusiness, Extension and Rural Development, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Intensive Programme **5 Credits HUAS P001**

The Intensive Programme is a 10 day intensive course bringing together all the students of the partner universities and key players involved in humanitarian assistance. The purpose is to give students an overview of the key issues relating to humanitarian assistance.

International Humanitarian Law **5 Credits HUAS P002**

Humanitarian aid in the context of international law. The function, the subjects and the sources of international law. Basic rights and duties of States with regard to humanitarian aid. Responsibility under international law. International humanitarian organisations as humanitarian actors. The United Nations family and its organisations. European Union humanitarian aid. Non-governmental organisations. Rights and protection of victims. Disaster and emergency situations. Armed conflict and complex emergency situations. Humanitarian assistance, rights, duties and protection of assistance personnel. The rights and duties of humanitarian organisations and their personnel. Rights to humanitarian assistance. Enforcement of the protection norms of international law. The enforcement of international humanitarian law. Special mechanisms of enforcement.

Medicine – Epidemiology **5 Credits HUAS P003**

Epidemiology and biostatistics. Presentation and summarising of data. Measures of disease frequency and association. Planning and conducting an investigation. Health care planning. Priority and objectives in the context of planning. Obstacles to planning. Different stages of the planning process. Economic evaluation of health care programmes. Health and development. Overview and general aspects. Operational aspects.

Geopolitics **5 Credits HUAS P005**

Global geopolitical approach. Concepts and main trends of geopolitical thinking. The "world system". Geopolitical approach to humanitarian risk. Conflicts: Geopolitical aspects and typologies. Conflicts and humanitarian risk. Geopolitical approach to humanitarian aid. Humanitarian aid: a new form of international relations. Humanitarian aid: a new stake in international relations.

Management **5 Credits HUAS P006**

Disasters, complex emergencies and international responses. Actors, interests and the humanitarian regime. The internal dynamics of humanitarian organisations: management of policy, personnel and finances. Organisational culture, communication and evaluation. From 'relief' to 'recovery': strategy.

Research Project/Placement *(Higher Diploma students)* **5 Credits HUAS P010**

Students will examine the work of an agency involved in humanitarian assistance. Where possible the project will involve a short placement with the agency. Alternatively, students may use secondary information, leading to a research report satisfying the requirements.

Social Anthropology **5 Credits HUAS P014**

The concept of emergency. Cross-cultural justice and the distribution of assistance. Anthropological approaches to crises, conflicts and violent change. Reconceptualisation of violent change: the sociology of disasters. The global scope of disasters: morbidity profiles of a disaster scene. Socio-economic aspects of disasters. Ideological aspects to violent change. The anthropology/sociology of disasters and war. Responses and strategies for coping with crises. Choice and constraints: decisions about displacement. Strategies of coping. The challenge of adaptation and survival tactics. Patterns of belonging: the social organisation of identities in exile. The logic of interventions. The social context of interventions. Intercultural communication. Social relations and power games.

Development Issues and Strategies **6 Credits HUAS P021**

Defining development. Essentials for initiating development. Overview of development approaches and associated strategies. Top-down, bottom-up and participatory approaches. Policies, programmes and projects as components of the development mix. Area based development and planning.

Communications **6 Credits HUAS P022**

Theory of communications and communications in development. Group work (leadership/ meetings/team building). Individual consultations. Writing skills (reports and proposals).

Management in Societies in Transition **6 Credits HUAS P023**

Managing relief and development programmes, a comparison. Clashes of cultures/ budgets/frameworks/processes/values/language. Whose needs?/how to monitor and evaluate/whose priorities? Management models/ownership/skills and training required. Exchange of skills and experiences.

Research Methods **6 Credits HUAS P024**

Social Research Theory. Exploration of appropriate qualitative and quantitative methodologies and methods to research societies in transition.

Sociology of Development **6 Credits HUAS P025**

Understanding the rehabilitation situation. Detailed analysis of the social context in three contemporary rehabilitation situations. Social institutions – family, education, health, politics, economy and religion.

Minor Thesis *(Master's students)* **30 Credits HUAS P026**

Students pursue a research area of particular interest to them. In most cases, the research will relate to practical issues concerning humanitarian assistance and development and in most cases will involve the collection of primary data. Students will work closely with a specified supervisor in planning, designing and carrying out this work.

Plant Protection [MSc(Agr)]

This one year, full-time programme leads to the degree of MSc(Agr) by Mode II in Plant Protection and is designed to provide a comprehensive understanding of the principles underlying modern crop protection practices and strategies, and of the technology involved in their implementation. The programme is open to graduates holding an honours degree in Agricultural Science, Science, Environmental Science or other appropriate disciplines in accordance with the requirements for the MSc(Agr) Degree (Mode II). The programme comprises nine months of formal teaching followed by a three-month research project.

Applications should be submitted to the Academic Director, Plant Protection Programme, Department of Environmental Resource Management, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Review of Plant Disease, Pest and Weed Problems **14 Credits AESC P001**
Losses caused by pests, diseases and weeds; plant/pest interactions; nature and development of disease epidemics and pest outbreaks; factors affecting populations of pests and disease-causing organisms.

Properties and Use of Pesticides **14 Credits AESC P002**
Screening and development of plant protection agents; chemistry and biochemistry of pesticides; formulation and application of pesticides; environmental impact of pesticides; the law in relation to pesticides; coping with the toxicity and other hazards of pesticides; safe handling and storage of pesticides.

Strategies for Pest and Disease Control **12 Credits AESC P003**
History of pest and disease control; physical, cultural, biological and other non-chemical methods of plant protection; monitoring of population densities of pests and disease-causing organisms; population modelling; establishment of economic injury thresholds; pest and disease forecasting; plant health legislation; genetic engineering and biotechnology in relation to plant protection; development and implementation of integrated management systems.

Special Topics and Assignments **12 Credits AESC P004**
Students are required to prepare essays and seminars on a number of specially chosen topics.

Research Project **28 Credits AESC P005**

Rural Development [MAgrSc/MSc(Agr)/HDip]

Programmes of study in Rural Development are offered by the Department of Agribusiness, Extension and Rural Development, leading to the degree of MAgrSc or MSc(Agr) – Mode II or to the Higher Diploma in Rural Development. It is a one-year, full-time programme, though consideration is given to applicants to undertake the programme on a part-time basis over two years.

The courses are designed to cater for the professional requirements of students from Ireland, Europe and developing countries who are involved in rural development or who wish to develop a career in that area.

Candidates for the MAgrSc, the MSc(Agr) degrees and the Higher Diploma must satisfy the entry requirements relating to the MAgrSc/MSc(Agr) Mode II degrees of the Faculty.

Applications should be submitted to the Director, Rural Development Programme, Department of Agribusiness, Extension and Rural Development, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

The programme consists of 48 credits coursework and 32 (minor thesis) or 12 (project) credits for the MAgrSc/MSc(Agr) degrees or the Higher Diploma respectively. Students choose their coursework credits from the courses listed below and may choose courses from other programmes with the agreement of course directors.

Rural Development **12 Credits RDEV P001**

Economics of Development (2 credits) – theories, measurement and strategies of economic development. Trade policy and its impact on economic development. Structural adjustment policies and developing countries.

Sociology of Development (3 credits) – definitions, theories and indicators of development. Socio-economic change, culture, social relationships, land tenure and the impact of technology on development.

Issues and Strategies of Development (7 credits) – critical issues in rural development; problems associated with rural areas. Overview of development approaches. EU and Irish policies and programmes, Irish government overseas programme. Non-governmental organisations.

Enterprise Development **14 Credits RDEV P002**

Project Appraisal (1 credit) – the project cycle. Project preparation and analysis. Economic evaluation of projects. Cost-benefit analysis. Economic measurement of environmental impact.

Management and Organisation (2 credits) – the nature of management, the role of the manager and functional management. Planning for business development; planning models and SWOT analysis. Leadership and direction, styles of leadership, control of the business and organisation and techniques for implementation of control.

Financial Analysis and Planning (3 credits) – the concept of business finance, understanding accounts, the income, statement and the balance sheet. Preparation of

cash flow budgets. Investment and funding sources and making applications for funding. Using MS Excel for financial planning.

Basic Marketing (3 credits) – analysis for market strategy development. Qualitative and quantitative issues relating to the consumer and the market. External and internal analysis leading to a SWOT summary. Segmentation and positioning, the marketing mix and the marketing plan.

Programme Planning (5 credits) – principles and assumptions of programme planning. Needs identification, learning principles, implementation, management and implementation of programmes.

Research Methods **10 Credits RDEV P003**

Problem analysis, study design, literature reviews, methods, sampling. Quantitative and qualitative approaches. Data collection, analysis and presentation. Introduction to SPSS and statistics.

Communications **12 Credits RDEV P004**

Role of communications in development. Human communication process and decision making. Adoption/diffusion. Promoting participation for development. Written, oral presentation, mass media, group, and individual methods of communications.

Rural Tourism **10 Credits RDEV P005**

Developing the rural resource base. Countryside management. Scope, nature and meaning of tourism. Historical development of tourism. Trends in tourism and leisure. Tourism policy. Tourism as an engine for locals and regional development.

Legal Structures for the Community and Voluntary Sector **2 Credits RDEV P007**

What legal structures are and why there is a growing need for community groups to become a legal entity; the legal structures available to communities and the factors to be considered in choosing an appropriate legal structure; the process in becoming legal and associated rights and responsibilities.

Rural Policy **3 Credits RDEV P008**

The evolution of rural policy in Ireland and the EU and the institutions and agencies through which different policies are delivered.

Rural Enterprise **4 Credits RDEV P009**

Stimulating rural enterprise, small business development, farm diversification, and the social economy.

Research Thesis (Master's students) **32 Credits RDEV P201**

Students pursue an area of study of interest to them. In most cases the study is an investigation of a practical problem arising in rural development and almost always involves the collection of primary data.

Project (Higher Diploma students) **12 Credits RDEV P006**

Students pursue an area of study of interest to them. This topic will be further developed through the use of secondary information and presented in the form of a research project.

Rural Environmental Conservation and Management [MAgrSc/MSc(Agr)/HDip]

This part-time programme in the Faculty of Agri-Food and the Environment leads to a Higher Diploma in Rural Environmental Conservation and Management or to the degrees of MAgrSc/MSc(Agr) by Mode II. Course schedules are designed to facilitate participants with work commitments. The programme combines academic course work with projects in relevant areas.

Entry to the Higher Diploma/MAgrSc/MSc(Agr) programme is restricted to applicants who hold a primary degree and who possess work experience in a relevant area. The course content, where feasible, will be adjusted to take account of the background and interests of the individual students. The Higher Diploma will be awarded at pass and honours level.

Candidates who obtain at least 60% in the Higher Diploma examination may be eligible to proceed to the MAgrSc or MSc(Agr) Degree Mode II on Faculty approval.

Applications should be submitted to the Director, Rural Environmental Conservation and Management Programme, Department of Environmental Resource Management, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Year 1

Soils, Nutrients and Environmental Management **8 Credits** **ERM P008**
Physical/chemical/mineralogical/hydrological properties of soils. Soil assessment and management/soil maps. Forestry and its interactions with the soil environment. Soil plant relations. Properties, reactions and environmental implications of using animal manures. Farm yard effluent. Heavy metals/micropollutants in the soil. Sustainable agriculture and organic farming. Weather and agriculture. Surface and ground water pollution. Soil testing and fertilizer recommendations for grass and tillage. Nutrient management planning.

Farm Buildings and the Environment **8 Credits** **ERM P009**
Environmental awareness and education – role of state and semi-state bodies. Farm buildings – design and layout. Farmyard waste and management of animal manures. Farmyard surveys. Farmyards in the landscape. Animal welfare. Building construction. Nuisance abatement in the farmyard. Environmental monitoring and analysis. Farm water supplies.

Archaeological and Cultural Heritage **4 Credits** **ERM P011**

Discovering archaeological remains; tracking the earliest inhabitants; the builders of Megalithic Tombs; changing society – the end of the Stone age; the Bronze age; low visibility archaeology in Ireland; later Prehistoric Ireland; early Christian Ireland; medieval archaeology; the evolution of a landscape; types of monuments; locating and discovering monuments; recording of archaeological sites; management and maintenance of sites; regulations for the protection of sites; case study.

Cultural heritage, historic buildings and their conservation. History and management of the landscape.

Conservation and Management of Rural Ecosystems **10 Credits** **ERM P012**

Principles of ecology; interaction of farming practice and environmental heritage.

Farmed habitats; ecology evaluation and management of wetlands, peatlands, heathlands, natural and semi-natural grassland and field boundaries. Management of lakes, river and streams. Flora and fauna of farmed areas; species identification and ecology. Habitat conservation and management.

Protected areas; Natural Heritage areas; Special areas of Conservation and Special Protection areas.

Environmental Impact Assessment; scoping, flora and fauna, habitat and visual landscape.

Soil degradation. Biocides; direct and indirect effect of pesticides on the natural environment.

Rural Planning, Environmental Law and International Agreements **4 Credits** **ERM P017**

Introduction to planning law and the role of Planning Control Authorities; exempted development; preparation of planning submissions; appeal procedures.

Pollution and the law – overview of environmental legislation with reference to agricultural point source pollution of surface water and ground water. National and EU legislation on pollution from nutrients, pesticides and over-grazing.

Environmental litigation – handling disputes; law of contract; land law; preparation and presentation of evidence as an expert witness.

Wildlife law; EU directives; International agreements and directives.

Management Plan* **12 Credits** **ERM P018**

Background reading, environmental and habitat assessment and preparation of plans for the future management of selected areas of conservation interest.

Project* **14 Credits** **ERM P013**

* *Higher Diploma students only*

Year 2

Evaluation, Conservation and Management of Rural Habitats **8 Credits** **ERM P019**

The ecology of natural and semi-natural habitats in the rural landscape: marine, coastal and estuarine habitats; peatlands, fens and other wetlands; freshwater; grasslands, woodland, hedgerow and scrub; rock habitats. Evaluation of habitats in terms of biodiversity and in relation to change. Practical conservation and management of habitats.

Computing Techniques **6 Credits** **ERM P020**

The student will be introduced to a range of computer packages for word processing, data analysis and data presentation.

Computer techniques for environmental analysis: multivariate methods; Geographical Information Systems (GIS).

Thesis **32 Credits** **ERM P021**

Food Safety [Postgraduate Certificate]

The postgraduate Certificate in Food Safety takes place on a part-time basis over one academic year. The programme aims to keep the trainer up to date on food safety issues, surveillance and monitoring techniques as well as legislation. Lectures and parallel laboratory sessions will cover the topics of the programme. Each student is required to carry out case studies and to make a short presentation on a food safety topic relevant to their work situation.

Applicants for the postgraduate Certificate in Food Safety will have a degree in Agricultural Science, Science or equivalent qualification; other university graduates may be accepted. The Certificate will be awarded at pass and honours level.

Applications should be submitted to the Director, Certificate in Food Safety Programme, Food Science Department, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Pathogens Causing Foodborne Illnesses and Food Scares **4 Hours** **FDSC P700**
Intoxication and infection. Salmonella, E.coli (including E.coli 0157:H7), Campylobacter, Listeria, Clostridium, Cryptosporidium and other pathogens. Sources of contamination, spread of infection and transmission of diseases. Recent outbreaks and trends.

Good Laboratory Practice (GLP) **3 Hours** **FDSC P701**
Training, sampling procedures, material and reagents. Weighing of samples. Documentation entry, records, housekeeping.

Rapid Methods **4 Hours** **FDSC P702**
Counting methods e.g. Spiral plating. Estimation of microbial numbers – ATP, Impedance. Immunodiagnostic methods including ELIZA, Rapid identification, e.g. API, Enterotubes, Vitek, DNA methods including PCR.

Good Hygiene Practice **4 Hours** **FDSC P703**
Building structural design and layout – Floors, walls, ceilings, lighting, air systems. Facilities for personnel. Equipment design. Design of food processing and kitchen areas.

Quality systems **4 Hours** **FDSC P704**
HACCP, ISO 9000 series.

Legislation **4 Hours** **FDSC P705**
Irish and EU.

Food Safety Issues of the Day **1 Hour** **FDSC P706**
Invited guest speaker.

Case Studies **24 Hours** **FDSC P707**

Students will be required to examine recent outbreaks and trends of food borne illnesses. They will then be given a case study for which they will produce a report detailing sampling and testing procedures, recall processes, notification procedures, corrective action, etc.

Presentations **24 Hours** **FDSC P708**

Each student will be required to make a presentation on a food safety topic of relevance to their work.

The hours indicated above are lecture hours only. Each lecture hour will be accompanied by a two-hour laboratory practical

Syllabus of Postgraduate Elective Courses

Applied Remote Sensing and GIS **8 Credits** **FOR P101**

The objective is to introduce the application of advanced remote sensing and GIS techniques in spatial resource management including forestry, agriculture, environment and rural development.

This is an advanced remote sensing and GIS course for those specializing in spatial resource management. The remote sensing and GIS computer skills have applicability in the inventory, design, planning and monitoring systems in forestry, agriculture, rural development and the environment. The course will be hands-on and will introduce advanced remote sensing and GIS techniques. Report on the application of remote sensing and GIS in forestry, agriculture, rural development and/or the environment.

Intended audience: BAgrSc graduates, MAgrSc or MSc(Agr) level students. Software: Microsoft Word and Excel. ESRI Arcview 3.1. MapInfo.

Applied Biological Modelling **8 Credits** **FOR P102**

The objective is to introduce the theory and application of modelling techniques in forestry, agriculture, environment, rural development, agribusiness and in food and animal science.

Review of the fundamental equation and assumptions of regression analysis. Parameter estimation of linear models. Hypothesis testing and biological interpretation of model parameters. The extra sums of squares principle and partial F tests. Model building strategies. Precision of the model estimates. Matrix formulation of the analysis of variance (ANOVA).

Integral and differential forms of nonlinear models. Parameter estimation, analysis and interpretation of nonlinear models to growth and yield data including the simple exponential, monomolecular, Logistic, von Bertallanffy, Chapman-Richards, Richards and Weibull models. Biological interpretation of nonlinear parameters which define sustained yield management parameters. Report on biological modelling.

Intended audience: BAgrSc graduates, MAgrSc and MSc(Agr) level students. Software: Microsoft Word and Excel. SAS and Mathematica. Windows 98.

Applied Multivariate Analysis **8 Credits** **FOR P103**

The objective is to introduce the theory and application of multivariate analysis techniques in resource management including forestry, agriculture, environment and rural development.

Outline of the logic underlying multivariate analysis of p-dimensional data. Review of the matrix algebra including computation of the determinant and inverse of symmetric pxp matrices. Computation of mean vector, sums of squares and cross products, variance-covariance and correlation matrices using matrix algebra. Eigenvalue and eigenvector estimation and interpretation. Spectral decomposition. Wishart distribution. Testing the significance of non-zero eigenvalues. Reduction of dimensionality. Principle component analysis.

Classification criteria. Minimum distance, Mahalnobis distance and maximum likelihood classifiers. Cluster analysis. Bayes' and the adapted Bayes' rule. Application of multivariate classification in forestry, remote sensing, agriculture and environment. Report on application of multivariate analysis.

Intended audience: PhD and Post Doctorate level.
Software: Microsoft Word and Excel. SAS and Mathematica. Windows 98.

Applied Multivariate Analysis of Variance 8 Credits FOR P104

The objective is to introduce the theory and application of multivariate analysis of variance (MANOVA) techniques in forestry, agriculture, environment, rural development and animal and food science.

Outline of the fundamental equation of multivariate analysis of variance (MANOVA). Hotelling's T^2 test for independent and dependent p-dimensional populations. Analysis and interpretation of one-way, two-way, factorial and split-plot-in-time MANOVA experimental designs. Outline of the union-intersection principle. Hypothesis testing using Wilks' lambda, Roy's greatest-root and other multivariate test statistics.

Estimation and interpretation of Bonferonni and Roy-Bose simultaneous confidence intervals. Application of MANOVA to forestry, remote sensing, agriculture and environment. Report on the application of MANOVA.

Intended audience: PhD and Post Doctorate level.
Software: Microsoft Word and Excel. SAS and Mathematics. Windows 98.

Degree of Bachelor of Science in Rural Development [BSc(RD)]

This is a web based, distance learning degree programme for adults. The programme, which is a collaborative effort between four universities, will be offered as a National University of Ireland (NUI) Degree by UCD, UCC, UCG and NUI Maynooth. On completion of Level One, students have the option to graduate with an NUI Diploma in Rural Development or progress to the degree phase of the programme. The programme is targeted at people who are involved in rural development in a professional or voluntary capacity and will provide participants with the knowledge and skills to manage all aspects of local rural development.

This degree programme is offered on three levels;

- level one equates with the NUI Diploma in Rural Development by Distance Learning or equivalent;
- level two and level three represent a minimum of two years' further study to degree level.

Entry Requirements

Applicants will be required to be at least 23 years of age at time of enrolment; complete a successful interview; and have at least two years' experience, in either a voluntary or professional capacity, in a rural development organisation.

Holders of the Diploma in Rural Development by Distance Learning (1996-2002 inclusive), awarded by any of the four constituent universities of the NUI (or equivalent) are eligible to proceed to level II of the proposed BSc in Rural Development.

Applications should be submitted to the Academic Director,
Degree Programme in Rural Development,
Department of Agribusiness, Extension and Rural Development,
Faculty of Agri-Food and the Environment,
University College Dublin, Belfield, Dublin 4.
For further information contact Marie O'Malley at the above address or at 01-7167858.

Programme

Level One

Module 1: Introduction to Rural Development **5 Credits** **RDEV 1101**

The basic concepts of rural development, history of rural development in Ireland, current issues in development, different perspectives on development, different approaches to planning, rural development policy.

Module 2: Socio-economic Aspects of Rural Development **5 Credits RDEV 1102**

The nature of the rural economy, agricultural change and restructuring, the role of agriculture in the rural economy. Rural households, resources, activities and income. Services, infrastructure and investments in rural areas. Case studies and their socio-economic impact.

Module 3: Socio-economic Community/Area Resource Audits **5 Credits RDEV 1103**

Introduction to local socio-economic resource audits, importance of local involvement in the audit process, measurements of resource based needs and poverty. Planning a resource audit. Assessing existing and new sources of information and presenting statistical data. Writing a community/area profile.

Module 4: Community and Rural Development through Groups **5 Credits RDEV 1104**

Participatory development, the process and framework for participation. The group development process; factors which influence success in group work. Leadership skills and the role of leadership in groups. Voluntary and professional workers in rural development. Networking and creating sustainable networks. The partnership approach and partnership issues.

Module 5: Choosing and Setting up a Rural Development Related Organisation/Structure **5 Credits RDEV 1105**

Organising and the Organisation, the different forms of organisation. Aspects of organisational structures, management and communication within the organisation. Area-based development organisations, establishment and management.

Module 6: Marketing for Rural Enterprise **5 Credits RDEV 1106**

Marketing for small rural enterprise, marketing and the marketing concept, the role of marketing in business. Market information, business planning and development stages. Product concept, marketing strategy and brand development.

Module 7: Business Planning and Stimulating Rural Enterprise **5 Credits RDEV 1107**

How businesses get started, the start-up process, sources of new venture ideas. Evaluating the potential of new venture ideas, operational and financial feasibility. Planning structure and presentation; production, operational and market planning. The competitive market environment, market analysis, marketing strategy. Financial planning and basic concepts of financial accounting and business finance. Sources of funding for new rural enterprises and supporting the development business.

Module 8: Interpersonal Communications, Leadership and Group Work Skills **5 Credits RDEV 1108**

The need for communication in development. Communications models and approaches. Information and decision making. Leadership styles and characteristics. Role of counselling and effective counselling skills. Groups, group work and effective decision-making.

Module 9: Designing and Managing an Area Development Plan **5 Credits RDEV 1109**

Policies, programmes and projects. Content, components, principles and models of an area/local development plan. Needs identification and priority setting; specification of programme projects. Management of area/local development programmes and projects. Programme and project monitoring and evaluation.

Module 10: Inter-organisational Partnerships and the Role of Support Agencies **5 Credits RDEV 1110**

Key principles of the partnership approach, structures of rural development partnerships in Ireland. Guidelines for establishing and operating an effective partnership and experience of local/rural development partnerships. Training and other support agencies and services. Response to the needs of rural communities at international, national, regional and local level.

Module 11: Social Exclusion and Gender Equality Issues in Rural Development **5 Credits RDEV 1111**

The concept of equality. Defining and understanding social exclusion. EU social policy and measures. Gender in development and policy approaches to disadvantaged women in development programmes. The contribution of women to rural development in Ireland, problems and issues identified in recent research.

Module 12: Integrated Fieldwork Project **5 Credits RDEV 1150**

The student is required to conduct a piece of research in their own rural area.

Level Two

Module 13: SME Development **5 Credits RDEV 2001**

Analysis of SME development principles, characteristics, structures and processes. Identification of ways in which the model can serve a variety of rural stakeholders.

Module 14: Co-operative Theory and Practice **5 Credits RDEV 2002**

Analysis of co-operative principles, characteristics, structures and processes. Identification of ways in which the model can serve a variety of rural stakeholders.

Module 15: Project Planning and Development **10 Credits RDEV 2003**

Defining management. Theory of management. Theory of project planning and the planning cycle. Management of the planning process. Management skills. Definitions of management.

Module 16: Information Technology **5 Credits RDEV 2004**

Data input, output, storage and communication devices. Operating systems and file management. Word processing, spreadsheets, data bases. Email and the Internet.

Module 17: Communications in Development 5 Credits RDEV 2005
Theories and models of communications. The communications process – media/methods. Written and verbal communication skills. Group facilitation and counselling skills. Scripting and presenting for local radio.

Module 18: Public and Social Policy Processes 5 Credits RDEV 2006
The history of the Welfare State. An overview of the development of social policy in Ireland over the last 20 years and comparisons made with other EU countries.

Module 19: Community Education and Development 5 Credits RDEV 2007
Defining education and community education. The theory and skills of community education. The place of community education in rural development. Developing community education programmes.

Module 20: Rural Labour Markets 5 Credits RDEV 2008
This module analyses rural labour market supply and demand theory and focuses on the specific circumstances of the rural labour market. The module looks at the market failures and how policy is addressing these failures.

Module 21: Rural Development: Social and Economic Aspects of Policy and Planning 10 Credits RDEV 2009
The social and economic issues that affect rural areas. Overview of current rural development policy. Overview of rural planning for social and economic development. Policy and planning practice. The influence of social and economic issues.

Module 22: Socio-Economic Research/Level Two 5 Credits RDEV 2010
The role of research in rural development. Alternative approaches to conducting research. Developing a research framework, clarifying the area of research, problem analysis, developing research questions, formulating objectives (developing the research proposal). Sourcing and using secondary data, preparing a literature review. Introduction to statistics, primary data collection, analysis and presentation.

Level Three

Module 23: Financial Analysis and Planning 5 Credits RDEV 3001
The concept of business finance. The concept of double entry book-keeping. Preparation of annual accounts. Application of financial statements as financial models of the business to report performance and confirm the financial stability. Preparation of pro-forma statements. Introduction to the concepts and methods of financial control. Use of spreadsheets and computerised accounting packages for financial analysis and control. Understand the asset and funding structure of a business.

Module 24: Food Business 5 Credits RDEV 3002
The roles and needs of stakeholders along the food chain are examined in the context of the farmer viability, consumer demand and niche markets, retail structures, quality and traceability of food, environmental impact and sustainability. Both conventional and alternative approaches to addressing these issues will be discussed including CSA.

Module 25: Socio-Economic Research/Level Three 10 Credits RDEV 3003
Review of research framework and objectives. Data collection approaches and methods. Data analysis, interpretation and presentation. Participatory approaches to data collection. Introduction to computer facilities and SPSS, preparing data for computer, entering and coding data and running SPSS. Review of basic statistics; measures of central tendency, cross-tabs and associated statistics, t-tests and correlation. Analysing and interpreting results; manipulating data, creating indices, running programmes and interpreting results. Preparing a report; structure of a report, using tables, diagrams and charts, report layout etc.

Module 26: Co-operative and Rural Social Enterprise Management 10 Credits RDEV 3004
The special challenges of managing co-operatives and rural social enterprises are examined by exploring the following: Strategy Formulation, Human Resources Issues, Marketing, Ethical Concerns, Financial and Environmental Sustainability.

Module 27: Health and Social Service Policy 5 Credits RDEV 3005
Health and social care services for individuals; modes of payment (out-of-pocket and third party payment); types of third party payment (tax financing, social insurance, private insurance); the problems of third party payment (consumer and provider moral hazard); demography, technological development; policy options for managing health/social care supply and demand. The module will introduce students to policy analysis: models of 'policy'; public policy agendas; issue definition and modelling; objectives and priorities; option appraisal; models of implementation.

Module 28: Rural Tourism 5 Credits RDEV 3006
Tourism is a key lever of economic development in a growing uncertain and dynamic sector. This module seeks to locate opportunities for rural tourism in this evolving sector.

Module 29: Research Project/Thesis 20 Credits RDEV 3007
The student completes a research thesis in an area of study incorporating research methods and use of analytical models to explore an issue in Rural Development.

Continuing and Professional Educational Programmes

Diploma in Environmental Impact Assessment

A multi-faculty programme co-ordinated within the Faculty of Agri-Food and the Environment, and run as part of the Continuing Professional Education under the Office of Postgraduate and Interdisciplinary Studies. Contributions are also drawn from the Faculties of Arts, Engineering and Architecture, Law, Medicine, Philosophy and Sociology, Science and Veterinary Medicine. It leads to a Diploma in Environmental Impact Assessment Management (Dip EIA Mgmt).

The course is intended for all persons with a professional or personal interest in Environmental Impact Assessment, especially potential developers, planners and those engaged in environmental consultancy.

The aim of the course is to develop EIA and Strategic Environmental Assessment (SEA) as management exercises. It comprises a multidisciplinary programme examining the theory and practice of EIA/SEA as well as interpreting the practical requirements of EU Directives 85/337/EEC, 97/11/EC and 2001/42/EC and their translation into Irish law.

All administrative enquiries and applications should be directed to the Programme Administrator – Ms Tina Jones, Continuing Professional Education Centre, Roebuck Castle, UCD, Belfield, Dublin 4 (Tina.Jones@ucd.ie; phone: 7168705). Any queries about the academic content of the course can be directed to the Academic Director, Dr John Fry, Department of Environmental Resource Management, Faculty of Agri-Food and the Environment, UCD, Belfield, Dublin 4 (John.Fry@ucd.ie; phone: 7167730).

Programme

The Theoretical and Developmental Context
Life before EIAs; the North American experience; the conceptual range of impacts; scoping; screening; monitoring and audit as concepts.

The Legal Framework
The EU directive; Irish EIA law.

Approaching EIAs
Adopting the right attitude; public risk perception; staying out of trouble; the level and speed of information flow.

Putting the Team Together
Recognising the need for specialist help; what the specialist can achieve; what techniques might be used; how to assess specialist work; design and evaluation of surveys.

Hard Impacts
Air and water pollution; surface stability; noise and vibration; agricultural and chemical effluents, etc.

Diffuse Impacts
Human health; radiological; applied biology; conservation problems, etc.

Socio-Economic Impacts
Social; economic; cultural; archaeological, etc.

Methodologies
Screening and scoping; quantifying impacts; technology assessment; risk analysis.

Case Study Analyses
Consideration of a number of prior and forthcoming studies.

Simulation Sessions
Leading to the production of a draft Environmental Impact Statement.

'Topical Module'
Detailed consideration of the potential impacts associated with one of the scheduled industries.

Concluding Overview
Discussion and consideration of the potential impacts associated with one of the scheduled industries.

Project Presentation

Diploma in Rural Development

This is a web based, distance learning Diploma programme for adults. The programme, which is a collaborative effort between four universities, will be offered as a National University of Ireland (NUI) Diploma by UCD, UCC, UCG and NUI Maynooth. On completion of the Diploma phase of the programme, students have the option to graduate with an NUI Diploma in Rural Development or progress to the Degree phase of the programme. The programme is targeted at people who are involved in rural development in a professional or voluntary capacity and will provide participants with the knowledge and skills to manage all aspects of local rural development.

Entry Requirements
Applicants will be required to be at least 23 years of age at time of enrolment, complete a successful interview and have at least two years' experience, in either a voluntary or professional capacity, in a rural development organisation.

Applications should be submitted to the Academic Director,
Diploma Programme in Rural Development,
Department of Agribusiness, Extension and Rural Development,
Faculty of Agri-Food and the Environment,
University College Dublin, Belfield, Dublin 4.
For further information contact Marie O'Malley at the above address or at 01-7167858.

Programme

Module 1: Introduction to Rural Development **5 Credits** **RDEV 1701**
The basic concepts of rural development, history of rural development in Ireland, current issues in development, different perspectives on development, different approaches to planning, rural development policy.

Module 2: Socio-economic Aspects of Rural Development **5 Credits** **RDEV 1702**
The nature of the rural economy, agricultural change and restructuring, the role of agriculture in the rural economy. Rural households, resources, activities and income. Services, infrastructure and investments in rural areas. Case studies and their socio-economic impact.

Module 3: Socio-economic Community/ Area Resource Audits **5 Credits** **RDEV 1703**
Introduction to local socio-economic resource audits, importance of local involvement in the audit process, measurements of resource based needs and poverty. Planning a resource audit. Assessing existing and new sources of information and presenting statistical data. Writing a community/area profile.

Module 4: Community and Rural Development through Groups **5 Credits RDEV 1704**

Participatory development, the process and framework for participation. The group development process; factors which influence success in group work. Leadership skills and the role of leadership in groups. Voluntary and professional workers in rural development. Networking and creating sustainable networks. The partnership approach and partnership issues.

Module 5: Choosing and Setting up a Rural Development Related Organisation/Structure **5 Credits RDEV 1705**

Organising and the Organisation, the different forms of organisation. Aspects of organisational structures, management and communication within the organisation. Area-based development organisations, establishment and management.

Module 6: Marketing for Rural Enterprise **5 Credits RDEV 1706**

Marketing for small rural enterprise, marketing and the marketing concept, the role of marketing in business. Market information, business planning and development stages. Product concept, marketing strategy and brand development.

Module 7: Business Planning and Stimulating Rural Enterprise **5 Credits RDEV 1707**

How businesses get started, the start-up process, sources of new venture ideas. Evaluating the potential of new venture ideas, operational and financial feasibility. Planning structure and presentation; production, operational and market planning. The competitive market environment, market analysis, marketing strategy. Financial planning and basic concepts of financial accounting and business finance. Sources of funding for new rural enterprises and supporting the development business.

Module 8: Interpersonal Communications, Leadership and Group Work Skills **5 Credits RDEV 1708**

The need for communication in development. Communications models and approaches. Information and decision making. Leadership styles and characteristics. Role of counselling and effective counselling skills. Groups, group work and effective decision-making.

Module 9: Designing and Managing an Area Development Plan **5 Credits RDEV 1709**

Policies, programmes and projects. Content, components, principles and models of an area/local development plan. Needs identification and priority setting; specification of programme projects. Management of area/local development programmes and projects. Programme and project monitoring and evaluation.

Module 10: Inter-organisational Partnerships and the Role of Support Agencies **5 Credits RDEV 1710**

Key principles of the partnership approach, structures of rural development partnerships in Ireland. Guidelines for establishing and operating an effective partnership and experience of local/rural development partnerships. Training and other support agencies

and services. Response to the needs of rural communities at international, national, regional and local level.

Module 11: Social Exclusion and Gender Equality Issues in Rural Development **5 Credits** **RDEV 1711**

The concept of equality. Defining and understanding social exclusion. EU social policy and measures. Gender in development and policy approaches to disadvantaged women in development programmes. The contribution of women to rural development in Ireland, problems and issues identified in recent research.

Module 12: Integrated Fieldwork Project **5 Credits** **RDEV 1750**

The student is required to conduct a piece of research in their own rural area.

Certificate in Food Safety and Handling

The Certificate in Food Safety and Handling takes place on a part-time basis over one academic year. The programme is intended for operatives (catering establishments, food industry, hospital kitchens, canteens, delicatessen counters, etc.) who have responsibility for the handling of food but who have no previous experience of Food Microbiology. This programme aims to give the food handler a knowledge and understanding of basic food microbiology, hygiene and good manufacturing practices. Lectures and parallel laboratory sessions will cover the topics of the programme.

Applicants for the Certificate in Food Safety and Handling will have a Leaving Certificate. Previous knowledge of Food Microbiology is not required. The Certificate will be awarded at pass and honours level.

Applications should be submitted to the Academic Director, Certificate in Food Safety and Handling, Food Science Department, Faculty of Agri-Food and the Environment, University College Dublin, Belfield, Dublin 4.

Programme

Introduction to Food Microbiology **3 Hours** **FDSC 1001**
The occurrence of micro-organisms on foods. Growth of micro-organisms in foods. Water microbiology.

Food Spoilage **4 Hours** **FDSC 1002**
Micro-organisms involved. Causative factors.

Food Poisoning **4 Hours** **FDSC 1003**
Common pathogens. Prevention. Overview and trends. Case studies.

Food Preservation **3 Hours** **FDSC 1004**
Methods used to prevent or reduce the incidence of food spoilage and food poisoning.

Storage of Food **3 Hours** **FDSC 1005**
Storage conditions. Packaging and distribution.

Safe Handling of Food **4 Hours** **FDSC 1006**
Clothing and personal hygiene. Sources of contamination. Cross contamination. Effects of inadequate cooling, reheating, thawing, undercooking.

Cleaning Practices **3 Hours** **FDSC 1007**
Disinfection. Sanitation. C.I.P. Safe disposal of waste.

The hours indicated above are lecture hours only. Each lecture hour will be accompanied by a two-hour laboratory practical.

Certificate in Humanitarian Assistance

The programme is designed to prepare participants with the knowledge and skills necessary to work effectively in emergency and post-emergency situations. It is targeted at people involved in emergency relief and development work both at home and overseas. The course focuses on the principles of emergency relief work and management in such situations. Topics covered include security and logistics, health and nutrition, personal preparedness, communications and the planning stages in project management, assessment, monitoring and evaluation.

The programme is delivered in association with APSO. Participants will have been selected for overseas work by APSO and will be on the Rapid Response Register (RRR).

Applications should be made to:

Department of Agribusiness, Extension and Rural Development,
Faculty of Agri-Food and the Environment,
University College Dublin, Belfield, Dublin 4.

Programme

Introduction to Emergency Relief Work **12 Credits HUAS 1001**

(i) Humanitarian Principles (2 credits)

Questions principles of impartiality, neutrality and humanity in humanitarian assistance.

(ii) Security and Logistics (2 credits)

Considers the personal security of the individual in emergency situations and the practical considerations in delivering a project in a high-risk environment.

(iii) Team Building/Leadership (2 credits)

Introduces participants to theories and styles of leadership and team building in emergencies.

(iv) Health and Nutrition (2 credits)

Introduces participants to basic epidemiological terms needed when working with a highly vulnerable population.

(v) Personal Preparedness (2 credits)

Aimed to encourage the participant to evaluate their own attitude to emergency assistance and the role that they will play.

(vi) Communications/Working with the Media (2 credits)

Covers issues such as writing press releases and techniques in dealing with the media in relief situations.

Management **18 Credits HUAS 1002**

(i) Context Analysis (2 credits)

Raises the importance of socio-cultural, political, economic, institutional and environmental considerations in specific environments.

(ii) Initial Assessment (2 credits)
Covers the importance of the assessment of internal and external needs and how to practically carry out such assessments.

(iii) Planning (2 credits)
Deals with problem identification, the setting of objectives, inputs and outputs required and indicators of a project's success.

(iv) Monitoring and Evaluation (2 credits)
Specific focus on the methods in which a project is assessed and project accountability.

(v) Financial Management (2 credits)
Covers issues such as budget control and cash management.

(vi) Cross Cutting Issues (2 credits)
Issues that must be considered in all stages of project management will be introduced, such as stress management, racism, gender and HIV issues.

(vii) Research (6 credits)
An assignment based on the contextual issues (political, social, economic, institutional and cultural) relating to humanitarian assistance intervention.