BSc Animal Science with Industrial Training **UCAS code: D300**
For students entering Part 1 in 2008/9

Awarding Institution:	University of Reading
Teaching Institution:	University of Reading
Relevant QAA subject Benchmarking group(s):	Biosciences; AFAFCS
Faculty:	Life Sciences Faculty
Programme length:	4 years
Date of specification:	19/Apr/2011
Programme Director:	Dr Jennie Litten-Brown
Programme Advisor:	Prof Phil Knight
Board of Studies:	Agriculture, Policy and Development
Accreditation:	Not applicable

Summary of programme aims
The programme aims to provide students with a thorough degree-level education in agriculture with emphasis on:

- scientific and economic principles underpinning agricultural production and land use
- appropriate husbandry adopted by farmers and others to apply agricultural knowledge profitably
- modern business management techniques
- proving relevant industrial training

Students will 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 line with the University's Strategy for Learning and Teaching. 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.

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

Code	*Module title*	*Credits*	*Level*
AP1A15	Animal Science in Practice 1	10	C
AP1A18	Digestion and Nutrition	10	C
AP1SCMS	Career Management Skills (APD Students Only)	0	C
BI1BA1	The Living Cell	10	C
BI1BC2	Genes and Chromosomes	10	C
BI1EC1	Exploiters and Exploited	10	C
BI1ED2	Mammals: diversity, behaviour & conservation	10	C
PM1PB2A	Human Physiology	10	C

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

CH1FC1	Fundamental Concepts in Chemistry 1	10	C

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:

BI1BB2	Biochemistry and Metabolism	10	C
AM1P11	Introductory Microbiology	10	C
BI1BG3	Practical Biochemistry 10 C (wks 33 and 34 only)		
BI1BA12*	The Living Cell	20	C
BI1EF2	Ecology: Species and their interactions	10	C
BI1EF23	Ecology: Species and their interactions(wks 33 and 34 only)	20	C
AP1A02	Introduction to Agricultural and Food Systems	10	C
AP1A03	Introduction to Livestock Production Systems	10	C
AP1EF1	The UK Food Chain	10	C
AP1SB1	Introduction to Management	10	C
LA1XX1	IWLP Language Programme	20	C

*BI1BA12 the Living Cell (BI1BA1 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)

Part 2 (three terms)
Compulsory modules

Module	*Title*	*Credits*	*Level*
AP2A24	Applied Animal Nutrition	10	I
AP2A34	Animal Breeding and Reproductive Technology	10	I
AP2A35	Animal Health and Disease	10	I
AP2A43	Small Animal Management	10	I
AP2A47	Animal Science in Practice 2 with CMS	10	I
AS2A1	Statistics for Life Sciences	10	I
BI2BK5	Molecular Biology for Gene Expression	10	I
BI2BP6	Practical Skills: Recombinant DNA Exercise	10	I
BI2EN5	Animal Behaviour	10	I

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.

AP2A36	Animal Production	10	I
BI2BB4	Endocrinology*	10	I
BI2BE4	Pharmacology and Toxicology*	10	I
BI2BN5	Vertebrate Zoology	10	I
BI2BI5	Immunology*	10	I
AP2A25	Grassland Management	10	I
AP2A38	Organic Farming	10	I
AP2SB1	Business Management	10	I
AP2SB2	Financial Management	10	I
LA1XX1	IWLP Language Programme	20	I

(*recommended modules)

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

Mod Code	*Module Title*	*Credits*	*Level*
AP2ST1	Industrial Training	120	I

Part 3 (three terms)
Compulsory modules

Mod Code	*Module Title*	*Credits*	*Level*
AP3A81	Dissertation	40	H

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.

BI3BE8	Cardiovascular Disease	10	H
BI3BH8	Mammalian Reproduction	10	H
BI3BD8	Cancer	10	H
BI3EJ8	Conservation Biology	10	H
BI3EK7	Behavioural Ecology and Life History Theory	10	H
AP3A67	Animal Welfare	10	H
AP3A68	Wildlife in the Farming Environment	10	H
AP3A75	Equine Management	10	H
AP3A83	Practical Animal Nutrition	10	H
AP3A84	Dogs and Cats	10	H
AP3A85	Horses	10	H
AP3A91	Captive Animal Management (wk 43 only)	10	H
AP3A93	Dairy Production	10	H
AP3A96	Meat Production	10	H
LA1XX1	IWLP Language Programme	20	H

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, a student shall normally be required to achieve a threshold performance at Part 1.

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.

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.

The classification of the degree will normally be based on the marks for Part 2 and Part 3 modules, weighted in a ratio of 1:2. Full details of classification conventions (that is, the rules for determining your final degree award) can be found in your Programme Handbook.

Summary of Teaching and Assessment
Teaching is organised in modules that typically involve both lectures and practical classes. Modules are assessed by a mixture of coursework (which may include tests) and formal examination. The Part 3 Dissertation is assessed only as coursework. 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:
UCAS Tariff: Minimum 240 points including at least 2 full A Levels.

Ideally Chemistry and Biology at full A Level but a mixture of arts and one of these particular sciences is acceptable.
Irish Highers: BBCCC
International Baccalaureate: 29 points
HND Candidates who achieve good results in HND Agriculture can be exempted from the first year of the degree course allowing them to obtain an honours degree in two years.
A special arrangement with Sparsholt College allows selected students to complete an honours degree in 3 terms after studying at Sparsholt.
OND Applications with good results in appropriate OND science courses and in OND
Agriculture will be considered as will mature applicants with unconventional qualifications.

Admissions Tutor: Dr J Litten-Brown

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 Student Employment, Experience and Careers Centre (SEECC), 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. 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.
There is a Programme Director to offer advice on choice of modules within the programme.

Practical experience
Due to the nature of the programme it is expected that students will have gained some practical experience of agriculture prior to commencement of the course. Further advice and information can be sought from the Programme Director. It is recommended that students get appropriate experience in each of the long vacations.

Career prospects
The programme provides a sound base for graduates to pursue careers both in agriculture as well as in fields of expertise not directly related to agriculture. Graduates have followed careers in farming, technical, advisory and consultancy work in both the UK and abroad, accountancy, land agency, teaching or research. They have also done completely different things too. 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
The Department of Agriculture encourages students, provided they have passed Part 2, to consider the possibility of studying abroad for a term or a 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**
1. Fundamental concepts and techniques of maintaining and enhancing soil fertility 2. the characteristics of farming systems and their interaction with the countryside and the environment 3. the basis of crop and animal science. The	The knowledge required for the basic topics is delineated in formal lectures, supported by practicals and projects, some carried out in groups, others by the students on their own. In all parts these are supported by tutorials and practical classes through which students can

importance of animal welfare 4. biodiversity and the sustainability of agriculture worldwide 5. the fundamentals of economics and business management, including human resource management 6. the difficulties of managing profitable agricultural systems that appear to be at conflict with alternative views 7. the place of numeracy and statistics in agricultural science. 8. a selection of more specialised optional topics 9. A language Specific industrial careers via the placement scheme.	obtain feedback on assessed and non- assessed work. In later parts of the programme students are expected to work at additional problems on their own and in groups, seeking help when required, using the office hours of staff. Model solutions are provided of mathematical and other problems. *Assessment* Most knowledge is tested through a combination of coursework and unseen formal examinations. Dissertations and oral presentations also contribute.

Skills and other attributes

B. Intellectual skills - *able to:*	**Teaching/learning methods and strategies**
1. think logically As science is the fundamental basis of 2. analyse and solve problems agriculture, logic is a fundamental part of its 3. organize tasks into a structured form processes. Agricultural problems need 4. understand the evolving state of solutions. The quality of a solution is knowledge in a rapidly changing area substantially determined by the structure of that 5. transfer appropriate knowledge and response: analysis, synthesis, problem solving to topics from one topic within the subject and knowledge transfer from one topic to another. another. These attributes are intrinsic to high 6. plan, conduct and write reports on performance in the programme. level independent projects	*Assessment* 1 to 3 are assessed indirectly in most parts of the programme, while 5 contributes to the more successful work. 6 is assessed in the dissertation. 4 contributes to many modules.

C. Practical skills - *able to:*	**Teaching/learning methods and strategies**
1. understand and construct reports using word-processing, databases, spreadsheets, and presentation software 2. understand and construct farm and business accounts 3. analyse business accounts 4. formulate animal rations, cropping plans & rotations 5. choose appropriate seeds, treatments and fertilizer for a cereal crop 6. assess environmental, social and economic impacts of agriculture 7. understand the economic implications of agricultural policy 8. Perform in an industrial setting	Farming business and accounting is taught in Part 1 & 2 and reinforced in Practicals in Part 3. Introduction to Livestock Production and other livestock modules are taught in lectures in Part 1 and 2. Biology and Production of Crop Plants is taught in Part 1. Students are taught about environmental, social and economic impacts of agriculture in various modules. Economics is taught in Part 1. The placement year will develop practical skills specific to the host organisation/industry. *Assessment* All 7 are tested either formatively in coursework or summatively in examinations

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 in many modules, as well as specialised modules offered in the programme.
Effective communication of scientific ideas, oral presentations and team work are embedded in modules from Part 1 onwards (e.g., British Agriculture in Practice)
Time management is essential for timely and effective submission of work and completion of the course.
Career management is part of a Part 2 Module and tutorial support is also available.
Library resources are required for many modules, especially the completion of the dissertation, and contribute to the best performances throughout.

Assessment
1-4 are assessed through coursework. 5-7 are not directly assessed but their effective use enhances performance in 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 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.