**BSc Animal Science with Industrial Training**                    **UCAS code: D300**
**For students entering Part 1 in 2015/6**

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:                                   16/Jun/2016
Programme Director:                                       Dr Rachael Neal
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 human use of animals for production, leisure and companionship purposes.

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.

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 which follows comprises a number of compulsory modules, together with a list of modules from which the students can choose (optional modules). Students will choose from the optional modules, avoiding timetable clashes, with guidance from their tutor or programme director, to make 120 credits in each &lsquo;part' of the degree. When selecting optional modules students should carefully read the relevant module descriptions, which can be found online at http://www.reading.ac.uk/modules/index.aspx, noting any pre-requisites (modules which you must have taken first). Most modules are equivalent to 10 and 20 credits, with the final year dissertation at 40 credits. Students can, with the agreement of the Programme Director, and subject to timetabling constraints and fulfilment of prerequisite requirements, select suitable optional modules from across the University.

### Part 1 (three terms)

*Compulsory modules*

| Mod Code | Module Title | Credits | Level |
|---|---|---|---|
| AP1SCP | Career Planning (APD students only) | 0 | 4 |
| AP1A18 | Digestion and Nutrition | 10 | 4 |
| AP1A15 | Animal Science in Practice 1 | 10 | 4 |
| BI1S1 | Introductory Microbiology | 10 | 4 |
| BI1BEC1 | Building Blocks of Life | 20 | 4 |
| BI1BAB2 | Metabolic and Practical Biochemistry | 20 | 4 |
| BI1BH12 | Human Physiology | 20 | 4 |

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

| Code | Title | Credits | Level |
|---|---|---|---|
| CH1FC1 | Fundamental Concepts in Chemistry 1 | 10 | 4 |

*Optional modules (30 credits or 20 if taking CH1FC1)*
Students will choose further modules up to a total of 120 credits subject to the agreement of the Programme Director and to timetable constraints. The following modules are likely to be available:

| Code | Title | Credits | Level |
|---|---|---|---|
| AP1A02 | Introduction to Agricultural and Food Systems | 10 | 4 |
| AP1A03 | Introduction to Livestock Production Systems | 10 | 4 |
| AP1SB1 | Introduction to Management | 10 | 4 |
| BI1EAA1 | Ecology and Behaviour | 20 | 4 |
| BI1EAC1 | Evolutionary Processes | 10 | 4 |
| BI1ED2 | Mammals: Diversity, Behaviour & Conservations | 10 | 4 |
| BI1EF3 | Practical Field Ecology | 10 | 4 |
| LA1XX1 | Institution Wide Language Programme | 20 | 4 |
| SV1STU~ | Student in Schools | 0 | |
| RD1RED1~ | Reading Experience and Development (RED) Award | 0 | |

~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 | Title | Credits | Level |
|---|---|---|---|
| AP2A67 | Animal Nutrition | 20 | 5 |
| AP2A35 | Animal Health and Disease | 10 | 5 |
| AP2A63 | Animal Science in Practice 2 with CMS | 20 | 5 |
| AP2A50 | Animal Growth, Lactation and Reproduction | 10 | 5 |
| AP2A61 | Experimentation and Data Analysis | 10 | 5 |
| AP2SCP | Career Planning | 0 | 5 |

**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:

| Code | Title | Credits | Level |
|---|---|---|---|
| Code | Title | Credits | Level |
| AP2A36 | Animal Production | 10 | 5 |
| AP2A43 | Small Animal Management | 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 |
| BI2BB4 | Endrocrinology | 10 | 5 |
| B12EV45 | Vertebrate Zoology | 20 | 5 |

| BI2EEE4 | Biodiversity: Exploiters and Exploited | 10 | 5 |
| BI2BC45** | Cells and Immunology | 20 | 5 |
| BI2BMG4 | Molecular Genetics | 20 | 5 |
| LA1XX1 | Institution Wide Language Programme | 20 | 4 |

*Pre-requisite is AP1SB1

** Pre-requiste for BI3BXX1 Cancer & Cell Communication

~ This module runs on alternate years - please check availability with the module convenor before selecting

## 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:

| Code | Title | Credits | Level |
|---|---|---|---|
| AP3A67 | Animal Welfare | 10 | 6 |
| AP3AE75 | Wildlife and Farming | 10 | 6 |
| AP3A83 | Practical Animal Nutrition | 10 | 6 |
| AP3A101 | Canine and Feline Science | 10 | 6 |
| AP3A100 | Equine Science | 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 |
| BI3BE8 | Cardiovascular Disease | 10 | 6 |
| BI3BH8 | Mammalian Reproduction | 10 | 6 |
| BI3EW8 | Conservation Biology | 20 | 6 |
| BI3EP7 | Wildlife Diseases | 10 | 6 |
| BI3BXX1~ | Cancer & Cell Communications | 20 | 6 |
| LA2XX1 | Institution Wide Language Programme | 20 | 5 |

*This module runs in week 43 at the 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 as it runs in alternate years.

***Students selecting AP3A98 are not permitted to take AP3A100, as this module forms part of AP3A98.

~ Has pre-requisite BI2XX5

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.

## 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.

**Summary of Teaching and Assessment**
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**
Entrants to this programme are normally required to have obtained:
Grade C or better in Mathematics and Science at GCSE level or equivalent; and

a minimum UCAS Tariff of BBB/ABC - Biology and one other science (Chemistry preferred); or
International Baccalaureate 30 points overall; or
BTEC National Diploma, DDM (Distinction, Distinction, Merit); or
a good pass in an Access Course; we may ask for specific grades in subject units and for particular subjects to be studied.
Mature students and those with other qualifications are encouraged to apply.
Full details of the entrance requirement can be found at http://www.reading.ac.uk/Study/study-ug-academic-reqs.aspx

**Admissions Tutor:** Dr Rachael Neal

## 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.
All students should ensure that they access the online 'Programme Handbook' at the beginning of the degree which includes a detailed outline of the programme, its constituent modules and assessment guidelines. Day-to-day queries regarding academic matters (e.g. timetabling) should be addressed in the first instance to the School Undergraduate Student Office or, where necessary, the Programme Director.

## Career learning

Career learning is facilitated by a Career Planning module that encourages students to take an early proactive approach to career choice and enhancing employability. It is also embedded in a range of other modules within the degree. The Career Planning module aims to improve self-awareness in the context of career decision making, knowledge of the career opportunities available to you and the skills required to make effective applications. All students prepare a Career Planning Portfolio which includes an action plan to gain relevant work experience and to manage the process towards applying for a specific career. During Part 1 the emphasis is on supporting you to apply for work experience placements while in Part 2 the focus shifts towards applications for graduate level positions. Before the conclusion of your degree it is intended that you will have a vision of your preferred career path, your &lsquo;career brand' and how to communicate this in the job application process - from CVs through to interviews and assessments centres.

## 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

The School of Agriculture, Policy and Development encourages students, provided they have passed Part 2, to consider the possibility of studying abroad for a year (as part of the 4 year degree). Students will need to discuss this with their Programme Director in the first instance. Places are not guaranteed.

**Placement opportunities**

All of our degree programmes give you the opportunity to undertake a placement year. An Industrial Placement is an excellent opportunity to gain 12 months work experience in your chosen industry. During the first 2 years of your degree programme you'll develop a thorough knowledge of your chosen subject which can then be applied in an industry-specific setting in your 3rd year placement, before returning to University for your fourth and final year.

Many employers have placement opportunities that are available to you, but we also encourage you to find a company/industry that you're interested in and then approach them about offering you a placement.   Whether you're thinking about doing a placement or you've already decided, there is lots of help and support available to you. We have a dedicated Career Planning module in Part 1 and the Student Placement, Experience and Careers Centre organises many events such as CV checking, mock interviews and assessment centres. We also have a dedicated Placement Officer in the School who will support you throughout all aspects of your placement search and application process and provide continued support whilst on your placement year.

**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:** | **Teaching/learning methods and strategies** |
|---|---|
| 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. | 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:* | **Teaching/learning methods and strategies** |
|---|---|
| 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. | 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.**