

BSc Animal Science with Industrial Training

UCAS code:

For students entering Part 1 in 2006

Awarding Institution:	The University of Reading
Teaching Institution:	The University of Reading
Relevant QAA subject benchmarking group(s):	Biosciences; AFAFCS Faculty of Life Sciences
Programme length:	4 years
Date of specification:	September 2006
Programme Director:	Dr M J Bryant
Programme Adviser:	Prof. P G Knight
Board of Studies:	Animal Sciences
Accreditation:	None

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, population);
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
5. undertake 12 months work experience with a relevant organisation. This will develop the practical skills and in-depth industrial knowledge that employers demand of graduates.

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 also gain experience in the methodology of research and scholarship.

Programme content

The profile that 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 (70 credits)**

	Credits	Level	Term
BI1S11 Concepts and Skills 1	10	C	1,2 &3
BI1C10 Cell Biology and Biochemistry	10	C	1
BI1M10 Biodiversity	10	C	1
BI1C11 Genetics and Molecular Biology	10	C	2
AM1Z10 The Whole Mammal	10	C	2
AM1C13 Digestion and Nutrition	10	C	2
PM1PB2A Human Physiology	10	C	1

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

BI1S10 Chemistry for Biologists	10	C	1
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Optional modules (50 credits)

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 Fundamental Microbiology	10	C	1
AM1C14 Biochemistry and Metabolism	10	C	2
AM1M13 Practical Biochemistry (Wks 35 & 36 only)	10	C	3
BI1Z10 Ecology	10	C	2
BI1Z11 Community Ecology (Wks 35 & 36 only)	10	C	3
AP1EF1 The UK Food Chain	10	C	1
AP1A03 Introduction to Livestock Production Systems	10	C	1
AP1A02 Introduction to Agricultural and Food Systems	10	C	2
IWLP Language Programme	20	C	1&2

Part 2 (three terms)**Compulsory modules (90 credits)**

	Credits	Level	Term
AM2S31 Concepts and Skills 2	10	I	5
AM2Z40 Small Animal Management	10	I	3
AM2Z35 Immunology	10	I	4
AM2Z33 Animal Behaviour	10	I	5
AP2A36 Animal Production	10	I	5
AP2A35 Animal Health and Welfare	10	I	5
AP2A34 Animal Breeding & Reproductive Technology	10	I	5
AP2A24 Applied Animal Nutrition	10	I	4
AM2C40 Recombinant DNA Exercise	10	I	6

Optional modules (30 credits)

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

AM2C33 Pharmacology and Toxicology*	10	I	4
AM2C32 Endocrinology*	10	I	4

BI2Z31 Micro-Evolution	10	I	5
AM2Z32 Vertebrate Zoology	10	I	4
AM2C31 Molecular Biology and Bioinformatics	10	I	4
AM2C37 Cardiovascular & Respiratory System Physiology	10	I	5
IWLP Language Programme	20	I	4&5
(*recommended modules)			

Placement Year

Compulsory module

AP2ST1 Industrial Training	120	I	7,8 & 9
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Part 3 (three terms)

Compulsory modules (40 credits)

	Credits	Level	Term
AM3S75 Project	40	H	10&11

Optional modules (80 credits)

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

AM3C78 Mammalian Reproduction	10	H	11
AM3C71 Cardiovascular Disease	10	H	10
AM3Z74 Conservation Biology	10	H	11
AM3Z76 Behavioural Ecology & Life History Theory	20	H	10
AM3C76 Neurobiology	10	H	11
AM3C80 Cancer	10	H	11
AM3Z72 Insects and Society	10	H	11
AP3A67 Animal Welfare	10	H	10
AP3A68 Wildlife in the Farming Environment	10	H	11
AP3A66 Horses, Dogs and Cats	10	H	10
AP3A79 Animal Products: Meat and Milk	10	H	11
AP3A80 Animal Growth and Lactation	10	H	10
AP3A51 Professional Skills in Applied Biology	10	H	10
AP3A75 Equine Management	10	H	6

Progression requirements

Progression from Part 1 to Part 2

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 in 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.

Progression from Part 2 to Part 3

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 in 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.

Additionally, students must Pass their industrial training module by completing the placement, submitting a 5000 word report and receiving 40% in their placement supervisor's report.

Progression from Part 2 to the placement year is dependent on successfully completing the application process set by the placement providers. You are ultimately responsible for finding a suitable placement, although the School will help to identify potential employers. The placement year module is assessed by coursework: including a presentation, reflective report and employer report; and does not contribute to your final degree mark, although recognition of the completion of an industrial placement will appear on your degree transcript. If you are unable to find a suitable placement, or if you progress from Part 2 to the placement year but fail to successfully complete the placement year module, you will be permitted to transfer to Part 3 of the BSc Animal Science.

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). The Placement year assessment is designed to encourage critical reflection of the experience.

For the final degree classification 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 an overall weighted average of 40% and must gain at least 40% in the Biology Project module.

Admission requirements

Standard offer: UCAS Tariff: Points/grade 260/BCC 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: BBCC (including Biology and Chemistry) IB: 30 points (including Biology and preferably Chemistry). Mature students and those with other qualifications are encouraged to apply.

Admissions Tutor: Dr M J Bryant

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 Schools (AMS and Agriculture) a Programme 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. 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. The placement year enables students to experience an aspect of a potential career. Many placement students are offered a position on the host company's Graduate Recruitment Scheme.

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 man's use of animals for production, companionship and leisure purposes. The programme content is intended to be relevant 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

A. Knowledge and understanding of:

1. The fundamental principles and concepts of animal biology with special reference

to higher vertebrates.

2. The integrated biochemical and physiological processes that enable

- animals to function
3. The principles of animal agriculture
 4. Applied aspects of animal biology concerned with mans use of animals for production, companionship and leisure purposes
 5. Specific industrial careers via the placement scheme.

Teaching/learning methods and strategies

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

Skills and other attributes

B. Intellectual skills – able to:

1. think logically
2. Integrate theory and practice.
3. Synthesise information/data from a variety of sources
4. analyse and solve problems
5. organise tasks into a structured form
6. plan, conduct and write a report on an independent project.

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

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.

Assessment

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.

Teaching/learning methods and strategies

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.

Assessment

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.

4. Perform in an industrial setting

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. The placement year will develop practical skills specific to the host organisation/industry.

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.