

Master of Science

Environment & Development



Course Handbook 2011/12



School of Natural Sciences
University of Dublin, Trinity College

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WELCOME TO MSc. in ENVIRONMENT AND DEVELOPMENT

Welcome to the Environment and Development Masters program at the School of Natural Sciences, Trinity College, Dublin. This booklet includes basic information on the timetable, contact people, course choices and main milestones of the program.

Trinity College has a general postgraduate orientation day on Friday September 16th 2011 in Burke Theatre, Arts Building at 2pm.

This masters program will run from September 2011 to September 2012 with a field trip to Rwanda for two weeks in Spring 2012. The Trinity system has recently been semesterised and now has two teaching terms Michaelmas Term- September 19th 2011- December 17th 2011 and Hilary Term January 16th 2012-April 6th 2012.

Trinity College has a system of “teaching weeks” which correspond to dates in each of the terms. This website lists the dates:

<http://www.tcd.ie/calendar/assets/pdf/academic-year-structure-2011-12.pdf>

Modules for the MSc. in Environment and Development are run in periods of two to four weeks and will be listed as “Class xx, weeks 6-8”, meaning it will occur from October 3rd to 21st. Classes are typically offered two to three times a week for two to three hours. Students are required to attend all classes.

Courses and Credits:

Students will need to accumulate 90 credits, of which 30 are given for a dissertation. Each required module is allocated 5 credits, except for Desk Study which is 10 ECTS.

Students are required to complete a desk study, which is an extensive literature review of a subject chosen from a list submitted by faculty in the department. The paper resulting from this desk study is worth 10 ECTS credits.

Also, please check this site for University notices:

https://www.tcd.ie/Graduate_Studies/currentstudents/noticeboard/index.php

Supervision:

A supervisor from the department will be assigned to students based on their dissertation interests.

Contacts:

Students can contact the course director: Dr. Clionadh Raleigh at raleighc@tcd.ie

INTRODUCTION

MSc. in Environment and Development **Trinity College Dublin**

In a rapidly changing international economic, political, security and environmental context it is vitally important that policy makers, academics and others understand the complex connections between different social and environmental systems. Global climate change and poverty are two of the most large-scale and serious issues facing humankind. Both compromise human and environmental security and are increasingly interlinked. Climate change is implicated in the generation of poverty, particularly in countries and regions which are most severely affected and have large, climatically dependent agricultural sectors, as in Sub-Saharan Africa. In-turn, poverty is implicated in environmental modification and the necessity for people to mine their natural environments for resources as sources of livelihood. While over-consumption in the developed world of resources plays the major role, nonetheless poverty associated deforestation is also an important channel through which climate change is affected, for example. People living in extreme poverty are often more directly dependent on the environment for their livelihoods. Therefore maintaining and enhancing environmental quality can have a direct and important impact on poverty reduction. This requires a transition to sustainable livelihoods, involving a combination of new assets, capabilities and institutions.

This degree addresses issues of environment and development and the complex connections between them. Global climate change and poverty are two of the most large-scale and serious issues facing humankind. Both compromise human and environmental security and are increasingly interlinked. This degree aims to develop a critical understanding of the operation of socio-political and environmental processes from local to global scales. Particular emphasis will be laid upon the interconnectedness between political and socio-spatial theory, governance, civil society, environmental conflict, and climate change, amongst other issues. The course

includes an innovative fieldcourse based in Rwanda on climate-environment-sustainability interactions and threats to livelihoods.

A wide variety of careers will be open to graduates from this programme in overseas development assistance for public, private and non-governmental organisations. It is envisaged that the programme will also attract active professionals already working in these fields, who wish to strengthen their qualifications, in addition to students who wish to develop careers in this area or to pursue further academic studies.

In the event of any conflict or inconsistency between the General Regulations published in the University Calendar and information contained in course/departmental handbooks, the provisions of the General Regulations will prevail.

Programme Director

Dr Clionadh Raleigh

Email: clionadh.trinity@gmail.com

MODULE CO-ORDINATORS

Dr. Clionadh Raleigh (Director MSc. in Environment and Development)

Clionadh Raleigh is a political geographer who focuses on the spatial patterns of conflict, African political dynamics and the social consequences of drought and famine patterns in African states. She directs the Armed Conflict Location and Event Data (ACLED) Project (see acleddata.com). Her current research is on distress migration and communal violence patterns in the Sahel belt. Dr. Raleigh writes extensively on civil wars, political instability, conflict dynamics, African politics, environmental politics/political ecology, social consequences of climate change and political geography. During the years 2004-2007, she was a researcher at the International Peace Research Institute (PRIO). She is now an external senior researcher at PRIO through their Center for the Study of Civil War.

Dr. Raleigh co-ordinates the module ED 7008: *Desk Study* , ED 7009: *Project Planning, Methods and* ED7002: *Conflict in the Developing World*

Dr. Carlos Rocha

Dr. Rocha is a Lecturer in Environmental Change in the Department of Geography. His research effort focuses on the least understood aspect of coastal ecosystem function, the biogeochemistry of permeable sediments including submarine groundwater discharge (SGD). As a marine biogeochemist grounded in chemistry, Carlos studies sediment beds as active biogeochemical reactors intercepting carbon and nitrogen flow from the continental fringe to the coastal ocean. His main research goal is to understand their functional flexibility in response to anthropogenic pressure, climate change and biological activity. He is currently establishing a research group in aquatic biogeochemistry at TCD.

Dr. Rocha is Programme Director for the MSc in Environmental Sciences and he co-ordinates the module: ED7003: *Environmental Change* for MSc in Environment and Development.

Dr Jane Stout

Jane Stout is a Lecturer in Botany. Her research focuses on pollination ecology; specifically the behaviour and conservation of pollinators and their impacts on plant population dynamics; and plant invasion ecology. Changes in habitat management and agricultural systems, along with other elements of environmental change (including climate change) have resulted in pollination ecology becoming an increasingly important subject. She is particularly interested in the interactions between exotic plants and native pollinators (and, indirectly, native plants), the role of pollinators in plant invasion, rare plant pollination, and conservation of pollinators. Her main teaching includes general ecology, data handling and plant-animal interactions.

Dr. Stout co-ordinates the module ED 7013: *Human Interactions with Biodiversity*.

Prof. Anna Davies

Anna Davies is Associate Professor of Environmental Geography.

Professor Davies' research focuses on environmental governance, specifically in relation to waste management, biodiversity, climate change and sustainable development. Her interest in climate justice relates to the ways in which climate governance engages (or indeed does not engage) with matters of justice, equity and responsibility. Anna is currently engaged in a scoping exercise examining the extent of connections between low carbon initiatives and matters of justice that will be completed in the summer of 2010. She is also developing climate justice curricula for her undergraduate and graduate teaching programmes. Environmental Governance Research Group.

Prof. Davies jointly co-ordinates the module BD 7051: *Environmental Policies*

Dr. Andrew Jackson

Dr. Jackson is currently leader of the Complex Ecological and Evolutionary Systems research group & Principal Investigator in the Behavioural and Evolutionary Ecology Group & member of the Trinity Centre for Biodiversity Research

His research interests lie in understanding ecological systems or processes from an evolutionary perspective He has a keen interest in understanding the underlying mechanisms and processes that result in complex biological patterns. DR. Jackson's interests also extend to community ecology (where functional groups replace individual animals) and the emergence of spatio-temporal patterns in ecological and environmental systems.

Dr. Jackson jointly co-ordinates the module BD 7051: *Environmental Policies*

Dr. Joseph Assan

Dr Joseph Assan is currently a lecturer in Development Studies at the Department of Geography, University of Liverpool, having previously worked as lecturer in Development Studies at the University of East London. Joseph holds a PhD from the University of Liverpool and a BSc from the University of Cape Coast, Ghana. He has carried out extensive field research in international development and development practice. Joseph has worked as a project officer with organisations such as the Global Hunger Project New York and recently carried out research on the interaction between sustainable livelihoods, environmental variability/climate change and household well-being within the context of poverty reduction. Over the years, Joseph has developed teaching skills and research expertise in development practice. Within this field, he has research, consultancy and teaching experience in:

- Human Ecology and Sustainable Development;
- Cross-disciplinary Approaches and Practical Principles to Sustainable Development
- Tropical Agriculture and Sustainable Development
- Macroeconomic Policy and Sustainable Development

- Achieving the Millennium Development Goals
- Methods of Sustainable Development Practice
- Climate Change and Development
- Global health

Dr. Assan co-ordinates the module ED 701: *Political Ecology and Sustainable Development*

Dr. Padraig Carmody

Pádraig Carmody lectures in Development Geography at TCD, from which he holds both a B.A. in Geography and History and M.Sc in Geography. He completed his Ph.D. in Geography from the University of Minnesota in 1998. Subsequently he taught at the University of Vermont, Dublin City University and St. Patrick's College, Drumcondra. He also worked as a policy and research analyst for the Combat Poverty Agency in 2002-3. His research centres on the political economy of globalization in Africa. His teaching interests are in development and economic geography. I have taught both undergraduate and graduate classes on Africa, third world development and globalization, in addition to human environment relations and regional development.

Dr. Carmody co-ordinates the module ED 7005 *Globalisation and African Development*

Prof David Taylor

Prof. Taylor graduated from the University of Leeds with a BSc in Botany and Geography before going on to postgraduate studies at the University of Ulster. His PhD was a study of Late Quaternary environmental change in central Africa. Professor Taylor subsequently worked at the University of Hull, Makerere University (Kampala, Uganda) and the National University of Singapore. He has research interests in central and eastern Africa, east and Southeast Asia and Europe. He currently coordinates a major research project, funded by the EPA, which is examining recent environmental changes in Irish lakes. His main areas of teaching include environmental change, exploitation of natural resources, and remote sensing.

David Taylor co-ordinates the module ED 7001 *Introduction to Environment and Development*.

OTHER TEACHING STAFF

Several staff contribute their expertise to the course via the supervision of research projects, and the ED 7008 *Desk Study* module. In addition, you may contact staff within the School of Natural Sciences regarding projects related to their research interests. See the School research web pages for details (www.naturalscience.tcd.ie), as well as the research pages of the individual staff / disciplines.

REQUIREMENTS & EXPECTATIONS

Prompt attendance for **all** taught components, including practicals and fieldwork, is a requirement of this course. Prior permission for absence should be sought *in writing* from the module co-ordinator. *Failure to attend classes is regarded as a failure to comply with the fundamental course requirements.*

Some modules, and many projects, will require field work. Please ensure you have read the safety guidelines (circulated during the induction week and available online at www.tcd.ie/Buildings/Safety/safetyhealthandwelfare.php) and that you are always equipped for bad weather. Suitable footwear and adequate food supplies are vital components of being in the field. In addition to attending a safety briefing, you are required to complete health and safety forms during the induction week.

We aim to develop key transferable skills of both independent work, and working together as part of a group. For group work, it is essential that you participate fully with your assigned group; take the initiative and do not leave it to others. Group work will be subject to peer group assessment.

*****IMPORTANT – THIS IS A FULL-TIME COURSE*****

This is a post-graduate qualification and therefore contains a considerable component of independent study. It is vital that you effectively manage the time spent outside of classes. The course structure assumes a nominal 40 to 50 hour week, although there will inevitably be some variability of workload throughout the year. This is especially the case as enrolled students usually come from a wide range of backgrounds with diverse skills and knowledge. This diversity may mean that you are unfamiliar with some basic concepts during the course. This will require extra reading for familiarisation of subjects that you may not have studied previously.

Please note that certain components of the course (e.g. seminars or field trips) may occasionally involve evening or weekend work, so please consult your timetables carefully.

IMPORTANT: non-attendance due to paid employment is not an acceptable excuse or mitigating circumstance!

DESCRIPTION OF THE EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

The European Credit Transfer and Accumulation System (ECTS) is an academic credit system based on the estimated student workload required to achieve the objectives of a module or programme of study. It is designed to enable academic recognition for periods of study, to facilitate student mobility and credit accumulation and transfer. The ECTS is the recommended credit system for higher education in Ireland and across the European Higher Education Area.

The ECTS weighting for a module is a measure of the student input or workload required for that module, based on factors such as the number of contact hours, the number and length of written or verbally presented assessment exercises, class preparation and private study time, laboratory classes, examinations, clinical attendance, professional training placements, and so on as appropriate. There is no intrinsic relationship between the credit volume of a module and its level of difficulty.

The European norm for full-time study over one academic year is 60 credits. The Trinity academic year is 40 weeks from the start of Michaelmas Term to the end of the annual examination period 1 ECTS credit represents 20-25 hours estimated student input, so a 10-credit module will be designed to require 200-250 hours of student input including class contact time and assessments.

ECTS credits are awarded to a student only upon successful completion of the course year. Progression from one year to the next is determined by the course regulations. Students who fail a year of their course will not obtain credit for that year even if they have passed certain component courses. Exceptions to this rule are one-year and part-year visiting students, who are awarded credit for individual modules successfully completed.

COURSE STRUCTURE

This is a one year, full-time postgraduate qualification that will lead to a Master of Science in Environment and Development. As part of the Bologna Process, Trinity College ascribes credit to taught courses using the European Credit Transfer System (ECTS). This course is worth **90 ECTS**.

One ECTS is equivalent to 25 hours of student input, and therefore includes formal contact time (e.g. lectures), independent study, research, assessment exercises, revision etc. In this way, 2 ECTS is nominally about one week of work.

Taught Component

The taught component of this course comprises formal lectures, seminars, laboratory and desk-based practicals, fieldwork and independent study.

The course commences with a compulsory *Induction Week* (Mon 27th to Friday 1st October) There are **NINE TAUGHT MODULES** (see *Taught Modules* for details).

In addition, there is an individual *Desk Study* module worth **10 ECTS** (see *Desk Study* for details) and a *Project Planning* module worth **5 ECTS** (see *Project Planning* for details).

The combined taught component of this course therefore comprises **60 ECTS** (equivalent to a postgraduate diploma).

Module Delivery

Most taught modules in this course are three week blocks (see timetable). This provides a concentrated period of uninterrupted study, during which time students can immerse themselves in the subject matter and ensure they have addressed any gaps in their knowledge. Assessment for each module will usually take place during these blocks unless otherwise stated in the module outline. The exceptions to this are the ED: 7008 *Desk Study* and ED 7009 *Project Planning* modules, which will run consecutively with other modules and also outside of teaching semesters.

Timetabling

A general timetable for the course is included at the back of this handbook. Detailed timetables for each module will be circulated prior to the start of each teaching term. Timetables are subject to change, so please check carefully all email correspondence from module co-ordinators.

Research Project

To complete the MSc degree programme a candidate must design and execute an individual research project. This project is worth **30 ECTS**.

COURSE MODULES

ED 7001 Introduction to Environment and Development

ECTS Allocation: 5 credits

Module Coordinator: Professor David Taylor

Aims:

- To introduce students to the main theories of economic globalisation, development and political ecology.
- Through case studies to assess the impacts of economic and environmental globalisation on regions in Asia, Africa and Latin America.
- To critically assess the concept and potential of sustainable development.
- Through case studies to examine instances where sustainable livelihoods have been preserved and created.

Learning Outcomes:

On completion of this course students should:

- Have gained an overview of the main theories in the field.
- Be able to critically analyse the intersections between environment and development.
- Be able to interpret contemporary environmental connections
- Be able to successfully complete a self-guided research project on a political ecology issue of their choice.
- Discuss how political ecology is related to both environment, livelihoods and development
- Demonstrate an understanding of the progression of development theories regarding the environment.

Content:

- Global Economy, Global Ecology: The Scale of Global Environmental Problems
- Globalisation and Development Theory
- The Causes of Global Environmental Problems: Overconsumption versus Overpopulation - Case studies of the United States and India.
- Indigenous Land/Marine Management Systems

Assessment:

100% continuous assessment based on individual's submitted work and group presentations.

Module Title: ED 7002 Conflict in the Developing World

ECTS Allocation: 5 credits

Module Coordinator: Dr Clionadh Raleigh

Aims:

- To review the theories relating to civil wars, communal conflict and political insecurity in African states.
- To explore whether there is a relationship between the environment and low level conflict in underdeveloped state
- To use case-studies to investigate the link between local level development and political instability
- To examine the political ecology of underdevelopment and conflict patterns in African states.

Learning Outcomes:

On successful completion of this module students should:

- Demonstrate knowledge of how government systems affect climate change vulnerability, including a review of governance systems within and across African states and the conflicts occurring within those polities.
- Discuss the theoretical paths between underdevelopment, climate change vulnerability and low level conflict
- Discern the various types of conflict patterns in the developing world
- Critically evaluate published research on human-biodiversity interactions, both individually and in groups
- Independently research and present information on disasters and conflict
- Peer-review reports written by colleagues

Content:

- Introduction to conflict vulnerability
 - Brief review of political ecology
 - Brief review of the politics of underdevelopment
 - Explanation of conflict environments in African states
- Conflict
 - What are the types of conflict in underdeveloped states?
- Connecting the dots
 - How is economic vulnerability related to underdevelopment and, in turn, conflict?
 - How is underdevelopment related to political exclusion and marginalization?
 - How is marginalization related to conflict onset and duration?
 - Why are those most affected by climate change the least likely to rebel?

Assessment:

Group work and presentations 100%

Module Title: ED 7003 Environmental Change

ECTS Allocation: 5 credits

Module Coordinator: Dr Carlos Rocha

Aims:

- To convey the potential impact of environmental change on development through health, agricultural production, forest productivity, water resources, coastal zone management and biotope change
- Introduce the concepts of Sensitivity, Adaptability and Vulnerability as major modulators of sustainable development actions and policies
- Convey the necessity of regional assessment of Vulnerability to environmental change as a major conditioner of development strategies
- To transmit the capability to critically assess available predictors of environmental change while planning development strategies for sustainability.

Learning Outcomes:

On successful completion of the course students should:

- Understand and apply the concepts of Sensitivity, Adaptability and Vulnerability
- Conduct a self guided analysis of resource usage in development strategies aiming at sustainability
- Present and discuss the necessity of clean water reserves as a critical component of all sustainable development strategies

Content:

- Health impacts of environmental change
 - Vectors for disease propagation
 - Air quality and respiratory conditions
 - Demographic change linked to environmental pressure
 - Water quality and health sustainability
- Forest productivity and regional economic dependency
- Competition for water resources, migration and conflict
 - Case studies in sub-Saharan Africa
- Coastal zones, infrastructure and commerce
 - Impact of coastal zone change on trade routes and socio-economic stability
- Habitat loss, resource management and evolving social-economic impacts on development
- Environmentally-driven conflict and migration

Assessment:

Fieldwork exercises (33%), Written examination, (3 hours): 33%; Essay (3000 words) 33%

BD 7051: Environmental Policies

Co-ordinator: Prof. Anna Davies; Dr. Andrew Jackson.

ECTS Allocation: 5 credits

Description: The application of successful management strategies requires a wide knowledge of the environment and the pressures on it. The module introduces the scientific and societal factors that drive environmental policies and management. The course includes an introduction to environmental legislation with examples of implementation in a number of environmental sectors. The module introduces *inter alia* the practice of Environmental Impact Assessment (EIA) and the preparation of Environmental Impact Statements (EIS), Integrated Pollution Control and Environmental Management Systems, and the day-to-day practice of environmental protection.

Aims:

- To introduce students to environmental policy making and implementation through lectures, expert and practitioner-led workshops, set readings and research activities.
- To introduce students to examples of environmental policy at a range of scales from global to local, involving public, private and civil society actors.
- To examine environmental policy as it is practiced in key environmental areas.
- To facilitate and encourage critical analysis of environmental policy tools, techniques and outcomes.
- To support students in the acquisition of group work and policy briefing writing skills.

Learning Outcomes:

On completing the module, including attendance at lectures, workshops, completion of readings and research activities, students will be able to:

- Discuss the theory and practice of environmental policy making and implementation
- Discuss the roles of different actors (public, private and civil society) in forming and implementing environmental policy
- Critically debate the nature and impact of environmental policy tools that operate at a range of scales (and across scales) from the local to the global.
- Outline the nature of environmental policy with respect to particular sectors
- Critically analyse and reflect on information provided by variety of sources to develop a policy briefing note.

Assessment: 100% Coursework (20% group presentation, 80% individual policy briefing)

Module Title: ED 7004 Globalisation and African Development

ECTS Allocation: 5 credits

Module Coordinator: Dr Pádraig Carmody

Aims:

- To examine Africa's integration/adverse incorporation in the global economy
- To analyse key issues in the continent's development.
- To explore the burgeoning investment and trade relationship between Asia and Africa.
- To critically analyse development alternatives in Africa.

Learning Outcomes:

On successful completion of this module students should:

- Have gained an overview of important development issues in Africa
- Interpret the ways that Africa is embedded into global flows of resources.
- Position contemporary environmental, political, economic, and cultural changes occurring in Africa using the theory that they engage with in this course.
- Possess a sub-regional expertise by being able to successfully complete a self-guided research project on an African development issue of their choice.

Syllabus

- Africa and the World System
- The African State
- Ethnicity, Conflict, Terrorism and Democracy
- Agriculture and the Rural-Urban Interface
- HIV/AIDS in Africa
- Regionalization in Southern Africa: South Africa's Role and Impact
- The New Partnership for African Development
- China in Africa
- Roadmaps for the Future.

Assessment:

30% short response papers, 20% participation, 50% research essay.

Module Title: ED 7006 Research methods

ECTS Allocation: 5 credits

Module Coordinator: Clionadh Raleigh

Aims:

This module will provide grounding in qualitative and quantitative research methods that are commonly used within the environment and development context. Technical aspects of data collection using these approaches will be provided as well as critical discussion of the benefits and limitations of the methods. Examples of methods used in environment and development research contexts will be provided. Students will have the opportunity to conduct research individually and as a team through the examination of particular methods in the field. They will be required to present their findings to the class.

Learning Outcomes:

On successful completion of this module students will be able to:

- Analyse the technical aspects of a range of qualitative and quantitative research methods
- Discuss the conceptual and theoretical underpinnings of conducting qualitative and quantitative research methods
- Communicate methodological ideas effectively in written and oral form
- Acquire knowledge of various statistical packages and programs for econometric research

Content:

- Qualitative research methods:
 - Content analysis
 - Interviews
 - Group discussions
 - Action research
 - Ethics, positionality and reflexivity in research practice
- Quantitative research methods
 - Types of data and the implications for data exploration, assessment of normality etc:
 - Data description: Plots, summary statistics
 - Basic statistical analysis: t-tests, Chi-squared analysis, simple one-way ANOVA, linear regression, correlation
 - More complex experimental design: extending ANOVA, multiple regression.
 - Multivariate methods – ordination, classification
 - Multicriteria assessment

Assessment:

Group presentation of qualitative research approaches (10%); individual report on qualitative research methods (40%); Group presentation of quantitative research approaches (10%); individual report on quantitative research methods (40%);

Module timetable:

Week 1 – Qualitative methods

Qualitative techniques – the cookbook approach to interviewing, focus groups and action research

Conducting focus group research and expert interviews – the realities of the research experience

Researching qualitative research methods: introduction to assessment parts I & II

Week 2 – Quantitative methods

Fundamental concepts and approaches to quantitative geography

Data Collections: Ranks and Ratings

Sampling in geographic research; Population/sampling frames; Nonprobability & probability sampling; Representativeness & avoiding bias; sample size

Week 3 – Presentations and assessments.

PowerPoint presentation skills: the basics

Qualitative Group presentations: feedback and discussion

Descriptive and inferential statistics; Bivariate and Multivariate Modelling

Quantitative Group presentations: feedback and discussion

Module Title: ED 7008 Desk Study

ECTS Allocation: 10 credits

Module Coordinator: Dr. Clionadh Raleigh

Aims:

- To provide an independent review of a topic of contemporary importance for understanding of environment and development and/or its management.
- To demonstrate an understanding of underlying theory and/or policy of central importance to the desk study
- Development of presentation skills

Learning Outcomes:

On successful completion of this course students should:

- Be able to create a theoretical framework on a chosen subject using key literature, correctly referenced.
- Demonstrate knowledge of how the subject is integrated into larger discussions of environment and development
- Critically evaluate published research on environment and development interactions
- Design a thorough manuscript wherein research is analysed and interpreted
- Produce a journal-style report

Content:

- Introduction to the goal of a review, presentation of topics
- Tutorial session at beginning and mid-point of module
- Presentation summary of the study at the end of module

Procedure:

A variety of topics will be proposed by a wide section of the School academic staff. The topics will relate to current and future trends in environmental and development issues in the developing world. These topics will be collated and approved by the module co-coordinator. Each student will work with the member of staff proposing their chosen topic, following standard guidance on recommended number of meetings, report structure and presentation. The module co-coordinator will provide overall management of the module, which supervision will be by the individual staff member.

Assessment:

Desk studies will be assessed through double marking of a coursework essay (3-4000 words, 75% of marks) and through oral presentation of the topic scope and the key findings (25% of marks). Students will be expected to work on their desk study project during the break between regular semesters. The module will be introduced at the end of semester 1, with the final presentations and submission of written work at the start of the following semester.

Module Title: ED 7009 Project Planning

ECTS Allocation: 5 credits

Module Coordinator: Dr Clionadh Raleigh

Aims:

- To introduce students to potential research project titles, and to present relevant information to guide them in their choice of project
- To guide the student through the development of key project management skills
- To develop skills in grant application preparation, in association with their research topic
- To initiate the process of literature review in relation to the project

Learning Outcomes:

On successful completion of this module students should:

- Develop an innovative thesis, based on the present research in the chosen sub-field
- Create a reading list and theoretical framework from published research that provides a thorough background for a dissertation question
- Develop relevant hypotheses to be tested, and an outline of the methods used to test these hypotheses
- Present these hypotheses and methods for peer review
- Create a full proposal including questions, theoretical framework, method review, proposed time schedule.
- Demonstrate skills in the preparation of grant applications, including budgeting

Content:

- Workshop to present and discuss list of project titles
- Student meetings with supervisors
- Workshop on developing a grant application, including budgeting and hypothesis generation. Presentation of the Logical Framework Approach.
- Student presentations on project plans, including hypotheses under investigation and research methods

Assessment:

Grant application (3-4000 words) 100%

Students will be expected to work on their project plan during the break between regular terms. The module will be introduced at the end of term, with the final presentations at the start of the following term.

Module title: ED 7010 Research Project (dissertation)

ECTS Allocation: 30

Module Coordinator: Dr. Clionadh Raleigh

Aims:

The research project provides students with an opportunity to:

- Pursue a topic in their chosen area of Environment and Development biology in depth,
- To employ relevant skills (including research planning, literature review, experimental design, and statistical analysis)
- Apply and develop their knowledge of research methods.
- The nature of the project work may vary. There will be opportunities to carry out project work with collaborative institutions, including NGOs in the local areas. An academic supervisor from TCD will oversee the project. Students will be expected to demonstrate a level of academic performance appropriate to a masters' degree.

Learning Outcomes

On successful completion of this module students should have developed and be able to demonstrate a capacity to:

- Prepare a clear rationale for the selection of a problem or issue to be studied;
- Carry out an appropriate review of the relevant literature and consider its implications for the proposed study;
- Develop a set of hypotheses or ideas to be tested;
- Select and employ suitable methods and procedures for the collection, analysis and presentation of relevant data;
- Discuss the results in terms of their implications for the hypotheses;
- Present the study in a coherent and acceptable fashion;
- Produce well-reasoned conclusions and discuss their significance and implications

Project Selection:

Teaching staff in the school will be invited to submit research topic titles together with a brief explanation of the project in late winter. These will be presented to the students at the first workshop of the Project Planning module (see above).

Supervision:

Following discussion with the course director and course teaching staff, each student will be assigned a supervisor and project. The normal expectation is that twelve supervision hours will be required for students to complete the dissertation. The precise timing of meetings will be subject to agreement between students and supervisors.

Role of the Supervisor:

- Assist in selecting and developing a topic for research;
- Advise on a literature search;
- Advise on ethical and practical issues;
- Monitor data collection and general progress;
- Advise on data analysis;
- Advise on the format and content of the dissertation;
- Review drafts of the dissertation to a schedule agreed with the student

Student Responsibilities

The student will be responsible for the selection of a research topic and supervisor, in consultation with the course director. The student will maintain regular contact with the supervisor throughout and will devise a timetable for the work to be completed in collaboration with the supervisor.

Assessment

Assessment will be by means of a dissertation of 15,000 words based on the investigation of a selected topic in Environment and Development. An examination committee consisting of the supervisor, a nominated internal examiner and the external examiner for the course will assess the dissertation. The dissertation will be graded in much the same way that undergraduate projects are currently graded within the School. However, the examination committee will be able to make suggested corrections, where required, and these must be completed by the student- similar to a M.Sc. by research. After completion of any corrections imposed by the examiners, the dissertations will be hard bound; this will ensure that a body of high quality and well-presented work will be produced by this M.Sc. course.

Module Title: ED 7011 Political Ecology and Sustainable Development

ECTS Allocation: 5 credits

Module Coordinator: Dr. Joseph Assan

Aims:

- To introduce students to the main theories of economic globalisation, development and political ecology.
- Through case studies to assess the impacts of economic and environmental Globalisation on regions in Asia, Africa and Latin America.
- To critically assess the concept and potential of sustainable development.
- Through case studies to examine instances where sustainable livelihoods have been preserved and created. The 'livelihoods approach' to poverty reduction provides a valuable framework for understanding the opportunities and assets available to poor people and their sources of their vulnerability, as well as the impact upon them of different policies, organisations and institutional arrangements. The livelihoods approach recognizes that poor people often become involved in a variety of activities, or 'strategies', to secure their livelihoods. The livelihoods approach and various livelihoods frameworks are more than analytical tools. They can be used to guide the design of projects and programmes, as a means of influencing development policy in favour of the poor, or as a set of indicators to evaluate a particular development intervention.

Learning Outcomes:

On successful completion of this module students should be able to:

- Explain the main theories in the field
- Critically analyse the intersections between environment and development
- Interpret contemporary environmental connections
- Successfully complete a self-guided research project on a political ecology issue of their choice
- Conduct a review of the various meanings of 'sustainable development' across several cases
- Identify how development is defined differently at various political scales
- Identify how each theory interprets the roles of structure and agency

Content:

- States, Transnational Corporations and the World Bank: The Environmental Impacts of Development
- Gender and Environment- Case study of Narmada Dam project in India/Grassroots Environmental Action
- Toxic Trade and Environmental Racism
- The Greening of Industry or deglobalisation?

Assessment: 100% continuous assessment.

ED 7012 Induction and Fieldwork Module

ECTS Allocation: 10 credits

Module Coordinator: Prof. David Taylor

Aims:

This is a brief course to introduce students to the Environment and Development course, the School and College. We review the core modules of the course and lecturers will discuss their focus during modules. A review of desk studies and dissertations is presented. The induction period also includes a review of basic skills, including basic statistics, writing skills, a review of plagiarism rules, followed by trips to the libraries in TCD and the development library at UCD. A representative from TIDI, Irish Aid, The Hunger Task Force and the EPA will visit and discuss the relevant policy topics in the field of Environment and Development.

In the second portion of the course, the students will prepare for field work in Rwanda by reviewing the history of Rwanda and the previous year's fieldwork manuals and exercises. A two-week field course will take place in July.

Learning Outcomes:

On completion of this course students should:

- Have gained an overview of College, School and Programmes
- Be able to critically analyse the intersections between environment and development.
- Be able to integrate their work within the larger research projects in college
- Conduct successful interviews and data gathering in the field
- Be able to successfully complete a self-guided research project

Time Frame:

One week beginning of year, two weeks in March.

Assessment:

100% continuous assessment during field exercises in Rwanda.

ED 7013 Human–Biodiversity Interactions

ECTS Allocation: 5 credits

Module Coordinator: Dr Jane Stout (stoutj@tcd.ie)

Aims:

- To explore how human activity can positively and negatively affect global biodiversity
- To use case-studies to investigate biological impacts of habitat destruction and fragmentation, invasions by non-native species, pollution and climate change
- To examine political ecology of human-biodiversity interactions

Learning Outcomes:

On successful completion of this module students will be able to:

- Demonstrate knowledge of how human activities directly interact with global biodiversity, including an appreciation of how political struggles for control over biological resources and socio-economic pressures affect biodiversity conservation and sustainable use
- Critically evaluate published research on human-biodiversity interactions, both individually and in groups
- Design and conduct public attitudes survey and communicate findings to peers
- Analyse and interpret published data and produce a journal-style report
- Peer-review reports written by colleagues
- Carry out an in-depth case study and present project findings orally and in a non-technical written format

Assessment:

Invasive alien species public attitudes survey and presentation	10% (group mark)
Phenology report and peer review	40%
Executive summary of biodiversity conflicts project	35%
Oral presentation of biodiversity conflicts project	15% (group mark)

Content:

1: Human impacts on biodiversity (Jane Stout)

Aims:

The aims of this part of the course are: 1) to explore the value of biodiversity to humans, 2) to familiarize students with some of the main anthropogenic drivers of biodiversity change, 3) to give examples of human-induced impacts and 4) consider methods to detect and reverse human impacts.

Learning outcomes:

This section of the course will enable students to:

- Describe the major anthropogenic drivers of global biodiversity change and their impacts
- Synthesize information from variety of sources
- Develop writing, presentation and data analysis skills
- Critically appraise and review oral and written reports from other students

2: Biodiversity conflicts (Anna Davies)

Aims:

Scientific investigations are at the forefront of identifying problems related to the depletion of biodiversity and scientific solutions to those problems are frequently proposed. However the causes of biodiversity loss are often linked to social, political and economic factors that are not bound by the laws of natural science. This element of the human-biodiversity interactions module will provide students with the opportunity to examine, analyse and reflect on why conflicts over biodiversity occur and the measures that are used to resolve them. The aims are two-fold: 1) to provide students with concrete examples of diverse conflicts from a range of geographical locations 2) to aid students in the development of transferable skills in areas including critical analysis, synthesis and oral presentation.

Learning Outcomes:

With full participation in this course including completion of readings and assessment students will be able to:

- Analyse and evaluate information from different sources and relating to diverse conflicts
- Provide a synthesis of key arguments and knowledge claims made in each case
- Lead a discussion about the key issues involved in a specific conflict
- Evaluate the successfulness of conflict resolution techniques under different conditions
- Develop transferable analytic and presentation skills

Timetable (all lectures in MSc Seminar Room, Centre for the Environment)

Activity Table
Lecture 1: Value of biodiversity to humans (JS)
Lecture 2: Human mediated threats to biodiversity (JS)
Habitat loss and fragmentation discussion tutorial (JS)

Desk study preparation
Lecture 3: Invasive alien species: invasion process (JS)
Lecture 4: invasive alien species: impacts (JS)
IAS perception research and analysis
IAS perception research and analysis
Presentation of IAS perception study (JS)
Discussion of IAS perception study (JS)
Lecture 5: Pollution: causes and consequences (JS)
Desk study preparation
Lecture 6: climate change: spatial and temporal impacts on biodiversity (JS)
Lecture 7: climate change and invasive alien species (JS)
Phenology data analysis exercise introduction
Phenology data analysis and write up
Phenology data analysis and write up
Desk study presentation
Phenology data analysis and write up
Introduction to Political Ecology. Case studies: exploitation of medicinal plants, wildlife conservation and illegal crops (AD)
Lectures on dimensions of environmental conflict and conflict resolution (AD)
Introduction to assessment and allocation of key reading (AD)
Phenology write up submission
Group work on case study conflicts

Group work on case study conflicts
Group work on case study conflicts
Group presentations on case study conflicts (AD)
Research Project Development

Staff: JS Dr. Jane Stout (Module co-coordinator), AD Prof. Anna Davies

ASSESSMENT AND EXAMINATION PROCEDURES

Submission & Deadlines

Assignments must be submitted by the time and date stipulated by the module co-ordinator in the timetable; submission will normally be to the Course Administrator in the School Office. *Each assessment must include a completed title page template. This template will be emailed to all students at the beginning of term. Assignments will not be accepted without a completed title page template.*

It is your responsibility to ensure work is signed for on receipt as a record of submission.

You should keep hard copies of all work that you submit.

Assessments submitted after the deadline will receive a 10% deduction in the final mark for each working day late. Assessments will not be marked if more than two working days late unless by prior, written agreement with the module co-ordinator.

Marking and Feedback

Unless otherwise stated, indicative grades (see Table 1 for details) will be circulated within one month of submission. A date and time will also be circulated at which you can collect assessed work.

All assessed work **MUST BE RETURNED** prior to the first Court of Examiners meeting. The deadline for return of work will be circulated during the second semester.

Note: these grades are indicative. **All marks are provisional** until passed by the Court of Examiners meeting, which is held after the end of module teaching.

Module Failure & Re-Submission

Students must undertake **ALL 60 ECTS** of the taught component of this course and achieve a **pass** prior to embarking on the research project.

Failure of taught course components equivalent to **TWO MODULES or more** will result in **FAILURE OF THE COURSE**.

Re-submission of assessed work is not normally permitted. In exceptional circumstances, students may seek permission to re-submit **one** piece of work. Permission must be sought in writing to both the course director and the module co-ordinator, clearly outlining the nature of these circumstances. Re-submitted work will either receive a pass (50%) or a fail mark.

NOTE: Acceptance of re-submitted work is entirely at the discretion of the programme director and module co-ordinator, and will only be considered where serious extenuating circumstances are demonstrable.

Indicative Grade	Provisional Mark (%)
A++	> 85
A+	75-85
A	70-74
B+	65-69
B	60-64
C+	55-59
C	50-54
F	<50

Table 1: Indicative grades and associated provisional mark range for formative feedback. Marks are finalised at the Court of Examiners.

Appeals

The appeals procedure is outlined in Section 3.7 of Part 2 of the College Calendar. This can be downloaded from the College website at:

<http://www.tcd.ie/calendar/assets/pdf/calendar-part-2-1011-final-version.pdf>

Note: Appeals can only be made after the final marks are issued following the last Court of Examiner's meeting.

Plagiarism

Plagiarism is interpreted by the University as the act of presenting the work of others as one's own, without acknowledgement. Plagiarism is considered as academically fraudulent, and an offence against University discipline. The University considers plagiarism to be a major offence, and subject to the disciplinary procedures of the University.

Plagiarism can arise from deliberate actions, and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences.

It is your responsibility to familiarise yourself with the regulations regarding plagiarism. These are clearly outlined in Section 1.24, in Part 2 of the College Calendar. This can be downloaded from the College website:

<http://www.tcd.ie/calendar/assets/pdf/calendar-part-2-1011-final-version.pdf>

In general, ensure that you fully reference all previously published work, and check with the module co-ordinator if you are not clear of the requirements relating to group assessment exercises. Do not copy information from internet sources. Any work submitted may be assessed through recognised plagiarism detection software in use in College.

HEALTH, SAFETY AND SECURITY

Health

All incoming students receive the Faculty of Science Health and Safety Manual and enclosed declaration forms (A and B). These forms must be completed, signed and returned prior to the start of coursework or research. Please inform either the Programme Director or Safety Officer of medical conditions such as epilepsy, diabetes, fainting fits, haemophilia, immunodeficiency, asthma, severe allergies, balance disorders or other problems that may require special attention from staff.

In case of illness, students may attend the Student Health Centre (House 47).

Accidents

All accidents must be reported to the Safety Officer (Terence Dunne ext: 2263) as soon as possible after they occur. Victims should be escorted to the Student Health Centre for treatment if necessary. An ambulance should be called in the event of a serious accident (9-999 on phones with outside lines and inform the security office). Victims should not be taken to hospital in a private car or taxi.

Fire Safety

Fire extinguishers and copies of the College General Fire Notice are displayed at various locations in the Centre. These are normally located in hallways. Fire extinguishers provided are water, powder, carbon dioxide or a fire blanket. Please note how the fire extinguishers are operated in your building and if you are unsure, ask during the Induction Week safety briefing.

Help to prevent fires from starting or spreading by the following:

- Do not store flammable materials in corridors and other open-access areas.
- Exercise caution when using flammable materials and electrical equipment.
- Do not place smouldering items in bins
- Keep filing cabinets and presses closed when not in use
- Turn off and switch off at the socket (or unplug) electrical equipment that is not in use.

The college buildings are equipped with fire alarms. On hearing the alarm, leave the building quickly and in an orderly manner, and assemble in the car park at the north side of the rugby pitch (Assembly Point C). If possible before leaving, turn off all equipment, close windows and doors in the immediate work area.

In the event of fire, inform Front Gate Security Office (1317 or 1999) who will call the fire brigade or, if you can access a direct-dial phone, call the fire brigade directly at 9-999. When the fire brigade arrives, warn firemen of possible missing persons and of potential hazards (dangerous chemicals, gas cylinders and so on).

Bomb Alerts

Watch out for suspicious packages at all times and, if one is observed, alert a staff member immediately. If there is a bomb alert, follow the same procedures as for a fire alert.

Risk Assessment

A risk assessment must be carried out for research activities such as lab work and field work. Risk assessment forms are available from the Safety Officer.

Fieldwork

Detailed safety guidelines on fieldwork are available from the department's Safety Officer and should be consulted before fieldwork is undertaken. A risk assessment should be completed **BEFORE** conducting fieldwork. A few of the more important points are listed below and in the Faculty of Science Health and Safety Manual.

- Wear suitable clothing and footwear while carrying out fieldwork.
- Always leave an account of your movements with a reliable person before going out on fieldwork.
- Inform yourself as far as possible on the likely conditions you will encounter while on field work (weather, state of the tide and so on).
- A safety helmet must be worn in situations such as on buildings and building sites, factories, quarries etc. In addition, wear safety glasses if there is a risk of injury to the eyes. A safety harness should be worn in exposed situations where there is a risk of falling (e.g. tops of buildings, cliffs, rafts on water).

Boats

- Lone working is not allowed in boats.
- Do not attempt to operate a boat unless you are suitably experienced.
- A buoyancy aid must be worn when working in small boats.
- Inform yourself of dangers associated with the waters you intend to work on by consulting bathymetric maps and local knowledge.

Diving

Diving may only be undertaken by suitably qualified persons. Rules and regulations governing diving are available from the Dublin University Sub Aqua Club (DUSAC).

Laboratory Work

Safe and sensible practices must be followed at all times in the laboratory. Consult the handbook 'Safety in Laboratories' (published by Ciba-Geigy) before undertaking laboratory work. Any direction given by a lab member must be followed

When working in the Centre laboratory you **MUST**:

- Wear a lab coat and safety glasses (Lab coats are available in the Students Union Shop, No. 6 Front Square)
- Wear appropriate protective gloves when handling dangerous materials (e.g. acids, sodium hydroxide etc)
- Ensure that the fume cupboard is on when necessary but not otherwise (never turn off the fume cupboard whilst fumes are still being generated, e.g. from hot digestions).
- Ensure all samples are properly labelled, to include: owner; date; and any other important information such as toxicity, hazard warning etc. **WARNING:** Samples not properly labelled will be thrown out!
- Leave benches clean and tidy, and return used items (chemicals, spatulas, pipettes etc.) to their proper place.
- Dispose of materials safely. Broken glass should be placed in the special bin provided. If in doubt, consult with laboratory staff.
- Report breakages or damage to a member of staff.

If you suffer from any health problem, such as colour blindness, epilepsy, asthma, fainting fits, haemophilia, general allergies, immunodeficiency, diabetes, balancing disorders, or any other health problem likely to affect your work, you must:

1. Inform your doctor of your intention to undertake laboratory and field work and seek relevant advice.
2. Notify your tutor.
3. Inform project / practical supervisors and field-course leaders.
4. Before embarking on any fieldwork, you must familiarise yourself with the Fieldwork Safety Manual (available from the Freeman Library), consult your supervisor and complete the relevant Fieldwork Safety and Risk Assessment forms (available from the Geography Office).

IMPORTANT NOTE: Failure to complete the relevant forms may prevent you from undertaking fieldwork or participating in field trips, and can result in you forfeiting marks for associated

When working in the laboratory you **MUST NOT**:

- Use any equipment (e.g. centrifuge etc) you are unfamiliar with. Check operating instructions with laboratory staff. **NOTE:** operation may differ from similar pieces of equipment you have used in the past. Always check before use!
- Carry out potentially hazardous operations (e.g. AA work, digestions, handling concentrated acids or alkalis) while alone in the lab.

- Leave the furnace on overnight.
 - Store samples in the lab. Consult a staff member about storage.
 - Consume food or drink
 - Work out of hours unless:
 - (a) A member of lab staff has granted permission for a specified procedure. Permission will only be granted for procedures that carry a very low risk.
- AND
- (b) A second person is present.
- AND
- (c) You sign in and out of the late working book that is provided.

Security & Access

The main entrance is through the side door on the lane. This should be kept locked at all times and should be double locked outside normal work hours (08:30 - 18:00 hrs). Keys will be provided on payment of a deposit and should be returned on completion of the course. **Keys are for your personal use only and should not be copied or loaned.** If you lose your key, please inform staff as soon as possible.

Valuables should be kept in a secure place. Lockers are provided but the College accepts no responsibility for loss or damage to personal items.

Bicycles are not permitted inside the Centre at any time.

Emergency exits are located on the ground floor onto Pearse St from 187, 188 and 190; at the rear of the main lab; and on the top floor of 187 into 186. Please note that these are emergency exits and **should not be used otherwise.**

Intruders

Please be vigilant as College premises have been the subject of targeted theft from individuals posing as staff, students, couriers, trades people etc.

Please challenge suspected intruders with a polite remark such as 'may I help you'? If you are not satisfied with the answer, inform the security office at Front Gate (1317 or 1999).. Do not challenge an intruder who is acting aggressively or who has clearly broken into the building; instead, make good your escape and inform security as soon as possible. Take particular care, and keep the main entrance locked, after 18:00 hrs or at weekends.