1. Programmes:

<table>
<thead>
<tr>
<th>Programme Title</th>
<th>UCAS GU Code Code</th>
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<tbody>
<tr>
<td>BSc Honours in Veterinary Biosciences</td>
<td>D300 V49D209</td>
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</table>

2.1 SCQF Level:

10

2.2 Credits:

480

3. Awarding Institution:

University of Glasgow

4. Teaching Institutions:

5. College:

College of Medical Veterinary and Life Sciences

6. School:

Veterinary Medicine [REG20300000]

7. Programme Accredited By:

Not applicable

8. Entrance Requirements:

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1 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 full advantage is taken of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each course can be found in course handbooks and other programme documentation and online at www.gla.ac.uk

The accuracy of the information in this document is reviewed periodically by the University and may be checked by the Quality Assurance Agency for Higher Education.
9. Programme Aims:

The aim of the Veterinary Biosciences degree programme is to provide an understanding of those aspects of animal science which underpin both the role and use of animals in society and in modern veterinary and laboratory animal practice. As such, the programme will concentrate on those species which have a major societal impact, and will be based on a foundation of core subjects including molecular and cellular biology, proteins and immunology, anatomy and physiology of domestic and laboratory mammals, genetics and oncogenesis, the causes and development of infectious diseases, pathological principles underlying disease processes, the principles and effects of drug action, experimental design and biostatistics and a consideration of management principles. Non-domesticated animal species will be included where appropriate and a number of optional subjects will also be offered at Level 2. In addition to didactic teaching, selected laboratory work will complement problem-based learning exercises. The final taught year (Year 4 BSc, Year 5 MSci) includes a significant research project chosen from a wide spectrum of veterinary and bioscience options.

Specific aims of the programme are to:

- acquire knowledge of the fundamental and applied aspects of the biology of those species that interact with human society either as companion animals, food producing animals or animal models in biomedical research.
- understand the complex ethical and animal welfare issues created by mans' interactions with animals.
- explore disease mechanisms and the identification and control of animal disease in an environment dedicated to comparative medicine.
- explore disease interactions between animals and man through an appreciation of veterinary public health.
- gain first-hand experience of scientific research
- gain experience of full-time employment before graduating (MSci only)

Distinctive features of this programme include the fact that:

- it will be delivered in a research rich environment with a wide choice of research projects at Level 4.
- within the School of Veterinary Faculty and the School of Life Sciences there are particular strengths in all the subject areas of veterinary biomedical sciences, with many academic staff being at the cutting edge of fundamental medical research, often in collaboration with clinical colleagues.
- the Scottish Funding Council rated teaching and learning in Veterinary Medicine and Biomedical & Life Sciences as 'Excellent'. The School of Veterinary Medicine also delivers a highly acclaimed Bachelor of Veterinary Medicine and Surgery (BVMS) degree which meets the accreditation requirements of the UK, European and North American veterinary professional bodies (Royal College of Veterinary Surgeons, European Association of Establishments for Veterinary Education and American Veterinary Medical Association). Students on the Veterinary Biosciences programme will have access to the same academic expertise and relevant facilities.

The broad nature of the programme is intended to allow exploration of a wide spectrum of the veterinary biosciences. This broad-based approach provides a suitable starting point for many career paths.
- describe the anatomy and physiology of the healthy animal in its normal environment
- explain pathological processes
- describe the veterinary pharmacology and drug action of common classes of pharmaceuticals
- understand and apply the principles of veterinary drug dispensing
- use statistics and the principles of bioinformatics to address research problems
- apply the principles of veterinary public health, population medicine and epidemiology to relevant problems
- recognise and evaluate animal welfare and ethical issues and show a knowledge of relevant legislation, in the context of animals in society and their use in bioscience research

Skills and Other Attributes

**Subject-specific/Practical skills**

- demonstrate basic practical skills in handling domestic animals
- undertake laboratory based techniques commonly used in veterinary biosciences
- show a knowledge and application of the business context of veterinary biosciences

**Intellectual skills**

- analyse, synthesise and summarise information, including having an ability to analyse critically research papers and publications
- demonstrate the ability to obtain and integrate several lines of subject-specific evidence to formulate and test hypotheses
- apply subject knowledge and understanding to address familiar and unfamiliar problems
- recognise, reason and discuss the moral and ethical issues relating to bioscience investigation and appreciate the need for ethical standards and professional codes of conduct

**Transferable/key skills**

- demonstrate an ability to learn independently in preparation for a career of lifelong learning
- demonstrate a spirit of intellectual curiosity and academic enquiry through their research work
- show problem solving abilities
- demonstrate information retrieval and library search skills
- demonstrate proficient oral & written communication / presentation skills, through the reporting of their honours research project
- demonstrate interpersonal skills and team-working ability by the successful completion of collaborative learning assignments and the honours research project
- demonstrate practical IT skills to support a career in science
- apply time management in order to prioritise tasks and meet deadlines
- understand Health and Safety issues and recognise potential hazards of a physical, chemical, radiological or biological nature

In addition MSci students will have ILOs unique to their work placements, but in general should be better able to:

- demonstrate in-depth knowledge of a particular research topic and an awareness of the frontiers of knowledge in that area
- formulate research hypothesis and appreciate how they can be addressed through experimentation
- design experiments and interpret them in the context of the question posed and existing knowledge
- demonstrate practical research skills
- apply information technology to research e.g. in searching databases
- demonstrate a degree of independence in research and be able to use initiative in solving problems
- communicate effectively with other researchers on a one-to-one basis and through group presentations
- demonstrate an ability to work as a member of a team and to appreciate the value of teamwork
- demonstrate an awareness of the time scale of research
- demonstrate an appreciation of the planning and management of research
• demonstrate the ability to specify objectives and to evaluate when these have been achieved 
plan their future career direction

11. Assessment Methods:

Assessment methods for individual courses will be selected from the following:
- Written unseen degree examinations (both essay format and objective testing such as multiple choice)
- Class exams
- Course work essays
- Laboratory reports
- Computer-based assessment
- Collaborative learning assignments / Peer reviewed group work
- Oral presentations
- Poster presentations
- Student directed learning assignments
- Viva voce examinations
- Honours project report (dissertation, oral presentation and supervisor’s report)
- Work based placement reports (MSci only)

12. Learning and Teaching Approaches:

Learning and Teaching methods for individual courses will be selected from the following:
- Lectures and audio-visual presentations
- Laboratory practicals
- Self-directed study and set assignments involving access to information, research papers, and data, 
  including information on the internet
- Farm-based practical classes and other field visits
- Seminars
- Workshops
- Collaborative Learning Assignments / Group Projects
- Poster Presentations
- Tutorials
- Problem-based learning
- Computer assisted learning
- Supervised Honours research project
- Work based placements (MSci only)

Teaching within this programme will be intimately linked with the general research areas of the College of 
Medical, Veterinary and Life Sciences, as well as the specific research interests of individual teachers. The 
programme will be delivered in a research rich environment with a wide choice of research projects at Level 4.

13. Relevant QAA Subject Benchmark Statements and Other External or Internal Reference Points:

See QAA Benchmark Statement for Biosciences:
http://www.qaa.ac.uk/academicinfrastructure/benchmark/honours/biosciences.asp

Note: this programme is specific to Veterinary Bioscience and does not attempt to cover the full range of 
Biosciences as described in the QAA Benchmark document.
14. Programme Structure and Features:

The first two years of the programme will consist of chemistry, biology, animal husbandry and comparative biomedical sciences such as anatomy and physiology, combined with biomolecular sciences and a wide choice of related subjects. In year three, the focus will be on pathological sciences (for example infectious disease and molecular oncology), and will embrace the principles and effect of drug action. The final taught year (Year 4 BSc, Year 5 MSc) will include courses on scientific methods, statistics, population medicine, epidemiology and animal welfare, ethics and legislation with a significant research project derived from the research foci of the College of Medical, Veterinary and Life Sciences research institutes.

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<tr>
<th>Level (Year)</th>
<th>Courses</th>
<th>Credits</th>
<th>Successful Outcome</th>
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<tbody>
<tr>
<td>1</td>
<td>Chemistry 1 (402B) (Chemistry)</td>
<td>40</td>
<td>Entry to Level 2 or Certificate of Higher Education (Animal Biosciences)</td>
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<tr>
<td></td>
<td>Biology 1A (Animal biology) (KNPU) (SLS)</td>
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<tr>
<td></td>
<td>Biology 1B (Cell biology) (KNMU) (SLS)</td>
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<tr>
<td></td>
<td>Animal Production and Management 1 (MDZU) (SVM)</td>
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<td></td>
<td>Basic mammalian body plan 1 (MEAU) (SVM)</td>
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<td></td>
<td>Comparative vertebrate morphology 1 (MECU) (SVM)</td>
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<td></td>
<td>Body systems physiology 1 (MEBU) (SVM)</td>
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<tr>
<td>2</td>
<td>Body systems physiology 2 (MEFV) (SVM)</td>
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<td>Entry to Level 3 or Diploma of Higher Education (Animal Biosciences)</td>
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<td></td>
<td>Veterinary Bioinformatics 2 (MEHV) (SVM)</td>
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<td></td>
<td>Proteins, DNA &amp; basic genetics 2 (MEDV) (SVM)</td>
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<tr>
<td></td>
<td>Animal Science, Behaviour and Nutrition 2 (MEEV) (SVM)</td>
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<td>Other Level-2 SLS courses (usually 6 x 10 credits)</td>
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<tr>
<td>3</td>
<td>Principles of Infection, Infectious Disease and Immunology 3 (SVM)</td>
<td>40</td>
<td>Entry to Level 4 or Industrial Placement for MSci or designated exit degree</td>
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<td></td>
<td>The pathological mechanisms of disease and oncogenesis 3 (SVM)</td>
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<td>Pharmacology and drug dispensing 3 (SVM)</td>
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<td>Pain and pain management 3 (SVM)</td>
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<td>Tools to investigate biological function 3 (SVM)</td>
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<td><strong>Industrial placement for MSci Student</strong></td>
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<td>Entry to Level 4</td>
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<td>4</td>
<td>Scientific methodology and statistics 4 (SVM)</td>
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<td>BSc (Hons) or MSc in Veterinary Biosciences (5-year programme after industrial placement)</td>
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<td>Animal welfare, ethics and legislation 4 (SVM)</td>
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<td>Veterinary public health, population medicine and epidemiology 4 (SVM)</td>
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<td>Business and Biosciences (SLS)</td>
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<td>Honours Projects (SLS or SVM)</td>
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Progress and early exit points

Progress will be governed in accordance with Generic Undergraduate Regulations 10 and 11 and supplementary regulation 6, hence the minimum requirements for progression to a succeeding year of study within this programme are that the student must have obtained at least 120 credits at grade D or above within each year. Where a candidate does not meet the criteria required for progression they may, if they met the criteria laid down in Generic Undergraduate Regulations 12 or 13 leave the programme with an appropriate exit award (Diploma in Higher Education, Certificate in Higher Education).

The MSci (Veterinary Biosciences) is awarded to candidates completing all taught elements of the BSc (Hons) (Veterinary Biosciences) along with the honours project to total 480 credits at Grade D or above and who have also undertaken a work placement between Levels 3 and 4 worth 120 credits (600 credits in total).

15. Additional Relevant Information:
This programme is distinctive in that it involves a high degree of collaboration between the world-renowned School of Veterinary Medicine and School of Life Sciences. The resultant programme is unique within Scotland in offering training dedicated to Veterinary Biosciences. Students will be immersed in the School of Veterinary Medicine alongside those studying on the BVMS degree programme and will benefit from all the School has to offer both academically and socially, as well having access to the dedicated library and IT facilities and the University Farm. Students will also have access to the School of Life Sciences teaching programmes and the College of Medical, Veterinary and Life Sciences research institutes.

**Career Prospects:**

The Veterinary Biosciences degree will provide an excellent preparation for a career in veterinary research. The programme is also intended for those considering a career in the animal care or pharmaceutical industries where a broad understanding of the biomedical sciences would be an asset. This could be a suitable starting point for a management career in such industries. This would also be an ideal first degree for those wishing to undertake Veterinary Medicine as a second degree. Other career possibilities include teaching of biological subjects at schools, colleges of further education or universities.

For further details: [http://www.gla.ac.uk/vet/](http://www.gla.ac.uk/vet/)

Support for students is provided by the Postgraduate/Undergraduate Adviser(s) of Studies supported by University resources such as the Effective Learning Adviser located in the Student Learning Service ([http://www.gla.ac.uk/services/tls/sls/](http://www.gla.ac.uk/services/tls/sls/)), the University Heath Service ([http://www.gla.ac.uk/services/health/](http://www.gla.ac.uk/services/health/)), the Student Counselling and Advisory Service ([http://www.gla.ac.uk/services/counselling/](http://www.gla.ac.uk/services/counselling/)), the Student Disability Service ([http://www.gla.ac.uk/services/studentdisability/](http://www.gla.ac.uk/services/studentdisability/)) and the Careers Service ([http://www.gla.ac.uk/services/careers/](http://www.gla.ac.uk/services/careers/)).

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