
Programme Specification - Botany

BSc Botany

Awarding Institution:	The University of Reading
Teaching Institution:	The University of Reading
Relevant QAA subject benchmarking group(s):	Bioscience
Faculty of Life Sciences	Prog length: 3 years
For students entering Part 3 in:	October 2009
Date of specification:	April 2009
Programme Director:	Dr G Hutchinson
Programme Adviser:	Dr J.D Ross
Board of Studies:	Biological Sciences
Accreditation:	None

Summary of programme aims

The programme aims to provide a thorough, degree-level education in Botany, enabling graduates to capitalise on the range of career opportunities outlined above under Career Prospects. It aims to provide students with an understanding of the main areas of botany, by encompassing traditional studies of whole-plant biology and a consideration of recent advances at the biochemical, ultrastructural and molecular levels. These are linked with recent developments in plant evolutionary biology and ecology, and students have the opportunity to consider applied perspectives in areas such as crop protection.

Transferable skills

The University's Strategy for Teaching and Learning has identified a number of generic transferable skills which all students are expected to have developed by the end of their degree programme. In following this programme, students will have had the opportunity to enhance their skills relating to career management, communication (both written and oral), information and data handling, numeracy, problem solving, team working and use of information technology. There is also an opportunity for language study.

Programme content

The programme which follows lists those modules which must be taken (compulsory modules). Students are required to choose additional modules during the Autumn and Spring Terms each year, in consultation with their Course Adviser, to make 120 credits in each Part. Additional modules will normally be selected from those offered by Biological Sciences, Agriculture or the Human and Environmental Sciences. However, students lacking A-level Chemistry or an equivalent qualification should take Chemistry for Biologists (BI1S10) as an additional module in Part 1. In Parts 2 and 3, the additional modules will normally include a selection from the modules listed below as optional. The additional modules may include language modules offered by IWLP.

Part 1 (three terms, 120 credits)

<i>Compulsory modules (90 credits)</i>		<i>Credits</i>	<i>Level</i>
AM1P11	Introductory Microbiology	10	C
BI1EB2	Humans and the Changing World	10	C
BI1EC12	Exploiters and Exploited	20	C
BI1EF23	Ecology: species and their interactions	20	C
BI1EG2	Plant Diversity, Structure and Utilisation	10	C
BI1BA1	The Living Cell	10	C
BI1BC2	Genes and Chromosomes	10	C
Required modules Also, students without AS or A2 level Chemistry, or and equivalent qualification, are required to take:			
CH1FC1	Fundamental Chemistry 1	10	C
Optional modules Students will choose additional modules to make a total of 120 credits which include those in the following list:			
BI1EA1	Introduction to Enterprise and Marketing	10	C
BI1EH1	Principles of Horticulture	10	C
BI1EI1	Soil: Principles and Management	10	C
LA1XX	Institution-Wide Language Programme	20	C/I
OR elsewhere from the programmes of other Schools, subject to the agreement of the Programme Advisor.			

Post-Part 1 Examinations, students will attend Flora of Britain, a Part 2 module.

Part 2 (three terms, 120 credits)

<i>Compulsory modules (90 credits)</i>		<i>Credits</i>	<i>Level</i>
AS2A1	Statistics for Life Sciences	10	I
BI2BG5	Animal, Plant and Microbial Development	10	I
BI2BM5	Science Communication	10	I
BI2ED4	Evolution and Classification of Plant Biodiversity	10	I
BI2EE4	Evolutionary Biology	10	I
BI2EK4	Plant Physiology	10	I
BI2EQ5	Ecological; Biochemistry	10	I
BI2ET3P	Flora of the British Isles	10	I
BI2EU3P	Malham Field Course	10	I
Optional modules (30 credits) – students must choose from:			
AP2A26	Forestry and Woodlands	10	I
BI2EA4	Weed Biology and Control	10	I
BI2EF6	Habitat Management	10	I
BI2EH4	Introduction to History and Philosophy of Science	10	I
BI2EM5	Landscapes for Amenity and Sport	10	I
BI2EO5	Applied Ecology	10	I
BI2EP5	Crop Pests and Integrated Crop Protection	10	I
BI2ER5	Ecological Aspects of Environmental Impact Assessment	10	I
LA1AXX	Institution wide language programme	20	C/I
OR elsewhere from the programmes of Schools, subject to the agreement of the Programme Advisor and timetable restrictions.			

Post-Part 2 examinations, students will carry out preparatory work for the Final Year Project.

Part 3 (three terms, 120 credits)

<i>Compulsory modules (70 credits)</i>		<i>Credits</i>	<i>Level</i>
BI3EPEV	Mediterranean Botany Field Course	20	H
BI3EQn	Botany Research Skills	10	H
BI3PRO	Research Project	40	H
<i>Optional modules (50 credits, at least 30 credits from BI modules)</i>			
BI3EA7	Environmental and Ecological Weed Management	10	H
BI3ED6P	Marine Biology Field Course	10	H
BI3EE8	Biodiversity Assessment and Sustainable Use of Plant Resources	10	H
BI3EF8	Biodiversity Informatics	10	H
BI3EG7	Evolutionary Genetics and Phylogeny	10	H
BI3EI8	Research Topics in Ecology	10	H
BI3EJ7	Conservation Biology	10	H
BI3EK8	Behavioural Ecology and Life History Theory	10	H
BI3EL7	Plants and Climate	10	H
BI3EM8	Creating Revisions, Monographs, Floras and Information Systems	10	H
BI3EN7	Conservation and Biodiversity	10	H
BI3EO7	Physiological Ecology	10	H
BI3EV8	Biotechnology for Plant Breeding	10	H
PM3DS4	Natural Products in Pharmacy and Medicine	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.

Summary of teaching and assessment

Teaching is organised in modules. Teaching in Part 1 consists of lectures and practical classes. Modules can be assessed by 100% coursework but more usually are assessed by a combination of coursework (30%) and formal examination (70%).

In Part 2 and 3, lectures and practical classes continue to be important modes of teaching but they are increasingly supplemented by seminars, group work and field studies, including the Field Courses. Modules can be 100% in-course assessed but are more usually assessed by a combination of coursework (30%) and formal examination (70%).

Part 2 contributes one third of the overall assessment and Part 3 the remaining two thirds. In order to be eligible for Honours, students must gain at least 40% in all Part 3 examinations averaged together and must gain at least 40% in the Project module.

The assessment is carried out within the University's degree classification scheme, details of which are in the programme handbooks.

Admission requirements

Entrants to this programme are normally required to have obtained:

UCAS Tariff: 260 points from no more than 4 A level or AS subjects, including at least two full A levels. Subjects to include at least grade B in A level Biology and one other Science A level (Chemistry preferred) 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 6,5,5 in 3 higher level subjects, including Biology and another Science, preferably Chemistry.

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

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, the Careers Advisory Service, the University's Special Needs Advisor, Study Advisors, Hall Wardens and the Students' Union.

The providing Departments offer a wide range of laboratory and plant growth facilities, together with a herbarium and specialised library collection. The Course Adviser can advise on the choice of modules within the programme.

Career prospects

Recent Botany graduates have followed a diversity of careers in academia, in research institutions, in school teaching, in conservation and in biologically-related commercial sector activities.

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 range of plant diversity in terms of structure, function and environmental relationships.
2. The evaluation of plant diversity.
3. Plant classification and the British flora.
4. The role of plants in the functioning of the global ecosystem.
5. A selection of more specialised, optional topics.
6. Statistics as applied to biological data.

Teaching/learning methods and strategies

These topics are presented in formal lectures combined with practical classes and fieldwork. Tutorial sessions are incorporated into some modules to support the formal teaching, and students are encouraged to discuss with their lecturers any points where they feel their understanding is weak.

Assessment

Knowledge is tested through a combination of coursework, including essays, reports on practical and fieldwork, and oral presentations with unseen formal examinations. The coursework also serves to provide feedback on student progress.

Skills and other attributes

B. Intellectual skills – able to:

1. Think logically and organise tasks into a structured form.
2. Assimilate knowledge and ideas based on wide reading and through the internet.
3. Transfer appropriate knowledge and methods from one topic within the subject to another.
4. Understand the evolving state of knowledge in a rapidly developing field.
5. Construct and test hypothesis.
6. Plan, conduct and write a report on an independent research project.

Teaching/learning methods and strategies

Much of the coursework is specifically designed to stimulate development of the skills outlined under 1-5. The research project conducted during Part 3 develops capacity for independent research (6) as well as reinforcing many of the other intellectual skills.

Assessment

Development of these skills is essential to permit the student to perform well in much of the coursework and in the examinations associated with this programme. Item 6 is specifically tested by the dissertation based on the Part 3 research project, and items 3 and 4 by a 3-hour integrating essay paper that forms part of the final examination.

C. Practical skills

Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules.

1. Plant identification.
2. Vegetation analysis techniques.
3. A range of genetic analyses of plants in the context of plant evolution and development.
4. Analysis of data using appropriate statistical methods and computer packages.

Teaching/learning methods and strategies

These skills are specifically taught during practical classes and field courses. In larger classes demonstrators are available to ensure that each student received individual instruction where appropriate. A number of practical skills are developed to an advanced level during the Part 3 research project.

Assessment

The development of practical skills is directly assessed through written reports on practical classes and field courses, in the dissertation based on the research project, and in a practical examination during finals.

D. Transferable skills

1. Use of IT (word-processing, use of internet, statistical packages and databases).
2. Communication of scientific ideas in writing and orally.
3. Ability to work as part of a team.
4. Ability to use library resources.
5. Time management.
6. Career planning.

Teaching/learning methods and strategies

Use of IT and library resources is embedded throughout the programme and is essential to complete much of the coursework. Written communication skills are developed through essays and further in the preparation of the research project dissertation, activities which also require the use of library resources. Oral skills are developed through seminars, some of which are organised on a small-team basis. Teamwork and time management are both essential elements of mini projects during field courses, some seminars are presented on a team basis, and time management is essential for the timely and effective completion of the programme. Students are encouraged to discuss their future careers with their personal tutors, other relevant staff in the contributing Departments, and in the Careers Advisory Service.

Assessment

Development of skills under 1, 2 and 4 is essential for a good performance in much of the coursework associated with the programme. The other skills are not directly assessed but effective use of skills 3 and 5 will contribute towards successful completion of the programme.

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 expect 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 module and programme handbooks.