

## BSc Applied Biology

UCAS code: C110

Awarding Institution:  
Teaching Institution:  
Relevant QAA subject benchmarking group(s):

The University of Reading  
The University of Reading  
Agriculture and Forestry, Food,  
Biosciences (depending on option)  
Programme length: 3 years  
Date of specification: April 2004

Faculty of Life Sciences

For students entering Part 1 in 2002

Programme Director: Dr M.J. Gooding

Programme Advisers: Dr M.D. Dennett (Applied Plant Sciences), Dr M.W. Shaw (Applied Plant Sciences), Dr A.G. Stephens (Applied Animal Sciences), Dr R.A. Rastall (Food Biosciences), Mr N.F. Beard (Business and Economics)

Board of Studies: Applied Biology

Accreditation:

### Summary of programme aims

The programme aims to provide a foundation in biology followed by education in a choice of more specialist subjects relevant to careers for biologists. The programme allows flexibility to respond to student needs, interests and aspirations. Recognised subject areas include biomedical sciences, food biosciences, rural ecology and environment, applied plant science, applied animal science, and business and economics in applied biology sectors. The chosen specialism is developed alongside the investigative, presentation, and career management skills necessary for the successful professional biologist.

### Transferable skills

The University's Strategy for Teaching and Learning has identified a number of generic transferable skills that 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 handling, numeracy, problem-solving, team working and use of information technology.

Students will be able to conduct, assess and interpret the results from personal investigations; assimilate knowledge from a range providers and sources on a specific topic, including lecturers, practitioners, visits, literature and digital platforms; develop skills in using technical and supervisory support; be able to present to different audiences.

### Programme content

#### Part 1 (three terms 120 credits) 2002/3

*Credits Level*

#### *Compulsory modules (50 or 60 credits)*

AP1A05	<i>Professional Skills in Applied Biology 1</i>	10	C
AP1EB1	<i>Business Management and Marketing 1</i>	20	C
BI1C10	<i>Cell Biology and Biochemistry</i>	10	C
BI1C11	<i>Genetics and Molecular Biology</i>	10	C
<i>And, if no chemistry has been studied post-16,</i>			
BI1S10	<i>Chemistry for Biologists</i>	10	C
<i>At least 20 credits from</i>			
PS1AA1	<i>Plants in Agriculture</i>	10	C
FB1GSF	<i>Science in the Food Chain</i>	20	C
AM1M11	<i>Microbiology 1</i>	10	C
AM1C13	<i>Digestion and Nutrition</i>	10	C
PS1BA1	<i>Basics of Plant Science</i>	10	C

### Optional Modules

Further modules to make a total of 120 credits for Part 1 from the following list subject to timetabling constraints, and after discussion with the programme director to form a coherent course of study.

AM1C12	<i>Animal Physiology</i>	10	C
AM1Z10	<i>The Whole Mammal</i>	10	C
AM1Z11	<i>Environmental Biology</i>	10	C
BI1M10	<i>Biodiversity</i>	10	C
AM1C14	<i>Biochemistry and Metabolism</i>	10	C
AM1M12	<i>Microbiology 2</i>	10	C
AM1L10	<i>Animal Biology</i>	20	C
BI1Z10	<i>Population and Community Ecology</i>	20	C
FB1EM1	<i>Mathematics and Computing for Life Sciences</i>	20	C
FB1EPH	<i>Physical Aspects of Biological Systems</i>	20	C
FB1GSB	<i>Science in Biotechnology</i>	20	C
FB1M1	<i>Foundation Food Microbiology</i>	10	C
PS1AB2	<i>Physical Ecology</i>	10	C
PS1HA1	<i>Horticultural Crop Production: Fruit Crops</i>	10	C
PS1HA2	<i>Horticultural Crop Production: Field Crops</i>	10	C
PS1HB1	<i>Principles of Horticulture</i>	10	C
PS1HC1	<i>Arboriculture and Practical Horticulture</i>	10	C
PS1HJB	<i>Introduction to Landscape Management</i>	20	C
PS1BA2	<i>How Plants Work</i>	10	C
PS1BA1	<i>Basics of Plant Science</i>	10	C
PS1HC2	<i>Amenity Horticulture</i>	10	C
PS1HD2	<i>Plants of Horticulture</i>	10	C
PS1HQ2	<i>Applied Plant Physiology</i>	10	C
PS1AA3	<i>Introductory Field Skills in Agricultural Botany</i>	10	C
AP1EF1	<i>The UK Food Chain</i>	10	C
AP1EE1	<i>Economics 1</i>	20	C
AP1ED1	<i>Food Issues in Developing Countries</i>	10	C
AP1A02	<i>Introduction to Agricultural and Food Systems</i>	10	C
AP1A03	<i>Introduction to Livestock Production Systems</i>	10	C
AP1A11	<i>Introduction to the Basis of Crop Production</i>	10	C
AP1A07	<i>Rural Resource Management in Practice</i>	20	C
AP1A08	<i>British Agriculture in Practice</i>	20	C
AP1A10	<i>Countryside and the Environment</i>	10	C
	<i>Institution Wide Language Programme</i>	20	C/I/H
	<i>Any other module available in Part 1 across the University</i>	10	C

**Part 2 (three terms, 120 credits)***Credits Level Term**Compulsory modules*

AP2A22	<i>Professional Skills in Applied Biology including Career Management Skills</i>	10	I	3
AS2A1	<i>Statistics for Life Sciences</i>	10	I	4

*Optional modules totalling 100 credits*

*Students will normally be expected to take one or two of the following options in part 2. However, subject to timetabling constraints, and after discussion with the programme director to form a coherent course of study, students may choose any combination of Level I modules available within the Faculty of Life Sciences.*

*Subject Option 1. Applied Plant Science – students taking this option to obtain at least 40 credits from:-*

PS2AA2	<i>Crop Physiology and Breeding</i>	10	I	4
PS2HD4	<i>Crop Disease and its Control</i>	10	I	4
PS2AB5	<i>Crop Pests and Integrated Crop protection</i>	10	I	5
PS2AA5	<i>Plant Genetics</i>	10	I	5
PS2AB4	<i>Weed Biology and Control</i>	10	I	4
AP2A32	<i>Arable Crop Protection</i>	10	I	5
PS2AA3	<i>Agricultural Botany in Practice</i>	10	I	3
PS2HA1 or PS2HE1	<i>Horticultural Crop Production: Fruit Crops or Field Crops</i>	10	I	5
PS2HC4	<i>Amenity Grassland Management</i>	10	I	4

*Subject Option 2. Applied Animal Science – students taking this option to obtain at least 40 credits from:-*

AM2Z32	<i>Vertebrate Zoology</i>	10	I	4
AM2Z33	<i>Animal Behaviour</i>	10	I	4
AM2Z34	<i>Invertebrate Zoology</i>	10	I	5
AP2A24	<i>Applied Animal Nutrition</i>	10	I	4
AP2A34	<i>Animal Breeding and Reproductive Technology</i>	10	I	5
AP2A35	<i>Animal Health and Welfare</i>	10	I	5
AP2A36	<i>Animal Production</i>	10	I	5
AP2A38	<i>Organic Farming</i>	10	I	4
AP2A25	<i>Grassland Management</i>	10	I	4

*Subject Option 3. Food Bioscience – students taking this option to obtain at least 40 credits from:-*

FB2N1	<i>Fundamentals of Human Nutrition</i>	20	I	4&5
FB2BBE	<i>Biochemistry and Enzymology</i>	10	I	4
FB2BAE	<i>Applied Enzymology and Food Biotechnology</i>	10	I	5
FB2BFP	<i>Fermentation Processes</i>	10	I	5
FB2MF1	<i>Microbiology of Food Preservation</i>	10	I	4
FB2MF2	<i>Control of Microbiological Hazards in Food</i>	10	I	5
FB2MF3	<i>Microbial Physiology I</i>	10	I	4
FB2C1	<i>Fundamentals of Food Chemistry</i>	20	I	4&5

*Subject Option 4. Biomedical Science – students taking this option to obtain at least 40 credits from:-*

AM2C32	<i>Endocrinology</i>	10	I	4
AM2C33	<i>Pharmacology and Toxicology</i>	10	I	4
AM2C34	<i>Introduction to Human Disease</i>	10	I	4
AM2M31	<i>Virology 1</i>	10	I	4
AM2M32	<i>Bacteriology I</i>	10	I	4
AM2C37	<i>Cardiovascular and Respiratory Systems Physiology</i>	10	I	5
AM2C38	<i>Receptors and Signal Transduction</i>	10	I	5
AM2C39	<i>Regulation of Gene Expression</i>	10	I	5
AM2M33	<i>Virology 2</i>	10	I	5
AM2M34	<i>Bacteriology 2</i>	10	I	5
AM2M35	<i>Medical Microbiology</i>	10	I	5

*Subject Option 5. Rural Ecology and Environment – students taking this option to obtain at least 40 credits from:-*

PS2BC5	<i>Ecological Aspects of Environmental Assessment</i>	10	I	5
AP2A23	<i>Practical Rural Environmental Science</i>	20	I	4&5
AP2A26	<i>Forestry and Woodlands</i>	10	I	4
AM2Z37	<i>Aquatic Biology</i>	10	I	5
PS2BE5	<i>Ecological Biochemistry</i>	10	I	5
PS2BF4	<i>Plants and Man</i>	10	I	5
PS2BB4	<i>Plant Biodiversity</i>	10	I	4
PS2BE4	<i>Diversity of Land Plants</i>	10	I	4

*Subject Option 6. Business and Economics in Applied Biology Sectors – students taking this option to obtain at least 40 credits from:-*

AP2EP1	<i>Policy Analysis I</i>	10	I	4
AP2EE3	<i>Environmental Economics and the Agri-food Sector I</i>	10	I	4
AP2EE1	<i>Economics II</i>	20	I	4&5
AP2EB1	<i>Business Management</i>	10	I	4
AP2EM1	<i>Marketing Management</i>	10	I	5
AP2ET1	<i>International Economics I</i>	10	I	5
IDIDEV	<i>International Development Economics</i>	10	I	5
AP2EC1	<i>Consumer Behaviour</i>	10	I	5
AP2EP2	<i>Agricultural and Rural Policy</i>	10	I	5

*Students can also choose:-*

IWLP	<i>Institution Wide Language Programme</i>	20	I	4&5
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### **Part 3 (three terms, 120 credits)**

*In Part 3 students will undertake an investigational project to be submitted as a dissertation, normally expected to be within a subject options taken in Part 2.*

#### *Compulsory modules*

	<i>Project and Dissertation</i>	40	H	7&8
AP3A51	<i>Professional Skills in Applied Biology 3</i>	10	H	7

#### *Optional modules totalling 70 credits*

*Students will normally be expected to continue a subject option taken in part 2 with related modules in part 3. However, subject to timetabling constraints, and after discussion with the*

programme director to form a coherent course of study, students may chose any combination of Level H modules available within the Faculty of Life Sciences.

*Subject Option 1. Applied Plant Science – students taking this option to obtain at least 40 credits from:-*

AP3A47	<i>Cereal Management and Marketing</i>	10	H	7
AP3A48	<i>Crop Growth &amp; Development</i>	10	H	7
AP3A49	<i>Seed Science &amp; Technology</i>	10	H	7
AP3A45	<i>Agricultural Systems in the Tropics</i>	10	H	7
AP3A58	<i>Crops &amp; Water</i>	10	H	8
AP3A63	<i>Break Crop Agronomy</i>	10	H	8
AP3A76	<i>Principles &amp; Practice in Biological Control</i>	10	H	7
PS3AB7	<i>Crops and Climate</i>	10	H	7
PS3AA7	<i>Plant Biotechnology for Post Harvest Quality</i>	10	H	7
PS3AE7	<i>Weed Management</i>	10	H	7
PS3HH8	<i>Plant Development Genetics &amp; Physiology</i>	10	H	8
PS3AF8	<i>Tissue Culture</i>	10	H	8
PS3AG8	<i>Weed Ecology</i>	10	H	8
PS3HB8	<i>Syngenta Plant Biotechnology</i>	10	H	8

*Subject Option 2. Applied Animal Science – students taking this option to obtain at least 40 credits from:-*

AP3A53	<i>Animal Growth and Meat Production</i>	10	H	7
AP3A60	<i>Lactation &amp; Milk Production</i>	10	H	8
AP3A65	<i>Farm Animal Welfare</i>	10	H	7
AP3A66	<i>Horses, Cats and Dogs</i>	10	H	7
AM3C78	<i>Mammalian reproduction</i>	10	H	8
AP3A75	<i>Equine Management</i>	10	H	6

*Subject Option 4. Biomedical Science – students taking this option to obtain at least 40 credits from:-*

AM3C71	<i>B&amp;P of cardiovascular disease</i>	10	H	7
AM3C80	<i>Cancer</i>	10	H	8
AM3C73	<i>Chromosome mapping and genetic disease</i>	10	H	7
AM3M71	<i>Specialised groups of bacteria</i>	10	H	7
AM3M72	<i>Bacterial pathogenicity</i>	10	H	7
AM3C76	<i>Neurobiology</i>	10	H	8
AM3M73	<i>Viruses as pathogens</i>	10	H	8
AM3M74	<i>Molecular Microbiology</i>	10	H	8
AM3C79	<i>Pathology and clinical biochemistry</i>	10	H	8

*Subject Option 5. Rural Ecology and Environment – students taking this option to obtain at least 40 credits from:-*

AP3A44	<i>Rural Environmental Sustainability</i>	10	H	8
AP3A68	<i>Wildlife in the Farming Environment</i>	10	H	8
PS3BC7	<i>Conservation &amp; Biodiversity: Global &amp; Local Scales</i>	10	H	7
PS3BD7	<i>Physiological Ecology</i>	10	H	7
PS3BE8	<i>Biodiversity Informatics</i>	10	H	8
PS3BG8	<i>Biogeography</i>	10	H	8
AM3Z72	<i>Insects and society</i>	10	H	7
AM3Z74	<i>Conservation biology</i>	10	H	7
AM3Z76	<i>Behavioural ecology and life history theory</i>	10	H	8

AM3Z77	<i>Research topics in aquatic ecology</i>	10	H	8
ES3LP	<i>Environmental Issues</i>	10	H	8

*Subject Option 6. Business and Economics in Applied Biology Sectors – students taking this option to obtain at least 40 credits from:-*

AP3EP1	<i>Regulation of the Food Industry</i>	10	H	8
AP3EM1	<i>Marketing Strategy</i>	10	H	7
AP3EE1	<i>Economic Aspects of the Food Supply Chain</i>	10	H	7
AP3EP3	<i>Rural Policy and Countryside Planning</i>	10	H	7
AP3EM2	<i>Marketing Research Methods</i>	10	H	8
AP3EB1	<i>Business Strategy</i>	10	H	8
AP3EB2	<i>Multinational Food Business in Developed &amp; Developing Countries</i>	10	H	8
AP3ED1	<i>Food Issues in Developing Countries</i>	10	H	8
AP3ED2	<i>Appraisal of Agricultural and Rural Development Projects</i>	10	H	8
AP3A39	<i>Business Management (Business Control)</i>	10	H	8
AP3A55	<i>Business Management (Managerial Economic Principles)</i>	10	H	7
AP3A56	<i>Business Management (Planning Methods)</i>	10	H	7
AP3A64	<i>Human Resource Management</i>	10	H	8
AP3A74	<i>Business Entrepreneurship</i>	10	H	8

*Students can also choose:-*

IWLP	<i>Institution Wide Language Programme</i>	20	C/H	
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### **Progression requirements**

To proceed from Part 1 to Part 2 it is necessary to have obtained an overall average of at least 40% in Part 1, at least 40% in the compulsory Part 1 modules, and at least 30% in every Part 1 module. To proceed from Part 2 to Part 3 it is necessary to have obtained an overall average of at least 40%, at least 40% in the compulsory Part 2 modules, and at least 30% in every Part 2 module taken.

Part 2 (120 credits) contributes one third of the overall assessment and Part 3 (120 credits) the remaining two thirds.

### **Summary of teaching and assessment**

Teaching is organised in modules that can typically involve both lectures and practicals. Modules are assessed by a mixture of coursework (which may include tests) and formal examination. The Part 3 Dissertation is assessed only as course work.

### **Admission requirements**

Entrants to this programme are normally required to have obtained:

Grade C or better in English and Maths in GCSE; and achieved

UCAS Tariff: 260 points at A or AS level in a programme of study that contains Biology and at least one other Science subject, preferably Chemistry.

Admissions Tutor: Dr M.J. Gooding

### **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.

### **Career prospects**

Applied Biology aims to produce graduates that can pursue careers using their biology. Such careers include those in environmental management and conservation; food and brewing; biotechnology; industrial microbiology; horticulture; crop and animal production; crop protection; advisory and educational services; and biomedical industries. Graduates from Life Sciences are welcomed by other professions, such as accountancy and management.

### **Opportunities for study abroad or for placements**

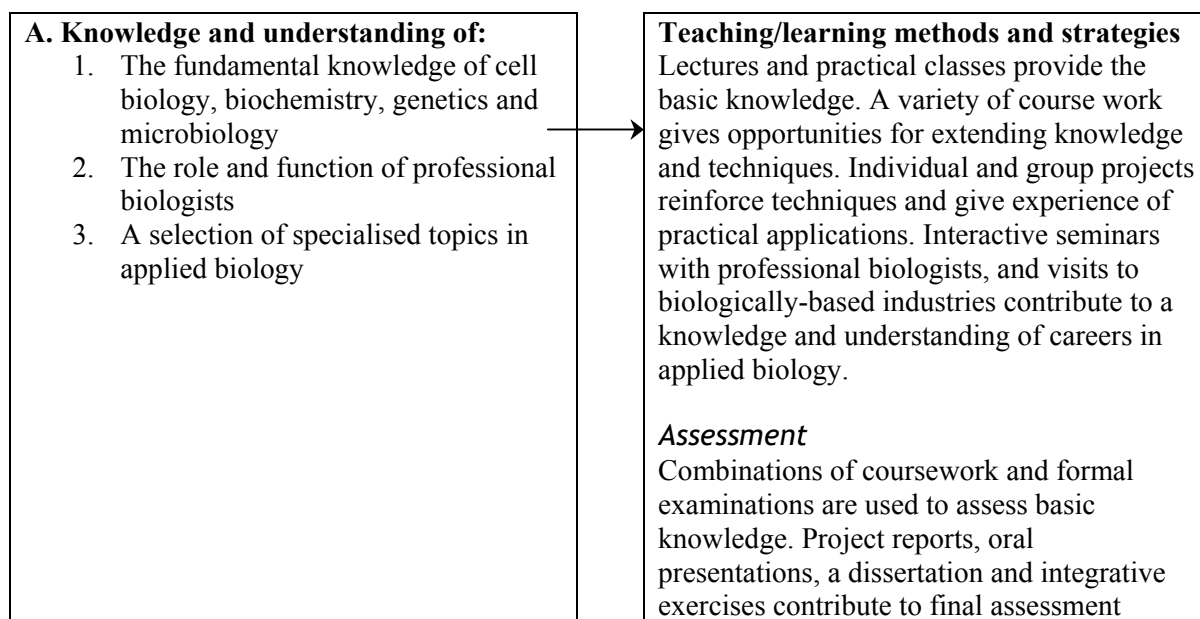
The course allows and encourages students, provided they have passed Part 2, to consider the possibility of studying abroad for a term or a year.

### **Educational aims of the programme**

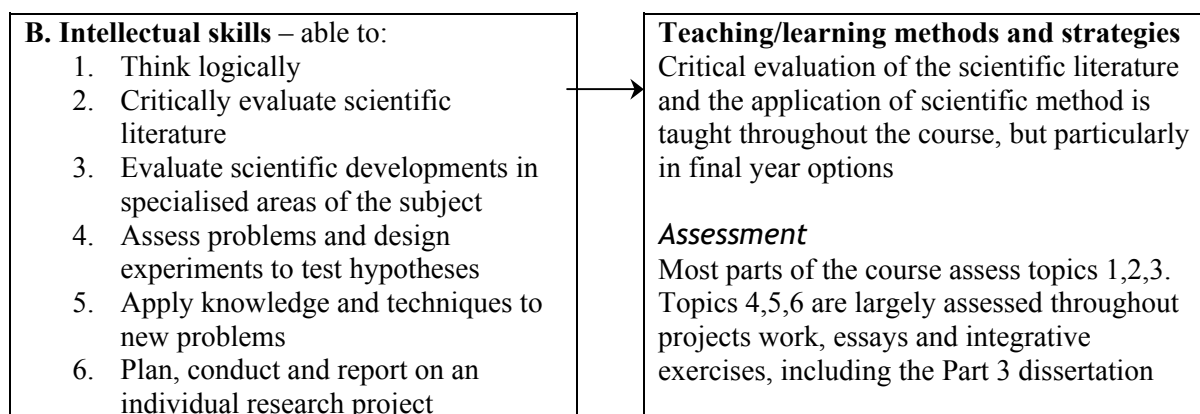
The programme aims to provide a degree level education in biological and allied subjects chosen by students to suit their interests and career aspirations.

### **Programme Outcomes**

#### Knowledge and Understanding



#### *Skills and other attributes*



**C. Practical skills – able to:**

1. Develop the practical laboratory and/or field skills necessary for one or more applied biology subject.
2. Analyse and interpret numerical data
3. Plan, conduct and report a research project

**Teaching/learning methods and strategies**

Topic 1 is taught throughout the course, Topics 2 and 3 are taught and applied within compulsory modules in Parts 2 and 3.

**Assessment**

Through appropriate module and project assessments

**D. Transferable skills – able to:**

1. Use IT (word processing, spreadsheets, statistical packages and databases).
2. Communicate scientific ideas in writing and orally
3. Communicate and interact with professional biologists
4. Effectively use information resources (WWW, library databases).
5. Plan and manage use of time
6. To consider career choice and opportunities

**Teaching/learning methods and strategies**

Use of IT and information resources occurs throughout the course within individual modules. Other skills contribute to effective performance in the course.

**Assessment**

Within modules

*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.