

## BSc Animal Science

UCAS code: D320

Awarding Institution:  
Teaching Institution:  
Relevant QAA subject benchmarking group(s):  
Faculty of Life Sciences  
For students entering Part 1 in October 2002  
Programme Director: Dr F Nowell  
Programme Adviser: Prof PG Knight & Dr MJ Bryant  
Board of Studies: Animal Sciences  
Accreditation: None

The University of Reading  
The University of Reading  
Programme length: 3 years  
Date of specification: 27/2/04

### Summary of programme aims

To enable the student to:

1. understand how animals, especially higher vertebrates, function as integrated systems at each organisational level (i.e. biomolecular, cellular, organ system, whole animal);
2. gain specialised knowledge in certain areas including the nutrition, growth, lactation, reproduction, health and welfare of selected farm and companion animals;
3. understand how the above processes may be optimised to improve animal production and the wellbeing of farm and companion animals;
4. recognise the interdependency of fundamental and applied biology within the context of man's use of animals for production, leisure and companionship purposes

### 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 handling, numeracy, problem-solving, team working and use of information technology. Students will also gain experience in the methodology of research and scholarship

### Programme content

The profile which follows states which modules must be taken (the compulsory modules), together with lists of modules from which the student must make a selection (the optional modules). Students must choose such additional modules as they wish, in consultation with their programme adviser, to make 120 credits in each Part. The number of module credits for each module is shown after its title.

#### Part 1 (three terms)

##### Compulsory modules (90 credits)

		<i>Credits</i>	<i>Level</i>
BI1S11	<i>Concepts and skills in biology 1 (including tutorials)</i>	10	C
BI1C10	<i>Cell Biology and biochemistry</i>	10	C
BI1M10	<i>Biodiversity</i>	10	C
BI1C11	<i>Genetics and molecular biology</i>	10	C
AM1C12	<i>Animal physiology</i>	10	C
AM1Z10	<i>The whole mammal</i>	10	C
AM1C13	<i>Digestion and nutrition</i>	10	C
AP1A03	<i>Introduction to livestock production systems</i>	10	C
AP1A73	<i>The Animal Industry: animals in the commercial and leisure sector</i>	10	C

Students without AS or A2 level Chemistry or an equivalent qualification must take:

BIIS10	Chemistry for biologists	10	C
--------	--------------------------	----	---

### Optional modules

Students will choose further modules up to a total of 120 credits subject to the agreement of the Programme Advisers and to timetable constraints.

The following modules are likely to be available:

AM1M11	<i>Fundamental microbiology</i>	10	C
AM1Z11	<i>Environmental biology</i>	10	C
AM1M12	<i>Important microbes</i>	10	C
AM1C14	<i>Biochemistry and metabolism</i>	10	C
AM1M13	<i>Practical biochemistry</i>	10	C
BI1Z10	<i>Ecology</i>	10	C
BI1Z11	<i>Community ecology</i>	10	C
AP1EF1	<i>The UK food chain</i>	10	C
AP1A02	<i>Introduction to agricultural and food systems</i>	10	C
SS1C1	<i>Soil use and management</i>	10	C

<b>Part 2 (three terms)</b>	<i>credits</i>	<i>level</i>
<b>Compulsory modules (90 credits)</b>		

AM2S31	<i>Concepts and skills in Biology 2</i>	10	I
AM2Z35	<i>Immunology</i>	10	I
AM2C32	<i>Endocrinology</i>	10	I
AM2C37	<i>Cardiovascular and respiratory system physiology</i>	10	I
AP2A36	<i>Animal production</i>	10	I
AP2A35	<i>Animal health and welfare</i>	10	I
AP2A34	<i>Animal breeding and reproductive technology</i>	10	I
AP2A24	<i>Applied animal nutrition</i>	10	I
AM2Z40	<i>Small animal management</i>	10	I

### Optional modules

Students will choose a further 30 credits subject to the agreement of the Programme Advisers.

The following modules are likely to be available:

AM2C33	<i>Pharmacology and toxicology</i>	10	I
BI2Z31	<i>Micro-evolution</i>	10	I
AM2Z32	<i>Vertebrate zoology</i>	10	I
AM2C31	<i>Molecular biology and bioinformatics</i>	10	I
AM2C36	<i>Protein structure and function</i>	10	I
AM2Z37	<i>Aquatic biology</i>	10	I
AM2C24	<i>Cellular biology</i>	10	I
AM2C26	<i>Recombinant DNA exercise</i>	10	I
AM2Z39	<i>Practical molecular zoology</i>	10	I
??Code	<i>IWLP</i>	20	I

<b>Part 3 (three terms)</b>	<i>credits</i>	<i>level</i>
<b>Compulsory modules</b>		

AM3S75	<i>Project</i>	40	H
AM3S76	<i>Essays and seminars</i>	20	H

## Optional modules

Students will choose a further 60 credits subject to the agreement of the Programme Advisers. The following modules are likely to be available:

AM3C78	<i>Mammalian reproduction</i>	10	H
AM3C71	<i>Biochemistry and physiology of cardiovascular disease</i>	10	H
AM3Z74	<i>Conservation biology</i>	20	H
AM3Z76	<i>Behavioural ecology and life history theory</i>	20	H
AM3C76	<i>Neurobiology</i>	20	H
AM3C80	<i>Life and death of the cell</i>	10	H
AM3Z72	<i>Insects and society</i>	10	H
AP3A67	<i>Animal Welfare</i>	10	H
AP3A65	<i>Farm animal welfare</i>	10	H
AP3A68	<i>Wildlife in the Farming Environment</i>	10	H
AP3A53	<i>Animal Growth and meat production</i>	10	H
AP3A66	<i>Horses, dogs and cats</i>	10	H
AP3A60	<i>Lactation and milk production</i>	10	H
AP3A51	<i>Professional skills in applied biology</i>	10	H
AP3A75	<i>Equine management</i>	10	H

## Progression requirements

In order to proceed from Part 1 to Part 2, students must pass the Part 1 examination by achieving an overall mark of at least 40%. A minimum threshold mark of 30% must be obtained for each module. However, module marks equivalent to 20 credits may be condoned if the student has attempted the examination and shown reasonable diligence in attending the modules.

In order to proceed from Part 2 to Part 3, students must pass the Part 2 examination by achieving an overall mark of at least 40%. A minimum threshold mark of 30% must be obtained for each module. However, module marks equivalent to 20 credits may be condoned if the student has attempted the examination and shown reasonable diligence in attending the modules.

In order to be eligible for Honours, students must pass the Part 3 examination overall and gain at least 40% in the Project.

## Summary of teaching and assessment

Teaching in Part 1 consists of lectures and practical classes with small group work being largely restricted to the Concepts and skills module; modules are assessed in general by a combination of coursework (20%) and formal examination (80%) which, in Part 1, is often in multiple-choice question format. Part 1 does not contribute to the final degree assessment.

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 and formal examination (typically 30:70% split).

For the final degree classification Part 2 contributes one third of the overall assessment and Part 3 the remaining two thirds.

### **Admission requirements**

Standard offer: UCAS Tariff: Points/grade 240/CCC from no more than 4 subjects at A level. Subjects & level of qualification: Biology and one other science (Chemistry preferred); both at grade C at A level. The university supports Key Skills and will take account of points awarded for Key Skills although they are not part of the entry requirements. GCSE: Grade B required in Mathematics/English/Sciences.

Irish Highers: BBBCC (including Biology and Chemistry)

IB: 29 points (including Biology and preferably Chemistry).

Mature students and those with other qualifications are encouraged to apply.

Admissions Tutor: Dr F Nowell

### **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.

Within the two providing Departments (AMS and Agriculture) a Course Adviser is available to offer advice on the choice of modules within the degree programme.

### **Career prospects**

Reading graduates in Animal Science find employment in the scientific research and managerial services of commercial organisations concerned with animal nutrition, breeding and health. They work as specialist advisers in animal nutrition in the Agricultural Development and Advisory Service, and with companies in allied areas such as the pharmaceutical, biotechnology and food industries. About 20 per cent of graduates go on to higher degree courses and in recent years some 6 per cent have gained places to study veterinary science. Graduates have also gone into accountancy, management training, financial services and information technology.

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

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

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

The programme aims to provide a thorough degree-level education in Animal Science, leading to a sound knowledge base in biology as a whole, underpinning more specialised knowledge of applied

aspects relating to mans use of animals for production, companionship and leisure purposes. The programme content is intended to be relevent to the needs of employers and should facilitate the professional development of the student to lay the foundations for a successful career to the benefit of the economy and society.

### **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***

<p><b>A. Knowledge and understanding of:</b></p> <ol style="list-style-type: none"> <li>1. The fundamental principles and concepts of animal biology with special reference to higher vertebrates.</li> <li>2. The integrated biochemical and physiological processes that enable animals to function</li> <li>3. The principles of animal agriculture</li> <li>4. Applied aspects of animal biology concerned with mans use of animals for production, companionship and leisure purposes</li> </ol>	<p><b>Teaching/learning methods and strategies</b>          Acquisition of knowledge is achieved mainly through lectures but supported by laboratory practicals, computer-simulated practicals and directed student-centred learning. Student-centred learning is used where appropriate resource material is available and its role in student learning generally increases as the course progresses. As well as compulsory core modules the study programme includes a wide range of optional modules to allow students to tailor the course to their own particular interests. This flexibility is greatest in Part 3.</p> <p><i>Assessment</i>          Most modules, apart from practical modules, essays and project work are assessed by a combination formal examination and coursework. The nature of the coursework varies from module to module and is specified in each module outline.</p>
---	---

#### ***Skills and other attributes***

<p><b>B. Intellectual skills – able to:</b></p> <ol style="list-style-type: none"> <li>1. think logically</li> <li>2. Integrate theory and practice.</li> <li>3. Synthesise information/data from a variety of sources</li> <li>4. analyse and solve problems</li> <li>5. organise tasks into a structured form</li> <li>6. plan, conduct and write a report on an independent project.</li> </ol>	<p><b>Teaching/learning methods and strategies</b>          Acquisition of intellectual skills is encouraged throughout the programme through formal lectures, practical project work, tutorial seminar work, coursework assignments, computer-assisted learning resources and both directed and non-directed reading.</p> <p><i>Assessment</i>          Intellectual skills are partly assessed through formal examinations but assessment of coursework and practical project work is an important component for assessment of the higher order skills. A variety of assessment methods are used including formal reports and project dissertations, essays, oral and poster presentations and project formative and summative assessments.</p>
--	---

**C. Practical skills – able to:**

1. carry out laboratory and/or field practical/project work effectively and safely.
2. interpret experimental observations made in laboratory and/or field
3. Apply and critically evaluate the applications/ limitations of selected research methods and bioanalytical techniques

**Teaching/learning methods and strategies**

In parts 1 and 2 attention is focused on the acquisition of basic skills and safe working practices through prescribed exercises. In part 3 more advanced techniques and non-prescribed exercises are frequently undertaken during project work.

*Assessment*

A variety of assessment methods are used to assess practical skills. These include laboratory day-book inspections, oral/poster presentations, formal reports, formative and summative project assessments, project dissertations

**D. Transferable skills – able to:**

1. use IT effectively (word-processing, spreadsheet, statistical analysis and presentation software, e-mail, www)
2. communicate scientific ideas orally and in writing
3. demonstrate adequate numerical and problem solving skills appropriate to a degree-level biologist
4. work as part of a team
5. work independently
6. use library resources (including on-line)
7. manage time effectively
8. plan their career

**Teaching/learning methods and strategies**

The use of IT is embedded throughout the programme including specific introductory material in part 1.

*Assessment*

In general these skills are not formally assessed as individual elements but they will enhance the performance of students in both coursework (reports, dissertations, poster presentations, essays) and unseen examinations.

*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.