Queen's University Belfast

School of Biological Sciences

MSc/Diploma

Ecological Management and Conservation Biology 2016/17

Course Handbook

Course coordinator:
Dr Neil Reid
E-mail: neil.reid@qub.ac.uk
Tel: 0044 28 9097 2281

MSc/Diploma in Ecological Management and Biological Conservation

Educational aims

To prepare graduates in the life sciences and those with other relevant first degrees and/or experience for careers in research, industry and other areas of professional scientific employment. Examples of target employers: environmental consultancies (local, national and international), museums, conservation charities, government (e.g. Northern Ireland Environment Agency, Department of Agriculture and Rural Development, Environmental Protection Agency, Inland Fisheries Ireland, Natural England, Scottish Natural Heritage, JNCC). Many of our graduates move on to Ph.D. research degrees.

Objectives:

The course aims to develop students' generic and scientific research skills, including use of bibliographic resources, communication and the role of statistics in a research programme. Students will develop an understanding of appropriate subject-specific material concerning the four most significant threats to biodiversity worldwide: habitat destruction; introduced species; overexploitation; and climate change. Topics include conservation genetics, invasion biology, resource exploitation, and climate change biology. Skills learned include database construction, species identification (theory and practice), GIS, and statistical programming and inference using R. Students on the MSc programme will refine their research skills and knowledge of a specific area through a research project.

Learning outcomes

On completion of this course students should be able to:

- deal with complex environmental issues systematically and creatively

- communicate their conclusions clearly to specialist and non-specialist audiences

- demonstrate personal initiative, independent and team-orientated skills in tackling and solving problems

- demonstrate the independent learning ability required for continuing professional development

These generic outcomes will be accompanied by subject-specific knowledge in species identification and the science underlying conservation biology. This involves the evaluation and analysis of the effects of anthropogenic processes on natural populations and ecosystems.

Teaching and related staff:

Dr Neil Reid (NR) neil.reid@qub.ac.uk
Dr Paul Williams (PW) p.williams@qub.ac.uk
Dr Jude Stephens (JS) j.stephens@qub.ac.uk

Prof. Mark Emmerson (ME)	m.emmerson@qub.ac.uk
Prof. Jaimie Dick (JD)	j.dick@qub.ac.uk
Prof. Ian Montgomery (WIM)	i.montgomery@qub.ac.uk
Dr Tancredi Caruso (TC)	t.caruso@qub.ac.uk
Dr. Keith Farnsworth (KF)	k.farnsworth@qub.ac.uk
Dr Jon Houghton (JH)	j.houghton@qub.ac.uk
Dr Sarah Helyar	s.helyar@qub.ac.uk
Gillian Riddell (GR)	g.riddell@qub.ac.uk

Programme structure

The course consists of five modules that are taken by all students:

1. Ecological Management and Conservation Biology (BBC8034)	40 CATS
2. Foundations for Research in the Biosciences (BBC8042)	20 CATS
3. Skills in Ecological Management (BBC8035)	20 CATS
4. Professional Development (BBC8026)	20 CATS
5. Literature review (BBC8025)	20 CATS

The following module is for the MSc pathway only:

6. Research project (BBC8001)	60 CATS

Assessment overview

Each module has an assessed component:

Ecological Management and Conservation Biology BBC8034 (coordinator Dr Neil Reid):
50% continuous assessment, 50% exam (taken in May).

The exam consists of essay questions

Continuous assessment elements:
(1) Seminar presentations on conservation genetics
(2) Poster session and written reports on invasion biology
(3) Seminar presentations or reports on Environmental Impact Assessment
(4) Written report on Environmental Economics

Foundations for Research in the Biosciences BBC8042 (coordinator: Dr Paul Williams)
Assessed component (details given in relevant lectures):

1. Research seminar critique (20% of final mark).
2. Research grant proposal (60% of final mark).
3. Poster presentation (20% of final mark).

Skills in Ecological Management BBC8035 (coordinator: Dr Neil Reid)
50% continuous assessment, 50% exam (taken in May/June)

The exam consists of short answer questions on ecological sampling techniques.

Continuous assessment elements
(1) R statistics assignment (45%)
(2) GIS assignments (45%)
(3) GIS Online Exam (10%)

Literature review BBC8025 (coordinator Dr Neil Reid):

Single report (literature review) to be submitted Fri 27th January 2017

Professional Development BBC8026 (coordinator: Dr Judith Stephens)

Learning journal and written report to be submitted Fri 5th May 2016 (with exceptions)

Research project BBC8001 (coordinator Dr Neil Reid):

Research project to be submitted 31st August 2017.

Study regulations

Award and pathway regulations: (Supplementary to the general University and specific Faculty Regulations)

Diploma: The programme is taken full time in a year or part-time in two years. To be awarded a Diploma, candidates must obtain a mark of at least 50% in BBC8034, and have an average mark in the four modules of 50% or higher, with no more than one individual module mark below 50%.

A candidate with at least 50% in Ecological Management and Conservation Biology plus an average of 50% in the other modules will be permitted to transfer to the MSc - the regulations governing the MSc in Ecological Management and Conservation Biology will then apply. This will involve completing a research dissertation (BBC8001).

MSc: The programme is taken full time in one year or part time in two years. To be awarded an MSc, candidates must obtain a mark of 50% or more in BBC8034 and BBC8001, and have an average mark in the 6 modules of 50%, with no more than one individual module mark below 50%. Candidates who obtain an overall average mark of 70% or more, 70% or more in the research project and an average of 65% or more in the other modules will be awarded an MSc 'with Distinction'. Candidates who obtain an overall average mark of 60% or more will be awarded an MSc 'with Commendation'.

A candidate who fails to satisfy the Board of Examiners for the award of an MSc may, provided a satisfactory standard has been achieved (and on the recommendation of the Board of Examiners), be transferred to the Postgraduate Diploma; the regulations governing the Postgraduate Diploma in Ecological Management and Conservation Biology will then apply.

Calculation of marks

The final pathway mark is based on a weighted average of the modules taken. Weights follow the 'CATS' points tariffs below. CATS points are an indication of the contact hours and individual study time for each module (1 point represents 10 hours).

	CATS
1. Ecological Management and Conservation Biology (BBC8034)	40
2. Foundations for Research in the Biosciences (BBC8042)	20
3. Literature review (BBC8025)	20
4. Skills in Ecological Management (BBC8035)	20
4. Professional Development (BBC8026)	20
5. Research project (MSc pathway only, BBC8001)	60

BBC8034 and BBC8035 (Skills) are assessed by continuous assessment (CA) and exam; the other modules are all based on CA only, as explained for each module. The CATS are converted to a percentage mark and the Degree/Diploma awarded on that basis.

Regulation 2.6 M level Postgraduate Awards states:

For Diploma results there shall be a common mark scale as follows:

70+	Pass with distinction
60+	Pass with commendation
50+	Pass
Below 50	Fail

For Master's Degree results there shall be a common mark scale as follows:

70+	Pass with distinction
60+	Pass with commendation
50+	Pass
Below 50	Fail

Students must pass all modules of an M level taught postgraduate programme before an award can be made. **Given that all modules must be successfully completed, students will be permitted to retake failed taught postgraduate modules on one further occasion.**

Study regulations
More detail is available from the School Office, the University Quality handbook and the Programme Specification. This handbook is intended as an outline guide to the course.

Plagiarism
The usual School of Biological Sciences rules apply over plagiarism. Credit cannot be given for work that is not the student's own (and disciplinary procedures exist for sanctioning plagiarists). Work that is "not the student's own" includes 'cut and paste' compositions from the web, unattributed quotes or opinions and identical passages of writing appearing in submissions from separate students. Full details are provided in the School Student Handbook (available from www.qub.ac.uk/bb/).

If in any doubt please check with lecturing staff or the School documentation.

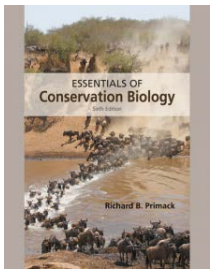
Policy on late submission of coursework
It is University policy that students be penalized for the late submission of assessed coursework (i.e. anything which counts towards a final module mark). The penalty system takes the form of a 5% deduction from the total available marks for each working day that the assignment is late, up to a maximum of 5 working days after which a mark of zero will be awarded. Where the assessed work element accounts for a certain proportion of the module mark, the 5% penalty will apply to the assessed element mark only and not to the overall module mark.

Exemptions from the penalty will only be granted in extenuating circumstances and if the student has made a case in writing to the member(s) of staff designated by the School within three days of the deadline for submission. The University has issued guidelines on the kinds of extenuating circumstances which are normally considered acceptable or unacceptable. Students seeking exemption from the penalty on the grounds of extenuating circumstances must do so in writing, using the standard application form. The form must be submitted to the designated member of staff in the school within three days of the deadline for submitting the assessed coursework concerned.

Unless stated otherwise, students should submit **electronic copies** of any work for assessment via *Turnitin*.

Information sources:

Core textbook:



Primack, Richard B. 2014. Essentials of Conservation Biology. 6th edition. Sinauer. ISBN: 9781605352893 from £44 from Amazon

Recommended reading:

Van Dyke, F. 2008 Conservation biology: foundations, concepts, applications. 2nd Edition. [Springer hard copy £44; e-book £35] http://www.springer.com/life+sciences/ecology/book/978-1-4020-6890-4

Gaston, KJ & Spicer 2004 Biodiversity: An introduction. 2nd Edition. http://eu.wiley.com/WileyCDA/WileyTitle/productCd-EHEP002679.html [Wiley hard copy 29.95; e-book £23.99]

Hunter, ML & Gibbs JP 2007 Fundamentals of conservation biology (3rd Edition). http://eu.wiley.com/WileyCDA/WileyTitle/productCd-1444308971.html [Wiley hard copy £39.99; e-book £24.99]

Caughley G. & Gunn A. 1996 Conservation biology in theory and practice. Wiley [plenty of copies available second hand e.g. Abe Books [http://www.abebooks.co.uk/]

Meffe, G. K. & Carroll, C. R. 1997 Principles of conservation biology. Miller, L. 2001 Careers for nature lovers & other outdoor types.
Primack, RB 1998 Essentials of conservation biology Spellerberg IF 1996 Conservation biology.
Sutherland, WJ 1996 Ecological census techniques: a handbook Sutherland, WJ 1998 Conservation science and action.
Sutherland, WJ 2000 The conservation handbook: research, management and policy.

Although these books are available in the library, students should consider purchasing one general text to cover the course (probably either Hunter & Gibbs or Van Dyke)

Particularly relevant electronic journals, available through Science Direct and the University library web pages, are:
Conservation Biology, Biological Conservation, Environmental Conservation, Trends in Ecology and Evolution

See also the Millennium Ecosystem Assessment at:
http://www.millenniumassessment.org/en/index.aspx

Other mainstream journals contain material of interest, e.g. *Nature, Science, Advances in Marine Biology, Journal of Applied Ecology, Ecological Applications, Journal of Animal Ecology, Functional Ecology, Journal of Ecology.*

Web resources include NGOs, the world conservation monitoring centre, government conservation bodies, the EU, museums and university web pages.

Job information: http://www.environmentjob.co.uk/jobs

Ecological Management and Conservation Biology module (BBC8034)

Module Coordinator: Dr Neil Reid neil.reid@qub.ac.uk MBC room 05.014

Objectives
As the **main module** for the MSc and Diploma pathways, this module's objectives reflect the subject-specific aims of the programme: an introduction to, and review of, subject-specific material concerning the four most significant threats to biodiversity worldwide: habitat destruction; invasive species; overexploitation; climate change. Material covered is diverse and includes conservation genetics, invasion biology, resource exploitation/harvesting, and climate/environmental change biology in different ecosystems. The module content is designed to provide a framework for applying critical thinking to solve conservation-related issues in a variety of different subject-based and work-based contexts.

Learning outcomes
The learning outcomes reflect the overall outcomes of the MSc and Diploma pathways. Students should be able to demonstrate knowledge of a number of areas underpinning conservation biology including: biodiversity assessment, effects of management of habitats, the principles of conservation genetics, decision support systems (uses of modelling), environmental economics, and conservation impacts of introduced species.

Core teaching hours information
In Semester 1, the core teaching hours will *normally* be on Monday and Tuesday. The rest of the week is available for private study/group work. Students who would like to attend undergraduate lectures are very welcome. If attending more than one or two it would be helpful to notify the course co-ordinator for those lectures.

WMB = Whitla Medical Building
MBC = Medical Biology Centre

The WMB is next to the MBC – from the MBC main entrance, keep going straight through the coffee area and out the doors at the back; the WMB is 50m along the path. See building number 23 on the map here:
http://www.qub.ac.uk/home/TheUniversity/Filestore/Filetoupload,471370,en.pdf

There will not necessarily be the same teaching hours or at the same location every Monday or Tuesday: consult the timetable provided by Dr Lennon for details.

Semester 1

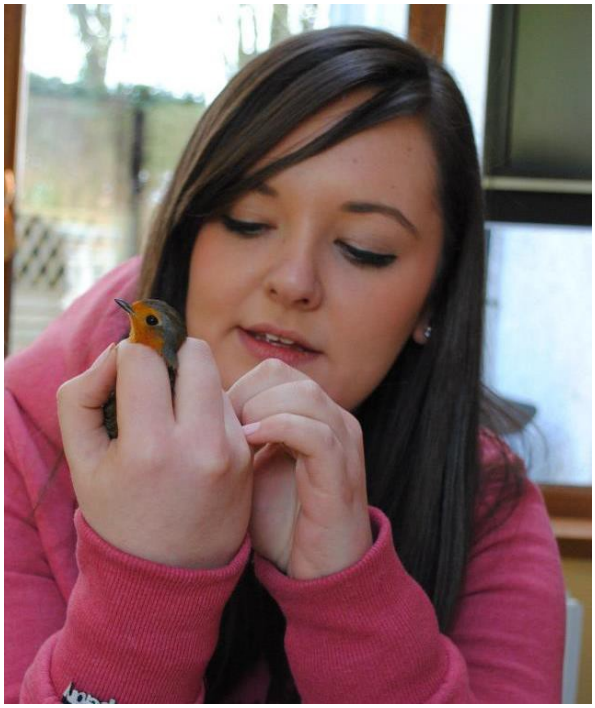
Mondays	WMB Seminar Rooms (see timetable for room number)
Tuesdays 11am-1pm	WMB Seminar Rooms (see timetable for room number)
Tuesday 1-2 pm	**School Seminars**: usually the North Lecture Theatre MBC
Tuesday 3-5 pm	**Foundations module**: most are MBC G23ST South Lecture Theatre: confirm venues with teaching staff

Teaching may extend beyond the core hours for some sections of the course, but only with at least two weeks' advance notice.

Seminars

The School of Biological Sciences runs a weekly seminars series at lunchtime (1-2pm) on Tuesdays and all PGDIP/MSc students should be attended even if not directly relevant. Some seminars in other departments including Geography are also very interesting. Attendance at these seminars will form the basis for completing the seminar proforma exercise for BBC8042.

Skills in Ecological Management Module (BBC8035)



Module Co-ordinator: Dr Neil Reid

Objectives
As one of the specialist modules for the MSc and Diploma pathways, this module objectives reflect the subject-specific aims of the programme: the acquisition of more advanced skills. Students will apply subject-specific skills in a number of different ways (through group work, individual research and practical exercises).

Learning outcomes
The learning outcomes are the skill-related outcomes of the MSc and Diploma pathways, including advanced topics in ecology and conservation, practical experience of biodiversity assessments, modern statistical programming software and ecological analysis, Geographical Information Systems, and accessing and storing species-related information. Students should be able to demonstrate basic species identification skills within three groups of organisms.

Core teaching hours information
This will be taught mainly or wholly in semester 2. Most of the contact hours will be scheduled for Monday and Tuesday afternoons, in various venues depending on the nature of the class (e.g. computer practicals will be held in computer labs).
Identification fieldwork and other fieldwork may be scheduled for other times, by prior agreement with the class. We will try to give at least two weeks' notice of these dates but some flexibility is necessary.

Location

Mainly computer labs in the Peter Froggatt Centre (near Lanyon Building) and the MBC: consult timetable provided by Dr Reid for details.

Course components

Introduction to GIS. Students will be introduced to the main features of ARC GIS and given the opportunity to manipulate spatial data and produce maps of ecological habitats and species distributions.

R for Ecologists. R is now the main way in which data are handled and analysed in ecological research and across much of science in general. We will begin with the basics of what the R is and what it does, how to read and manipulate data files and how to display data and perform basic statistical tests given, the theory behind test selection. The course will then move on to showing how large spatial datasets can be accessed and manipulated; finally, students will be introduced to species distribution modelling (SDM) and will analyse large-scale species distribution patterns as a function of environmental variables and produce maps showing their results. **Assignment**: SDM of online data selected by student and/or provided ready-made.

Foundations for Research in the Biosciences module (BBC8042)

Module Co-ordinator Dr Paul Williams p.williams@qub.ac.uk

Aims

The aim of this module is to introduce you to the process of designing and planning a research project including all associated aspects, such as formulating hypotheses, designing experiments, budgeting, analysing data, considering ethical implications of the research and understanding the potential impact of the research.

Learning Outcomes

Students completing this module should (i) understand the diversity of sources from which research is funded (ii) understand how use the scientific method to formulate hypotheses to test scientific questions (iii) understand how to use statistical procedures to analyse data (iv) understand how to write a scientific proposal to attract research funding (v) understand how to recognise and deal with ethical implications of their research (vi) understand how to recognise the impact of their research.

Teaching Methods

Module Staff

- Dr Paul Williams (RH) p.williams@qub.ac.uk (**co-ordinator)**
- Dr Christop Engl (CE) c.engl@qub.ac.uk **(co-coordinator)**
- Chris Allen c.allen@qub.ac.uk
- Professor Jaimie Dick (JD) j.dick@qub.ac.uk
- Professor Gordon Allen (GA) ap.allan@btinternet.com
- Dr Gareth Arnott (GAN) g.arnott@qub.ac.uk
- Dr Edel Hyland (EH) e.hyland@qub.ac.uk
- Dr Katrina Campbell (KC) katrina.campbell@qub.ac.uk
- Dr Neil Reid (NR) neil.reid@qub.ac.uk
- Dr Claire Dewhirst (CD) c.dewhirst@qub.ac.uk
- Dr Hansjoerg Kunc (HK) h.kunc@qub.ac.uk
- Konstantin Panov (KP) k.panov@qub.ac.uk
- Mark Mooney (MM) m.mooney@qub.ac.uk

Assignments

Summary of BBC8042 assessed component (details given in relevant lectures):

1. Research seminar critique (20% of final mark).
2. Research grant proposal (60% of final mark).
3. Poster presentation (20% of final mark).

The module final mark will be comprised of the above three continuous assessment exercises. All written assignments should be word processed and submitted online through the assignment section of the module homepage. You do not need to submit the poster, this will be assessed in the poster presentation session on 8/12/15.

Late Submission: according to University policy students will be penalised for late submission of continuous assessment work by 5% deduction from the total available marks for each working day, up to a maximum of 5 days, after which a mark of zero will be automatically awarded. The exception to this is legitimate exceptional circumstances (see http://www.qub.ac.uk/directorates/sgc/ec/ for further guidance). To be counted, such evidence must be submitted to the School Office within 3 working days of your return to University. Please note that e-mail submission is not acceptable, assignments must be submitted through the assignment section of the module home page. **Staff will not mark work emailed to them and are under no obligation to acknowledge such emails.**

Study regulations
More detail is available from the School Office, the University Quality handbook the postgraduate regulations and the Programme Specification. This handbook is intended as an outline guide to the course and does not replace or override information given in official university documents.

Academic offenses
The University rules apply over academic offenses. Please see https://www.qub.ac.uk/directorates/AcademicAffairs/GeneralRegulations/Procedures/ProceduresforDealingwithAcademicOffencesincludingresearchmisconduct/ for further details of what constitutes an academic offense and the universities procedure for dealing with such offenses.

Queens Online
Please also note that a variety of web-based course material is supplied on the module home page on Queens Online in the resources section of the module pages. You are strongly encouraged to use them. The module home page is also the location of the assignment submission section.

Research seminar critique
The aim of this assignment it to write a short critique of the research presented in three seminars from within the school of Biological Sciences or a related area. Any seminars within the school of Biological Sciences are acceptable, but if you decide to choose a seminar from outside the school, check with the module coordinator that this is an appropriate subject to cover. This is an opportunity to explore the wider subject area of the seminar and think critically about the research presented. In your critique you should aim to put the research presented into context of the wider field from which it is drawn: Has the research made a significant impact on the field? Has it changed the way the field is perceived? Is there other research in the field that contradicts the findings of the seminar? Each seminar critique should be 500 words long, but bibliography will not be counted towards this limit.

Deadline
The three 500 word assessments should be submitted online as one word document by 8/12/15.

Marking scheme for Seminar critique

Class	Mark	Descriptors
Fail	0%	No submission.
	1% – 49%	Insufficient number of seminars reported (sliding scale), very little attempt to describe/analyse seminars.
Pass	50-55%	Descriptive in content, little or no attempt to explore or analyse research area.

	55-59%	Some evidence of exploration and analysis of research area.
	60-69%	Good evidence of exploration and analysis of research area.
Distinction	70-79%	Very good thoughtful analysis with good critique of the research area and placing the research in context.
	80-89%	As above + evidence of originality of argument.
	90-100%	As above + really well constructed, very detailed as good as the marker could have produced – worthy of retention or showing to seminar speaker

Research grant proposal

The aim of this assignment is to construct a research grant proposal in an area of your choice. The lectures of this module are built around the various aspects that go into designing and planning research and will help you to understand the different sections that go into a research proposal. It should be aligned broadly with the subject of your MSc degree pathway. It is not linked to your MSc research project in any way but this does not preclude you from proposing research in this area if you know what your project will be about. However, the timeframe and budget available for research proposed in this exercise will far outstrip your MSc project so it is a chance to go beyond these limits.

Deadline

The research grant proposal should be submitted online on 15/12/15.

Proposal structure

Summary (200 words)

Write a summary of the proposed research that would be understandable to a non-specialist reader with a university level education.

Funding body (approx. 200 words)

Identify the appropriate funding body for the research. How does your research fit within the remit of this funding body? Is it in a targeted strategic area specified by the funding body? The first lecture of the course (29/10/15) will give further information on how research is funded.

Background (approx. 500 words)

Describe the state of the art in the chosen area, i.e. what is known about this subject, what, if any, are the controversies, and what is yet to be understood. In this section you should summarise the field of research you are going to propose to work in (with references to the literature) and it should lead up to the parts of the field that are still

unknown or controversial, and thus need further research. You may choose to pursue an area where there is a gap in existing knowledge, or you might choose to pursue an area where there is disagreement, i.e. try to resolve an existing controversy.

Aims and hypotheses (approx. 200 words)
In this section you should present the aim of your research in general terms, and the specific hypothesis, or hypotheses that you will test. The aims will be the question that you are trying to answer and in relatively general terms, how you will answer it (e.g. It is the aim of this research to understand how deer antlers contribute to mating success by manipulating them) and the hypotheses are the predictions you will make of the outcome of the research (e.g. we predict that increasing the size of deer antlers will increase the number of matings the males achieve and vice versa).

Methodology and programme of work (approx. 700 words)
In this section you should detail how you will achieve the aims by carrying out the research project. You should describe the research you will do, the location of the research and facilities available, the techniques you will use, the equipment you will require and how long it will take. If you are using an established technique, reference the source of that technique. If it is a field based study, you should take into account the seasonality of the work (there is no point manipulating deer antlers outside the breeding season). You can propose a maximum of 3 years work, but it need not take this long.

Budget (table format)
In the form of a table with the headings: ITEM, COST, SOURCE, provide the costs of the equipment you will use and the costs of travel if you are doing this work outside the lab (you may want to work on lion behaviour in the Kalahari, for example, so you will need to work out how much flights are and how much hotels are for your stay). You can propose to spend a maximum of £50000. Provide the source for each of your items (i.e. don't just make it up, search the internet for prices of items). You do not need to put in costs for your salary, only for equipment and travel.

Ethical Issues (approx. 200 words)
What ethical issues are raised by the research proposed? If animals are used, what licences do they require? Does the research fall under the Animals (Scientific Procedures) Act? What is the justification for the sample size you propose? What ethical issues does your research raise in terms of potential for misuse? If there are no ethical issues, explain clearly why this is the case. The lecture on ethics will give further information on this (24/11/15).

Impact (approx. 500 words)
What impact will the proposed research have? This can be in any number of ways. Research can have economic impact, i.e. increase personal wealth or the wealth of the economy, societal impact, i.e. society can benefit from the research. Societal impact can be in a number of ways, the outcome of the research may improve some direct aspect of life, e.g. benefits to health, or may influence policy, e.g. safe use of certain chemicals in food, pesticides, conservation e.g. aid decisions on how to protect a species. Some research is more "blue skies" in its approach, and not undertaken with a specific impact target in mind. In this case, the most important direct impact is on public understanding of the research i.e. demonstrating to the public what the research has achieved in advancing knowledge. The impact statement should identify the most likely impact of the proposed research and the mechanisms by which that impact will be maximized. Further information will be provided in the Lecture on impact (17/11/15).

General notes

You do not need to follow the word limits of each section precisely, only the total word limit (2500) will be enforced. Two example grants “grant application 1” and “grant application 2” have been placed in the resources section of the module page on QOL. These do not follow exactly the format above, but will give you an idea of the tone of each section and the types of information that may be contained in a grant application. Note, references are not counted to the word limit and citations should be in the (author, year) style in the text.

Marking scheme for Research grant proposal

Grade	Includes	May be missing
80+	Clear links between aims and methodology, Detailed introduction leading from broad subject area into the study area and the gaps. Clear recognition of impact and how to develop it, and of ethical issues (or lack thereof)	Nothing
70-79	As above	Small details e.g. sources of equipment, links between aims and methods may be weaker than above.
60-69	Good introduction, identifies areas where further research is needed, clear aims and hypotheses	Sources of equipment, less clear links between aims and methods, impact may be less well developed, ethical issues may be missed or not well defined
55-59	All relevant sections included	As above plus, poor introduction not leading from broad area to further research, poor links between design and aims, overambitious methods, budget not adequate or justified.
50-55	All relevant sections included	As above plus not building on previous work, just repeating
0-49	Relevant sections missing	As above, no attempt at original proposal

Poster presentation

In the last session of the semester (8/12/15) you will be expected to present a poster of your research grant. The aim of this exercise is to communicate your project clearly and concisely to a general audience. Think of it in terms of making a “pitch”. Your poster will be assessed by your degree co-ordinator so you can assume a certain amount of

specialist knowledge, but will need to use the limited space available. The poster should present 1) the background to the project, 2) the aims 3) the methods to be used and 4) the expected outcomes, both in terms of the scientific output and potential impact. Make sure you include a reference section of literature cited. Your poster should be printed in A0 format and brought to the session on 8/12/15 where it will be presented. In general you should view a poster as like an abstract/summary to a scientific paper, you should be clear and concise in summarising each section, make sure you use good visuals to support your poster, diagrams are a good way to illustrate the flow of work. The poster will be assessed by the marking scheme presented below.

Marking scheme for Poster Presentation

Grade	Includes	May be missing
80+	Clear and concise throughout, clear links between background, aims and methodology. Clear recognition of outcomes and how to develop impact. Good use of visuals to support sections.	Nothing
70-79	As above	Links between background, aims and methods may be weaker than above.
60-69	Good background, identifies areas where further research is needed, clear aims and hypotheses. Visuals present	Less clear links between background, aims and methods, impact may be less well developed.
55-59	All relevant sections included	As above plus, poor introduction not leading from broad area to further research, poor links between design aims and methods. Poor or absent visuals to support sections. Lacks conciseness in some sections.
50-55	All relevant sections included	As above plus not building on previous work, just repeating. Not producing clear outcomes. Lack of conciseness and poor visuals.
0-49	Relevant sections missing	As above, no attempt at original proposal

Literature review (BBC8025)

Literature review to be prepared and submitted (2 copies) to School Office by 29 January 2016. Students must also submit their literature review to the plagiarism-checking service Turnitin.

Instructions for using Turnitin:
http://www.turnitinuk.com/en_gb/home
Class ID 622058 [***this may need to be changed***]
Enrolment password: conservation

Objectives
To allow students to research a topic in depth, evaluating a variety of information sources to produce a critical review.

Learning outcomes
Subject-specific knowledge
Practice of research and independent learning skills
Practice of scientific communication skills
Experience in presenting information to a non-specialist audience

Principle
The central role of the literature review is to read and review literature that is relevant to your project but is much broader in scope. For example, if your project is on the invasion of an Irish river by an alien bivalve, your literature review should cover invasive species more generally, or aquatic invasions, or control of invasive species (or similar broad topic).

Title
Draft title to be chosen with project supervisor, in consultation with Course Coordinator (Jack Lennon) and proposed project supervisor, by week 12, first semester. It is expected that the literature review title will be agreed with your project supervisor, and that the supervisor should be able to read at least one draft. If anyone has difficulty getting a project sorted out, complete with supervisor, please consult with the Course Coordinator.

The review
How you set about the literature review will depend on your topic and your personal approach. The number of papers that you will read varies a lot depending on the topic but you should expect to read at least 20 papers in depth and dip into others. The literature should be selected from the Web of Knowledge, using relevant search terms. Your supervisor may also supply some papers. The review will have a title, will normally have an introduction, various topic headings with text on those topics, and a final conclusion about the subject of the review.

Format: A4 paper 2 cm margin, 12 point font. 5000 word guideline max. (excluding references), but this is not absolute.

Abstract: A one-page (max.) non-technical abstract should be supplied that would be comprehensible to an educated 14-year old (as for grant applications to Natural Environment Research Council).

Marking: The mark sheet is provided so you can see the marking criteria. Note that you get credit for relevant figures and tables. Using Turnitin plagiarism detection software you can ensure that you have not accidentally copied material; this is important.

Late submissions: Reviews may only be submitted late with permission of the Course Coordinator; requests to allow late submission must be made to the Coordinator well in advance of the deadline and in writing. Such requests should propose an alternative deadline. Reviews that are submitted late without consultation with the Coordinator may lose 5% from the total available marks for each working day that the assignment is late, up to a maximum of 5 working days after which a mark of zero will be awarded; this could result in failure of the course.

How to approach the literature review

The literature review has several benefits. It allows students to teach themselves about material relevant to the course and potential careers. This ability to self-teach is essential in most jobs and forms one of the learning outcomes for the course ('independent learning ability required for continuing professional development'). Preparing thoughtful reviews requires more than acceptance of the stated facts and involves critical evaluation of data.

Students should aim to discuss the scope of the review in meetings with their chosen supervisor. Ideally, supervisors can review drafts. The usual standard is that work can be looked at once; to supply feedback on style, content and structure. If you wish to have drafts looked at by your supervisor you should check that they are able to do this (present during January) and material should be handed to them at least 8 days before the deadline.

Scientific communication is a skill that can be improved. Most people can improve the quality of their written work by careful attention to grammar and style. This involves specific points such as avoiding over-long sentences and/or large numbers of prepositions.

Other elements of good style include a clear structure and the use of topic sentences to introduce each paragraph. The review should be more than a list of different studies (this was done, then this was done etc.). Ideas on style are covered by a variety of books and web resources including:
How to Write About Biology: The Essential Guide for Students by J. Pechenik, B. Lamb (second-hand copies are usually available online for c. £3).

Some issues were common in work previously produced on this course. These are relatively straightforward to address.

Page numbering is essential!

Paragraph structure is critical – it is very difficult to read work if paragraphs are not separated by indented first lines (preferred) or blank lines.

Do include tables and figures – see marking scheme

Species names:

- Spell species names correctly!

· Always put species' scientific ('Latin') names in italics
· Capitalize genus only (e.g. *Semibalanus balanoides*)
· In some types of report, you should give the **authority** as well: e.g., *Semibalanus balanoides* (L.). Ask if you do not know what an authority is.

Citation of references
Scientific journals often have general instructions on style and content on their web pages (look under guide to authors). **You should format your reference citations in the style of a stated journal (e.g. *Biological Conservation, Journal of Animal Ecology*).**

· **All** references referred to in the text should be in the references section. This is a key part of any 'literature review' so check carefully that the reference section is complete. [This is the easiest way to annoy an academic!]
· Give dates for references in text (e.g., Johnson & Montgomery 1892)
· Be consistent over the use of '&' and 'et al.' (et al. is for cases of three or more authors; two authors are given as Johnson & Montgomery 1892 or Johnson and Montgomery 1892)

Typographical errors
· Review text carefully to avoid these. Use spell checkers but watch out for rogue apostraphe's!!

Evaluate literature
· ***Add value*** to the literature you review. Your job as a reviewer is to go beyond a list of what others have done ('A measured temperature, B measured salinity...'). You should compare different studies. Why might the results differ (if they do), what gaps exist in what is known? (rather than just saying 'more needs to be done').

Evaluate conclusions from the literature. Are they generally applicable and soundly based or dependant on particular conditions or assumptions?

MSc Ecological Management and Conservation Biology, Literature review (BBC8025)

Student name..... Marker 1 Marker 2

Marking scheme (grade each by descriptors, from poor to examplary)

	Poor (<40)				*Exemplary (>70)*
A. Non-technical abstract					
Appropriate style and content	_____	_____	_____	_____	_____
Too technical/poorly written					easy to read and follow
B. Content					
Appropriate sources used	_____	_____	_____	_____	_____
few sources or sources of questionable reliability					excellent use of original material
Evidence of scholarship	_____	_____	_____	_____	_____
points not supported by evidence or arguments					good support for points
Appropriate depth	_____	_____	_____	_____	_____
Superficial treatments					clearly postgraduate level
Appropriate breadth	_____	_____	_____	_____	_____
too narrow for proper understanding					broad enough to cover the issues
Clear development of ideas	_____	_____	_____	_____	_____
vague, difficult to follow					clear points, well made
Critical analysis	_____	_____	_____	_____	_____
simple catalogue of facts					comparisons made, issues raised
C. Style					
Correct citation	_____	_____	_____	_____	_____
missing references, details; inconsistent citation					clear, consistent, complete
Clear organisation	_____	_____	_____	_____	_____
hard to follow, poor paragraph structure					easy to read, clear direction
Effective use of figures and tables	_____	_____	_____	_____	_____
few/no figures/tables;	used as 'window dressing'				used to support and expand points
Correct use of language	_____	_____	_____	_____	_____
spelling/grammar errors so understanding is impaired					flawless sp./grammar; easy to read

General comments

Overall mark .....

Level descriptors and scale:

>85 **near-perfect**; "as good as the assessor could have done"
70-85 **excellent**; "impressive and worth copying to keep for reference"
60-69 **comprehensive** to **very good**; "creditable effort with minor difficulties"
50-59 **adequate** to **satisfactory**; "the right idea, but some significant problems"
40-49 **deficient** to **incomplete**; "shows a lack of understanding of what is expected"
<40 **abysmal** to **weak**; "unacceptable from a postgraduate student"

Professional Development module (BBC8026)

Coordinator Dr Judith Stephens, room 01.409A MBC, j.stephens@qub.ac.uk

Learning outcomes: awareness of the professional standards and requirements in the biosciences. Students will have improved reflective skills and should be able to demonstrate an evaluation of the use of knowledge, or the application of techniques, in an applied context.

This awareness of professional standards will be through working with or shadowing professionals in the field or through an assignment. The module is individual-based for assessment – involving a learning journal and a final report.

Time commitment for the student might be of the order of 4-6 days 'in the field'. The work will be more vocational than research based. For example: produce a report for Ulster Wildlife trust on recruitment issues for staff/volunteers or refine a 'Science Shop' proposal into a clearer project or set of options (could act as basis for project later). **Placements are to be developed in Autumn term, then carried out in the Spring.**

Assessment

There are **two assessed elements** of the Professional Development module in Ecological Management and Conservation Biology.

1. A report
2. A learning Journal

The deadline for both of these is 6 May 2016, 4 pm, unless agreed otherwise. **Two** copies submitted through the School Office. This deadline serves to separate the research project (BBC8001) from Professional Development. By agreement, the professional development deadline can be changed, e.g. the need to do early fieldwork in a project. The written elements each represent 50% of the module mark.

Report

The report is a straightforward description of how you arranged the placement (e.g. any difficulties and negotiations involved), who it was with (include a description of the organization) and what was carried out during the placement. This is to include a description of dates, how long it took, why the task was of benefit to the sponsor and any main conclusions. This report may be about 3-4 A4 sides in length.

Marks will be awarded for clarity. Extensive background research is not required – this is covered elsewhere in the course (project and literature review). Also note the task itself is not being assessed, it is how students explain and provide a context for what they did that is of interest.

Learning Journal

What is it? A learning journal is a record of personal reflection and learning on the activities in the placement. Going on a placement will involve a number of new situations to deal with and new experiences. The journal is therefore a record of what the anticipated experiences were and how the actual placement worked out. Important questions might include: how is the experience different from what I anticipated would be the role of a park ranger/consultant?

From an educational standpoint, learning journals are thought to be useful in that they make a student a more active learner as the act of writing a journal achieves more than reading

what someone else has to say on the subject. Unlike in most written work, there is less scope for a right or wrong answer. Successful and enjoyable working practices involve participants being able to reflect on what works and what doesn't and the ability to suggest ways of dealing with new situations. Writing a learning journal is a formal way of practicing these skills.

How will it be assessed?
Format and style are up to each student. As a minimum there should be three elements: a before, during and after reflection on the placement. 3-4 sides A4 should be sufficient to cover your analysis.

Grade point descriptors— learning journal

Mark 80–100 (%)
- An *outstanding* learning journal, excellent in every respect:
showing extensive knowledge and understanding and an outstanding ability to analyze, synthesize and evaluate
- well presented in a very well-organized manner
- exhibits a high level of insight, marked originality

70–79 An *excellent* learning journal in most respects:
- evidence of extensive knowledge and understanding and very good high-level cognitive skills
- well organized, sharply focused and well balanced
- contains good insights and possibly originality
- very good ability to analyse, synthesize and evaluate the relevant material

60–69 A *good* learning journal:
well argued
covers relevant points in satisfactory depth
well-structured arguments
somewhat descriptive

50–59 An *adequate* learning journal:
may lack clarity
has little to say about the challenges of the placement
weak use of examples
possibly weak organization too

40–49 A *weak* learning journal:
lacks clarity
poor use of examples and poor organization
may lack focus, be poorly written, short or incomplete
shows very little evidence of reflection

Fail
poorly organized and presented
no evidence of reflection

Research project and Thesis module, MSc only (BBC8001)

Objectives
For students to research a topic in depth, working independently (but seeking appropriate help where necessary). The results are to be communicated in a write up of a professional scientific standard, properly referenced and clearly organized.

Learning outcomes
At the end of the research project, a student should be able to demonstrate:

- a depth of knowledge and scholarship in the chosen research area,
- an ability to design an achievable research project (seeking help where necessary),
- an ability to cope with technical issues related to data collection in the chosen research field,
- skills in evaluating evidence collected during the project (including applying and interpreting statistics),
- the ability to draw appropriate comparisons with existing literature,
- and the ability to communicate scientific research at a professional standard using a written report.

The project is to be completed in summer. Full details of format, layout etc. will be available later in the academic year. Students are strongly advised to informally discuss possible projects with potential supervisors in the first semester. Provisional project choices/ directions to be made at end of first semester.

Details of task
1. **Two copies** of the thesis should be submitted in the Biological Sciences Office by 4 pm on 12 September 2017; additionally, an electronic copy must be submitted to Turnitin. Details of the submission procedure to Turnitin will be made available in advance. Theses may only be submitted late with the permission of the Course Coordinator. Written requests to allow late submission must be made to the Coordinator well in advance of (and at least three days before) the deadline**.** Such requests should explain the reasons why an extension is warranted and should suggest an alternative deadline. Late submissions result in delays in the examination process with the result that graduation at Christmas cannot be guaranteed. Theses that are submitted late without approval will lose 5% for each working day that the assignment is late, up to a maximum of 5 working days after which a mark of zero will be awarded; this could result in failure of the course.

2. Theses should be typed/word-processed on A4 paper with 2 cm margins on all sides. A minimum 12 point font and 1.5 spacing must be used. Theses should be spiral bound using covers and bindings; these will be available in the Biological Sciences main office at a nominal cost. All text pages should be numbered and sections indexed in a 'Table of Contents'. Figures and Tables should be numbered and include complete legends. The normal form of the thesis would be Abstract (less than 250 words), Introduction, Materials and Methods, Results, Discussion, and Literature Cited. Departures from the normal format should be discussed and agreed with your supervisor(s). In this case, a brief covering page explaining the format you have selected would be appropriate. Acknowledgements and Appendices may be included at your discretion. There are no specific length restrictions/requirements, but 15 000 words (about 50 pages) is a

guideline in the university regulations. No penalty based on word counts less than this will be applied. This word count includes all references and figure/table legends.
Theses should not exceed 20 000 words without good reason – what is being assessed is the ability to communicate in a written report and this does not extend to "waffling on" in irrelevant areas. There is no need to repeat material already covered in a literature review. The project introduction is likely to be narrower and more focused that a literature review. You should discuss the level of detail and structure with your supervisor(s).

3. Students should choose an appropriate Journal's format and follow this over questions of style (e.g., to use & or 'and' for citation: Johnson & Montgomery 2005, abbreviated journal titles in reference list or full title, Fig. 1 or Figure 1.). Thesis should name the journal format followed at the end of the 'literature cited' section.

4. The thesis will be assessed by your supervisor, an internal examiner, and (possibly) the external examiner. The thesis will be assessed as indicated on the sample assessment forms.

5. Project and degree/diploma marks will be ratified at the final Examination Board meeting in the autumn, and processed in time for Winter Graduation.

6. **Students should aim to have regular meetings with their supervisor**. As a guideline, five meetings during the course of a project would not be unusual. At these meetings the student should set the agenda in terms of summarising progress so far and the topics and issues to be discussed. Students can expect supervisors to review and comment on written work. In general, supervisors should read through and provide feedback on each section of the write-up once. If a draft write up is to be discussed or reviewed, this should be passed on to the supervisor at least two weeks before the hand in deadline to allow time to read through and give feedback.

7. **Time management is key for a successful thesis**. The expectation is that students spend between 8 and 10 weeks working on the thesis with 2 weeks to write up. This allows time for about two weeks holiday within the summer period. What has caused problems before is when students are slow to start or find that they cannot talk to supervisors at critical times as the supervisor is away at a conference or on holiday. One copy should be left in the course coordinator's pigeonhole for reference. Students should also use the opportunity to link the project into activities within their personal development plan (PDP) on Queen's Online.

8. **Concerns about supervision should be raised with project supervisor in the first instance**. If this does not resolve the issue or the student is concerned about raising it with their supervisor, he or she should discuss the issue with the course coordinator or Head of School. Concerns should be raised **at the earliest opportunity**. This is preferable to raising issues after the thesis is submitted, where the appeals format is rather inflexible and requires documentation to build a case.

9. Safety is an essential consideration. Students **must** complete a COSHH/field safety risk assessment form if the project involves laboratory and/or field work, and get it signed appropriately. **A copy of this form must be included in the project as an appendix**. Failure to include a risk assessment, if applicable, will result in no mark being returned for the project module, so this cannot be ignored. Speak to your

supervisor for advice on filling out the form. Guidelines for safety in fieldwork are available at on the School's resources on Sharepoint (through Queen's Online).

The basis of the COSHH system is to make individuals aware and responsible for any potential risks. Each project needs its own assessment of risk appropriate to the tasks involved.

Copies of the COSHH form should be kept by project supervisor, students and one copy should be forwarded to George Allen, COSHH Supervisor, Biological Sciences, lab 118. You can use the internal mail or pigeonholes to leave the documents with George.

BBC8001 MSc potential projects available

Students will be expected to work on this **full time from May until September next year**, although some preliminary work could be started while the teaching part of the course is going on (last week of formal teaching ends mid-May, followed by the two exams).

We strongly recommend that students discuss project areas and possibilities with potential supervisors in the first term, before deciding on a proposed project by the beginning of December (this allows students to link the project with a formal literature review to be written in January). **Titles of potential projects will be circulated** by potential supervisors, but students can discuss their own topics with supervisors and are encouraged to do so. The School can facilitate different kinds of projects, dependent on where students want to aim for after the course (e.g. some policy or management angle for those aiming for NIEA/government jobs or more conventional science for students thinking of a Ph.D.).

To start the discussion of potential projects, we have assembled a list of potential project supervisors/facilitators. This is a non-exhaustive list of ideas: the best thing to do is to arrange a meeting by email with those supervisors that could cover an area of interest (email addresses are below). Ideas not on this list can still be discussed; the main hurdle is making sure that any project is achievable within the time scale available. Conflicts (e.g. two students wishing to do the same project) will be resolved by creative splitting of work or by allocating projects on the basis of continuous assessment marks or some other objective measure.

Several of the following supervisors may have opportunities to supply projects:

Dr Tancredi Caruso (t.caruso@qub.ac.uk): soil biology, climate change

Prof. Jaimie Dick (j.dick@qub.ac.uk): mammal conservation, freshwater ecology, invasive species

Prof. Mark Emmerson (m.emmerson@qub.ac.uk): aquatic and terrestrial ecology; food webs; ecoinformatics

Dr Keith Farnsworth (k.farnsworth@qub.ac.uk): Grazing, spatial models, population models; environmental economics

Dr Jack Lennon (j.lennon@qub.ac.uk): Climate change; biodiversity modelling; distributions of plant and animal species

Prof WI Montgomery (i.montgomery@qub.ac.uk): small mammal ecology, impact assessments and habitat use

Dr. Neil Reid (neil.reid@qub.ac.uk): Mammalian ecology and conservation biology. Public attitudes to invasive species and their control, focussed on grey squirrels and mink, Newt distribution and habitat selection.

Guidance Notes for Assessment of MSc Projects

These are intended to guide assessments to an appropriate level in the overview sheets. The final mark will reflect the ratings in individual sections, but will not be a strict numerical average. Supervisor and assessors should fill out section B separately and come to an agreed mark. If agreement is not possible, the course coordinator will seek an additional examiner.

A. **PROJECT** [*Supervisor(s) only, 25% of final grade*]

1. Motivation & application

-did the student demonstrate interest in/enthusiasm for the work?
-did they give it appropriate time and effort?

2. Initiative & organizational skills

-did the student wait to be told what to do or did they take responsibility for moving the work forward?
-were they able to organize themselves and effectively communicate, including arranging meetings with you?
-did they solve problems independently and with imagination, or were they dependent on you to sort them out?

3. Technical competence (laboratory/field/computer skills)

(as appropriate to the project) Did the student acquire the necessary field skills, and work efficiently and safely? Did they handle data and subsequent analyses well (including use of computers)?

B. **FINAL REPORT** (*ALL assessors*)

4. Abstract

-Is this succinct and written in an appropriate style?
- Does it convey the essential purpose, results and conclusions of the project?

5. Introduction aims and hypotheses

-is the problem they are addressing stated clearly and put in context?
-was the student able to draw appropriately from the literature without 'padding' arguments with irrelevant citations?
-is the scope of the work made clear (including aims and hypotheses)?

6. Methods

-is this adequate for you to determine what was done?
-is the design of the study appropriate for the questions asked (given the practical constraints of the project)?
-is the degree of detail appropriate?
- if statistical tests are used are they appropriately explained and justified? This does not extend to routine explanations of a p-value, but should cover the choice of test and considerations of the assumptions and appropriateness of the test(s).

7. Results

-are these clearly presented, following appropriate conventions (e.g. as in a scientific paper)?
-are the use of statistics, figures and tables necessary and well thought-out?

-are findings clearly distinguished from interpretations (with interpretations limited to the discussion)?

8. Discussion

-are interpretations sound and well-reasoned?
-are results discussed with reference to the literature (good 'scholarship')?
-are summary conclusions clearly stated and well-supported?

9. Overall organization

-how well does the write up work in getting the message across?
-are references appropriately cited?
- Is everything drawn together? Do the introduction, methods, results and discussion make up a coherent whole?

10. Style and presentation

- is the style appropriate for Masters level written work (reflecting the conventions of published papers)?
- is it well-written, proof read or is it a last minute job?
- are the figures and tables appropriate: do they stand alone; are they all justified; is repetition between tables and figures avoided?

11. Reflection and innovation

-are strengths and weaknesses of the methods or of the work performed discussed?
-are there clear ideas for continuing the work or modifying it?
-is there evidence of reflection and consideration of the results in a broader context?
-are the results integrated into an evaluation of the existing literature?

Notes on effective scientific writing

1) *Remember, time is the enemy* - Essentially, don't put off until tomorrow what you can do now. Your time will fill up very quickly later on.

2) *Nail down the topic*. Many topics on which you will be asked to write are vague and general. Use you preliminary reading to reflect on the topic and focus on well-defined questions.

3) *Organize*. Mike it clear to the reader where you are going. Figuring this out yourself is a good first step, so produce an outline. Use headings and subheadings. Make sure that each paragraph begins with a clear topic sentence and sticks to that topic. Revise your outline if you need to. What seemed to be a good order at first may not work as the writing develops. Don't be afraid to reorganize.

4) *Work step by step*. Inevitably in the process of writing you will get 'stuck'. Accept this and don't worry about it. When this happens, there are other things you can be doing: type in your references or look for some useful figures to add. Keep working away.

5) *Accept imperfection*. Most writers are frustrated when their first draft isn't what they hoped. Think of the image of the writer crumpling up a page and tossing it into an overflowing bin...this is not the way to write. Accept that it will not be perfect the first time, but write it down anyway. It is much, much easier to revise something concrete than create it out of thin air.

6) *Keep it simple* Good writers engage us because they have a unique style. To start with, focus on clarity and simply getting the point across. Complex sentences are common in literature and science, but are seldom useful in communicating already technical information. Keep it straightforward and simple. It is tempting to use more complicated words. i.e. 'a centrifuge was utilized' vs. 'a centrifuge was used' or 'This essays relates to the subject matter of' vs. 'This essay is about'. Don't use the complicated phrase.

7) *Lead the reader through your writing*. Make comparisons and clear references to what has gone before and what will follow. Cues for the reader include 'signpost' statements like: 'The second important reason is...', or 'There are three competing hypotheses for the species area relationship which will be discussed below:'

8) *Reason and integrate*. Too many writers end up presenting a catalogue of facts without a clear point. Express a point of view, balance arguments against each other and come to some resolution or consensus. Go beyond stating platitudes such as 'more research must be carried out'. State what additional research you recommend. What was wrong with previous research?

9) *Use specific references*. Supporting your arguments with citations is evidence of good scholarship and a real aid to the reader. A reference is appropriate wherever a reader would ask: 'how do you know that?'. Be sure that you reference correctly and in context. No one enjoys being cited as supporting something they do not! Try to integrate your citations into you arguments, e.g. 'While many authors accept that predation structures communities (reviewed in Montgomery et al. 2000), recent work from California suggests that predation is less important than urbanization (Spandex et

al. 2003)' is better than 'There is disagreement over predation in communities (Montgomery et al 2000, Spandex et al 2003).'

10) *Proof read*. Nothing detracts from a piece of writing more than obvious errors. Typographical errors can be caught by spell check programs, but they are not foolproof – they will not catch most grammatical errors and they cannot distinguish sentences that don't make sense. Leave the text alone for a day or two and reread. Give it to a friend and ask him/her to point out places where they can't follow your ideas. When you read through you work try speaking it out loud and be vigilant for sections that make you lose concentration (this is usually a sign that the writing is unclear and will cause your reader to drift off/miss your point).

MSc project assessment overview for ……

	Supervisor(s)	**2nd examiner**
Names of supervisor(s) & assessor:	.....	.....

A. PROJECT WORK (Supervisor(s) only, 25%)

Clarification: the aim of this mark is for the student to receive credit for demonstrable skills or application that would be an asset in a workplace. To improve the transparency of this section, supervisors should give clear justifications for marks with reference to the 'Guidance Notes for Assessment of MSc Projects'. Please place a tick to indicate the range of marks allocated to each component and provide a written reasoning for this mark.

	poor/weak				excellent/strong
numerical indicators:	< 40	40-49	50-59	60 -69	> 70
1. Motivation & application	_____	_____	_____	_____	_____
Justification:					
2. Initiative & organizational skills	_____	_____	_____	_____	_____
Justification:					
3. Technical competence	_____	_____	_____	_____	_____
Justification:					

B. FINAL REPORT ON THE THESIS (Supervisor(s) and Internal Examiners 75%)
The justification should clearly evaluate positive and negative aspects of the work, with reference to the 'Guidance Notes for Assessment of MSc Projects'. Each assessor should provide a completed sheet of marks and justification.

poor/weak excellent/strong

4. Abstract _____ _____ _____ _____ _____

Justification:

5. Introduction, aims and hypotheses _____ _____ _____ _____ _____

Justification:

6. Methods _____ _____ _____ _____ _____

Justification:

7. Results _____ _____ _____ _____ _____

Justification:

8. Discussion _____ _____ _____ _____ _____

Justification:

9. Overall organization and clarity _____ _____ _____ _____ _____

Justification:

10. Reflection and innovation _____ _____ _____ _____ _____

Justification:

Level descriptors and marking scale:

>85 **near-perfect**; “as good as the assessor could have done”

70-85 **excellent**; “impressive and worth copying to keep for reference”

60-69 **comprehensive** to **very good**; “creditable effort with minor difficulties”

50-59 **adequate** to **satisfactory**; “the right idea, but some significant problems”

40-49 **deficient** to **incomplete**; “shows a lack of understanding of what is expected”

<40 **abysmal** to **weak**; “unacceptable from a postgraduate student

Grade >50 is needed for to pass the MSc; 70% and higher indicates a very strong piece of work, worthy of a distinction.

Supervisor: _____

Project Grade: _____ Thesis Grade: _____

Comments for External Examiner:

Internal examiner 1:

_____

Thesis Grade: _____

Comments for External Examiner:

Internal examiner 2:

_____

Thesis Grade: _____

Comments for External Examiner:

Agreed thesis grade .....

Agreed Final Grade (25% based on Project, 75% based on Thesis):