

BSc Environmental Biology
For students entering Part 1 in 2008/9

UCAS code:

Awarding Institution:	University of Reading
Teaching Institution:	University of Reading
Relevant QAA subject Benchmarking group(s):	Biosciences
Faculty:	Life Sciences Faculty
Programme length:	3 years
Date of specification:	17/Aug/2010
Programme Director:	Dr Gail Hutchinson
Programme Advisor:	Dr Bob Froud-Williams
Board of Studies:	Biological Sciences
Accreditation:	Not applicable

Summary of programme aims

The programme in Environmental Biology aims to provide students with the opportunity to study the interface between people, organisms and their abiotic environment. It aims to be concerned especially with the diversity of living organisms, and to include study of the biology of all types of organisms, from microorganisms to flowering plants and mammals, at levels ranging from the molecular, biochemical and cellular to the physiological, environmental and ecological. The subject matter of Parts 1 and 2 is broadly based with Part 3 to providing a coherent, in-depth area of study which the student will select. Students are expected to gain a broad understanding of the concepts underpinning biological sciences and to demonstrate the ability to complete a detailed study during Part 3.

Transferable skills

During the course of their studies at Reading, all students will be expected to enhance their academic and personal transferable skills in line with the University's Strategy for Learning and Teaching. In following this programme, students will have had the opportunity to develop such skills, in particular relating to career management, communication (both written and oral), information handling, numeracy, problem solving, team working and use of information technology and will have been encouraged to further develop and enhance the full set of skills through a variety of opportunities available outside their curriculum.

As part of this programme all students are also expected to have gained experience and show competence in the following transferable skills:

- The ability to assess, evaluate and present scientific data.
- The ability to design and undertake a programme of scientific investigation and to effectively communicate the aims and results of this investigation.
- A range of laboratory and field-based practical skills.

Programme content

The profile that follows states which modules must be taken (the 'compulsory' modules), together with one or more lists of modules from which the student must make a selection (the 'optional' modules). Students choose such additional modules as they wish, in consultation with their programme adviser, to make 120 credits in each Part.

Part 1 (three terms)

Compulsory modules

<i>Module</i>	<i>Title</i>	<i>Credits</i>	<i>Level</i>
BI1BA1	The Living Cell	10	C
BI1BC2	Genes and Chromosomes	10	C
BI1EB2	Humans and the Changing World	10	C
BI1EC12	Exploiters and Exploited	20	C
BI1EF23	Ecology: species and their interactions	20	C
BI1EG1	Plant Diversity, Structure and Utilisation	10	C
BI1EI1	Soil: Principles and Management	10	C

Optional modules (30 credits)

Students without a post-16 qualification in Chemistry are **recommended** to take:

CH1FC1	Fundamental Chemistry1	10	C
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To achieve 120 credits, students will choose additional modules from those suggested below, or elsewhere, subject to the agreement of the Programme Adviser and timetabling constraints.

AP1A10	Countryside and the Environment	10	C
AP1A19	Environment in Practice 1	20	C
BI1ED2	Mammals: Diversity, Behaviour and Conservation	10	C
SS1A2	Soils, Land and the Environment	10	C

Part 2 (three terms)

Compulsory modules

Module	Title	Credits	Level
AS2A1	Statistics for Life Sciences	10	I
BI2BM5	Science Communication	10	I
BI2EE4	Evolutionary Biology	10	I
BI2EF6	Habitat Management	10	I
BI2EK4	Plant Physiology	10	I
AP2A37	Practical Nature Conservation	10	I
AP2A45	Environment in Practice 2	20	I
BI2EA4	Weed Biology and Control	10	I

Also students are required to take one field course - **EITHER:**

BI2EUBP	Malham Botany Field Course	10	I
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OR

BI2WEV	Biodiversity Field Course	10	I
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Optional modules (20 credits) To achieve a total of 120 credits students will choose additional modules subject to the agreement of the Programme Adviser. This may include a range of Bioscience modules, plus modules from other areas of the University including languages from the Institution Wide Language Programme. Selected relevant modules are listed below. No more than 70 credits should be taken in any one term.

AP2A25	Grassland Management	10	I
BI2BG5	Animal, Plant and Microbial Development	10	I
BI2BN5	Vertebrate Zoology	10	I
BI2ED4	Evolution and Classification of Plant Diversity	10	I
BI2ET3P	Flora of the British Isles	10	I
BI2EX5	Introduction to Entomology	10	I

Part 3 (three terms)

Compulsory modules

Mod Code	Module Title	Credits	Level
BI3PRO	Research Project	40	H

Optional modules (80 credits): To achieve 120 credits, students will select additional modules, subject to approval by the Programme Adviser and timetable restrictions. Suggested modules include:

AP3A68	Wildlife in the Farming Environment	10	H
AP3A87	Environmental Management	10	H
BI3EA7	Environmental and Ecological Weed Management	10	H
BI3EI8	Research Topics in Ecology	10	H
BI3EJ8	Conservation Biology	10	H
BI3EK7	Behavioural Ecology and Life History Theory	10	H
BI3EN7	Conservation and Biodiversity: the Global and Local Scale	10	H
BI3EO7	Physiological Ecology	10	H
BI3EPEV	Mediterranean Field Course	20	H

Progression requirements

To gain a threshold performance at Part 1 a student shall normally be required to achieve an overall average of 40% over 120 credits taken at Part 1 and a mark of at least 30% in individual modules amounting to not less than 100 credits. **In order to progress from Part 1 to Part 2** a student shall normally be required to achieve a threshold performance at Part 1.

To gain a threshold performance at Part 2 a student shall normally be required to achieve an overall average of 40% over 120 credits taken at Part 2 and a mark of at least 30% in individual modules amounting to not less than 100 credits. **In order to progress from Part 2 to Part 3** a student shall normally be required to achieve a threshold performance at Part 2.

Degree classification will normally be based on the marks for Part 2 and Part 3 modules, weighted in a ratio of 1:2. Full details of classification conventions (that is, the rules for determining your final degree award) can be found in the Undergraduate Handbook.

Summary of teaching and assessment

Teaching is organised in modules. Teaching in Part 1 consists of lectures and practical classes with small group work being largely restricted to the Experiments: Design and Interpretation module. Modules can be assessed by 100% coursework but more usually are assessed by a combination of coursework (30%) and formal examination (70%).

In Parts 2 and 3, lectures and practical classes continue to be major modes of teaching but they are increasingly supplemented by seminars and other group work. Modules can be 100% in-course assessed but are more usually assessed by a combination of coursework (30%) and formal examination (70%).

Admission requirements

Entrants to this programme are normally required to have obtained:

UCAS Tariff: 300 points from no more than 4 subjects at A level, including grade B in A level Biology and one other Science A level at grade C. Total points exclude Key Skills and General Studies. **GCSEs:** grade C required in Mathematics, English and Science.

International Baccalaureate: Pass Diploma and achieve 6,6,5 in 3 higher level subjects, including Biology and another Science.

Applicants with other types of qualifications and mature students are also encouraged to apply

Admissions Tutor: Dr Bob Froud-Williams

Support for students and their learning

University support for students and their learning falls into two categories. Learning support includes IT Services, which has several hundred computers, and the University Library, which across its three sites holds over a million volumes, subscribes to around 4,000 current periodicals, has a range of electronic sources of information and houses the Student Access to Independent Learning (S@il) computer-based teaching and learning facilities. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme. Student guidance and welfare support is provided by Personal Tutors, School Senior Tutors, the Students' Union, the Medical Practice and the Student Services Directorate. The Student Services Directorate is housed in the Carrington Building and includes the Careers Advisory Service, the Disability Advisory Service, Accommodation Advisory

Team, Student Financial Support, Counselling and Study Advisors. Student Services has a Helpdesk available for enquiries made in person or online (www.risisweb.reading.ac.uk), or by calling the central enquiry number on (0118) 378 5555. Students can get key information and guidance from the team of Helpdesk Advisers, or make an appointment with a specialist adviser; Student Services also offer drop-in sessions on everything from accommodation to finance. The Carrington Building is open between 8:30 and 17:30 Monday to Thursday (17:00 Friday and during vacation periods). Further information can be found in the Student website (www.reading.ac.uk/student).

In addition to the above, the School of Biological Sciences has several well-equipped teaching laboratories and also houses an extensive zoological museum and collection, a herbarium and botanic garden. These provide a rich source of material and specimens that are incorporated into several modules.

Career prospects

Reading Environmental Science graduates are eligible for membership of the Institute of Biology and can achieve Chartered Biologist status. They are qualified to enter a variety of careers in the biological sciences, including work in industry (pharmaceuticals, biomedical, agrochemicals), government service (research institutes and bodies such as the Environment Agency) and other public bodies (local conservation units, animal charities). As numerate scientists they also enter a wide variety of commercial and business occupations.

Opportunities for study abroad or for placements

Study Abroad:

Students of Environmental Science can take part in the Erasmus exchange programme in which they can spend the first term of Part 3 studying in a variety of other European Universities. Recent exchanges involving SBS students have taken place with the following: University of Tours, France; Odense University, Denmark; Uppsala University, Sweden; University College Cork, Ireland; University of Zaragoza, Spain; ENSA, Montpellier, France; University of Cagliari, Sardinia. Students also have the opportunity to go to Rostock University, Germany and Siena University, Italy.

Industrial Placement:

Students who are interested in a scientific career, whether in industry, research or some other related field may be able to apply for a year's placement between Parts 2 and 3. Students who wish to apply would normally be expected to have a weighted average of at least 60% in Part 1.

Programme Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas:

Knowledge and Understanding

A. Knowledge and understanding of:

1. The basic principles underlying the interaction of biological systems and the abiotic environment
2. The variety of groups of living organisms, from viruses and bacteria to complex multicellular organisms such as mammals and flowering plants
3. Different levels of the interactions of living organisms and their environments, from the molecular, biochemical and cellular to the physiological, environmental and ecological.
4. In depth understanding of least one specialist field of environmental biology, the precise area to be selected by the student

Teaching/learning methods and strategies

Compulsory and optional modules in Parts 1 and 2 introduce students to the diversity of living organisms at a variety of levels. A wide range of teaching strategies is employed in these modules, initially in relatively large-group lecture and practical sessions in Part 1. Smaller group teaching comes to dominate in Parts 2 and 3 and includes, depending on the modules chosen, additional teaching methods such as seminars, fieldwork and discussion sessions. Students will also attend full-time field courses during vacations. In Part 3 students will be able to select a specific area of environmental biology for in-depth study and will undertake a research project with one-to-one supervision by a member of academic staff or equivalent.

Assessment

Knowledge and understanding gained in the

majority of modules will be assessed by a combination of coursework and formal examination. Some modules, for example field courses, will be assessed by 100% coursework. The project undertaken in Part 3 will be assessed primarily by written report.

Skills and other attributes

B. Intellectual skills - *able to*:

1. Address problems in a logical and structured manner
2. Manipulate and analyse numerical data
3. Construct and test hypotheses
4. Critically evaluate scientific literature and data

Teaching/learning methods and strategies

Basic skills associated with problem solving and data analysis are taught in specific modules using a variety of teaching methods. These skills are further developed in individual modules, for example on field courses students in small groups will be taught how to construct and logically investigate a hypothesis and to analyse the data produced. In Part 3 students are able to enhance their critical and analytical skills by undertaking a project and to demonstrate this by presenting the results in an accompanying dissertation.

Assessment

Assessment of 1 and 2 is by examination. Critical evaluation of scientific data and literature is assessed in essay and dissertation form.

C. Practical skills - *able to*:

1. Conduct practical laboratory and/or fieldwork safely and successfully.
2. Design and undertake a programme of scientific investigation

Teaching/learning methods and strategies

Practical laboratory skills will be taught in Departmental teaching laboratories while fieldwork forms an integral part of several modules and is specifically taught on optional Field Courses. Further practical and field skills may also form part of the Part 3 project, where students will be taught on a one-to-one basis how to design and implement a programme of scientific investigation.

Assessment

Skill 1 is typically assessed by course work, while skill 2 is assessed by written report.

D. Transferable skills - *able to*:

1. To be able to communicate effectively in both written and oral form
2. To be numerate and capable of approaching problems in a logical and structured manner
3. To be able to operate effectively as part of a team
4. To be familiar with IT operation and resources
5. To be able to work independently
6. To be able to effectively plan and time manage projects

Teaching/learning methods and strategies

Specific modules throughout the programme teach skills 1 to 4 using a combination of seminars, demonstrations and practical approaches. In addition, other modules include aspects of different skills, for example Field Courses include team working as part of structured group work and many modules include an integral component of written and oral communication as coursework. In Part 3 students undertake a detailed solo project during which their individual planning and time management skills are developed through contact with their academic supervisor.

Assessment

Numeracy and problem solving are assessed by

specific exam in the Part 1 module Experiments: Design and Interpretation, the Part 2 module Statistics for Life Sciences and the Part 3 module Advanced Experimental Design and Interpretation. Other skills are assessed by coursework as part of the Concepts and Skills modules. In addition, most individual modules include written and oral coursework as 30% of the total module assessment.

Please note - This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance process or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.