BSc Animal Science with Industrial Training   **UCAS code: D300**
For students entering Part 1 in 2012/3

Awarding Institution: University of Reading
Teaching Institution: University of Reading
Relevant QAA subject Benchmarking group(s):   Biosciences; Agriculture, horticulture, forestry, food
                                              and consumer sciences

Faculty: Life Sciences Faculty
Programme length: 4 years
Date of specification: 12/May/2014
Programme Director: Dr Darren Juniper
Programme Advisor:
Board of Studies: Agriculture, Policy and Development
Accreditation:

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 mans' use of animals for production, leisure and companionship purposes.

Students will also 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

During the course of their studies at Reading, all students will be expected to enhance their academic and personal transferable skills. 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.

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 students must make a selection (the optional modules). Students must choose such optional modules as they wish, in consultation with their tutor and their programme adviser, to select 120 credits in each Part. It is possible, through option selection, to study a foreign language, throughout the whole programme. The number of credits for each module is shown after the title.

Part 1 (three terms)
Compulsory modules

Mod Code	Module Title	Credits	Level
PM1PB2A	Human Physiology	10	4
BI1ED2	Mammals: diversity, behaviour and conservation	10	4
BI1BA1	The Living Cell	10	4
BI1BC2	Genes and Chromosomes	10	4
BI1EC1	Exploiters and Exploited	10	4
AP1A18	Digestion and Nutrition	10	4
AP1SCP	Career Planning (APD students only)	0	4
AP1A15	Animal Science in Practice 1	10	4

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

CH1FC1	Fundamental Concepts in Chemistry 1	10	4

Optional modules
Students will choose further modules up to a total of 120 credits subject to the agreement of the Programme Advisors and to timetable constraints. The following modules are likely to be available:

BI1P11X	Introductory Microbiology	10	4
AP1A02	Introduction to Agricultural and Food Systems	10	4
AP1A03	Introduction to Livestock Production Systems	10	4
AP1EF1	The UK Food Chain	10	4
AP1SB1	Introduction to Management	10	4
BI1BB2	Biochemistry and Metabolism	10	4
BI1EC12*	Exploiters and Exploited	20	4
BI1EF2	Ecology: Species and their Interactions	10	4
BI1EF3**	Practical Field Ecology	10	4
BI1BG3**	Practical Biochemistry	10	4
LA1XX1	Institution Wide Language Programme	20	4
SV1STU~	Student Tutoring		
RD1RED1~	Reading Experience and Development (RED) Award		

*BI1EC12 Exploiters and Exploited (BI1EC1 10-credit version is compulsory, students may choose to undertake this two term 20-credit version which would account for 10-credits of optional choice – if you decide to take the 20 credit version you must complete a module change form to delete the 10 credit module and add the 20 credit module to your module list).
**Students should not select both of these modules due to timetabling constraints.
~Student Tutoring – for further information and an application form visit:
http://www.reading.ac.uk/studentrecruitment/StudentTutoring/sr-studenttutoringinschools.aspx
~Reading Experience and Development (RED) Award – for further information visit
http://www.reading.ac.uk/internal/readingexperienceanddevelopmentaward/reda-home.aspx

Part 2 (three terms)
Compulsory modules

Code	Module title	Credits	Level
AP2A24	Applied Animal Nutrition	10	5
AP2A35	Animal Health and Disease	10	5
AP2A43	Small Animal Management	10	5
AP2A47	Animal Science in Practice 2 with CP (5 credits of total module marks)	10	5
AP2A50	Animal Growth, Lactation and Reproduction	10	5
AP2A61	Experimentation & Data Analysis	10	5
BI2BK5	Molecular Biology of Gene Expression	10	5
BI2BP6	Practical Skills: Recombinant DNA Exercise	10	5
BI2EN5	Animal Behaviour	10	5
AP2SCP	Career Planning	0	5

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. The following modules are likely to be available:

AP2A36	Animal Production	10	5

AP2A38	Organic Farming	10	5
BI2BB4*	Endocrinology	10	5
BI2BE4*	Pharmacology and Toxicology	10	5
B12BN4	Vertebrate Zoology: Structure, Form and Function	10	5
BI2BS5**	Vertebrate Zoology: Structure, Form and Function	10	5
BI2BI5*	Immunology	10	5
AP2A56	Grassland Management and Ecology	10	5
AP2A52~	Practical Wildlife Reserve Management	10	5
AP2A59	Nature Conservation	10	5
AP2SB1	Business Management	10	5
AP2SB2	Financial Management	10	5
LA1XX1	Institution Wide Language Programme	20	4

*Recommended modules
**Can only be selected if BI2BN4 is taken in the Autumn Term

Students can, with the agreement of the Programme Director, and subject to timetabling constraints and fulfilment of prerequisite requirements, select suitable modules from across the University.
Students can opt to undertake a year long period of Industrial Training between Parts 2 and 3 but will need to discuss this with the Programme Director in the first instance. You can find more information at
http://www.reading.ac.uk/apd/businessdevelopment/apd-studentplacements.aspx

Year abroad/Year away/Additional year (three terms)
Compulsory modules

Mod Code	Module Title	Credits	Level
AP2ST1	Industrial Training	120	5

Part 3 (three terms)
Compulsory modules

Mod Code	Module Title	Credits	Level
AP3A81	Dissertation	40	6

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. The following are likely to be available:

BI3BE8	Cardiovascular Disease	10	6
BI3BH8	Mammalian Reproduction	10	6
BI3BD8	Cancer	10	6
BI3EJ8	Conservation Biology	10	6
BI3EK7	Behavioural Ecology and Life History Theory	10	6
AP3A67	Animal Welfare	10	6
AP3AE75	Wildlife and Farming	10	6
AP3A83	Practical Animal Nutrition	10	6
AP3A101	Canine and Feline Sciences	10	6
AP3A100	Equine Sciences	10	6
AP3A91*	Captive Animal Management	10	6
AP3A93	Dairy Production	10	6
AP3A95**	Practical Wildlife Reserve Management	10	6
AP3A96	Meat Production	10	6
AP3A98***	Equine Science and Management	20	6
LA1XX1	Institution Wide Language Programme	20	4

*Taught in the Summer term at end of part 2 only.
**Cannot be selected if already taken in Part 2 as AP2A52. Trip runs in the summer vacation at the end of part 2 only. Please check with module convenor for availability.
***Students selecting AP3A98 are not permitted to take AP3A100, as this module forms part of AP3A98.
Students can, with the agreement of the Programme Director, and subject to timetabling constraints and fulfilment of prerequisite requirements, select suitable modules from across the University.
Within the two providing Schools (Biological Sciences and Agriculture, Policy and Development) a Programme Adviser is available to offer advice on the choice of modules within the degree programme.

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 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 of this programme a student shall normally be required to achieve a threshold performance at Part 1 and achieve a credit weighted average mark of not less than 40% over the compulsory modules and a mark of not less than 30% in each compulsory module.

If you gain a threshold performance at Part 1 and do not proceed to achieve a higher award, you are eligible to receive the award of Certificate of Higher Education. The Part 1 Examination does not contribute to the classification of your degree.

The Part 2 Examination is used to assess a student's suitability to proceed to Part 3 of their programme. It also determines eligibility for the Diploma of Higher Education.
In addition, the marks achieved in the Part 2 Examination contribute to the classification of your degree.
To gain a threshold performance at Part 2, a student shall normally be required to achieve:
     (i) a weighted average of 40% over 120 credits taken at Part 2; and
     (ii) marks of at least 40% in individual modules amounting to not less than 80 credits; and
     (iii) marks of at least 30% in individual modules amounting to not less than 120 credits.   In order to progress from Part 2 to Part 3, student must achieve a threshold performance at Part 2.
If you gain a threshold performance at Part 2 and do not proceed to achieve a higher award, you are eligible to receive the award of Diploma of Higher Education.
 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.

Assessment and classification
The University's honours classification scheme is:

Mark	Interpretation
70% - 100%	First class
60% - 69%	Upper Second class
50% - 59%	Lower Second class
40% - 49%	Third class
35% - 39%	Below Honours Standard
0% - 34%	Fail

For the University-wide framework for classification, which includes details of the classification method, please see: www.reading.ac.uk/internal/exams/Policies/exa-class.aspx

The weighting of the Parts/Years in the calculation of the degree classification is:

Four-year programmes, including placement year: Normally:

Part 2 one-third
Placement Year not included in classification
Part 3 two-thirds
(where students fail a placement year which does not contribute to classification they transfer to the three-year version of the programme)

Teaching is organised in modules that typically involve both lectures and practical classes. During Part 1 some lecture-based modules are supported by workshops or computer lab sessions or visits to businesses in the agri-food sector. The individual and group project modules include skills workshops and progress meetings with the project supervisor. Modules are assessed by a mixture of coursework and formal examination; some like the project modules are wholly course work assessed. Course work assignments include essays, problem solving exercises, short project reports and presentations.
The Placement year assessment is designed to encourage critical reflection of the experience.

Admission requirements
Standard Offer:
UCAS Tariff: 300 points from no more than 4 subjects at A level. Subjects and level of qualification:
Biology and one other science (Chemistry preferred); both at grade C at A2 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 C required in Mathematics, English and Sciences.
Irish Highers: BBBCC (including Biology and Chemistry)
International Baccalaureate: diploma plus 6, 5, 5 from 3 higher level subjects which must include Biology and one other subject (Chemistry preferred).
Mature students and those with other qualifications are encouraged to apply.

Admissions Tutor: Dr Darren Juniper

Support for students and their learning
University support for students and their learning falls into two categories. Learning support is provided by a wide array of services across the University, including: the University Library, the Careers, Placement and Experience Centre (CPEC), In-sessional English Support Programme, the Study Advice and Mathematics Support Centre teams, IT Services and 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 advisers in the Student Services Centre. The Student Services Centre is housed in the Carrington Building and offers advice on accommodation, careers, disability, finance, and wellbeing, academic issues (eg problems with module selection) and exam related queries. 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 and runs workshops and seminars on a range of topics. For more information see www.reading.ac.uk/student

Within the Department of Agriculture additional support is given through practical classes in IT. Within the two providing Schools (Biological Sciences and Agriculture, Policy and Development) a Programme Advisor is available to offer advice on choice of modules within the 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.

Opportunities for study abroad or for placements
As part of the degree programme students may have the opportunity to study abroad at an institution with which the University has a valid agreement.

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:

The fundamental principles and concepts of animal biology with special reference to higher vertebrates.
The integrated biochemical and physiological processes that enable animals to function
The principles of animal agriculture
Applied aspects of animal biology concerned with mans use of animals for production, companionship and leisure purposes
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 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. The placement year will develop practical skills specific to the host organisation/industry.

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.

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.

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.

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 (word-processing, using standard and statistical software)
2. communicate scientific ideas
3. give oral presentations
4. work as part of a team
5. use library and other information resources
6. manage time
7. 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 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.