Royal Veterinary College
University of London

BSc Biological Sciences Course Outline

1. Awarding institution	The Royal Veterinary College
2. Teaching institution	The Royal Veterinary College (University of London)
3. Programme accredited by	N/A
4. Final award	Bachelor of Science
5. Programme Title	Biological Sciences
6. Date of First Intake	2014
7. Frequency of Intake	Annually in September
8. Duration and Mode(s) of Study	Three years full-time
9. Timing of Examination Board meetings	Annually in July
10. Date of Last Periodic Review	N/A
11. Date of Next Periodic Review	2019/20
12. UCAS code	C100
13. JACS Code	C000
14. Relevant QAA subject benchmark group(s)	Biosciences

15. Reference points

Report of the Committee of Enquiry into Veterinary Research (the Selborne Report)

Quality Assurance Agency, The framework for higher education qualifications in England, Wales and Northern Ireland

Regulations of the University of London

Future Fit, CBI 2009

Degree Accreditation Criteria, Society of Biology

16. Educational aims of programme

- To offer a high quality course, in which students are challenged by, and stimulated to challenge, accepted wisdom in all fields of animal-related biological sciences.
- To prepare graduates for careers in academic and industrial research, biotechnology and the pharmaceutical industry in general, and in other veterinary and medicine-related industries.

17. Programme outcomes - the programme offers opportunities for students to achieve and demonstrate the following learning outcomes.

A. Demonstrate knowledge and understanding of:

- Specialised terminology which underpins an individual discipline or subject area.
- Cognate sciences.
- The political, social and economic context of the applications of science.

B. Display the following cognitive (thinking) skills:

- Access information and skills as required by a task
- Make methodical observations on the normal and abnormal functioning of biological systems
- Discriminate between important and relatively unimportant information and observations
- Reflect on information and observations, and solve problems
- Discuss uncertainty in relation to scientific "facts", and balance different schools of thought.

C. Display the following practical skills including the ability to:

- Design and execute experiments, and to analyse and interpret the resultant data.
- Present conclusions in a variety of formats.

D. The following are considered to be Key skills:

- Communication.
- Teamwork.
- Personal management and career development.
- Effective learning.
- Problem-solving.
- Information technology.
- Numeracy.
- Acting with integrity, being honest, fair and compassionate in all your work.
- Maintaining high ethical principles in relation to business dealings, the use of information and experimentation in man and animals.

Teaching/learning methods

Students develop their knowledge and understanding through attendance at lectures, seminars, workshops, tutorials and through a variety of directed and self-directed learning activities, including practical exercises. They will learn cognitive skills through problem solving, case studies, reflection and role modelling. Practical skills will be learned through demonstration, observation, prosecution, feedback, role modelling and experimentation. Finally, Key Skills will be taught through group work and exercises, structured learning, practical work, reflection, presentations (oral and written) and problem-solving exercises.

Assessment

Written papers

- Multiple choice questions and short answer questions, testing factual knowledge
- Questions testing skills of problem-solving and data analysis/interpretation
- Essay questions, testing understanding, analysis, synthesis and critical thinking

In-course assessments including:

- Laboratory reports
- Assessment of problem-based learning

Projects

- Year One – library project and oral presentation
- Year Two – 5000-word project report and oral presentation
- Year Three – 12-week laboratory project assessed through a 10,000-word report and oral presentation

Assessments in Year Three vary, depending upon the modules taken. In addition to the assessment methods listed above, written papers for optional modules include open book examinations and short answer questions. In-course assessments for Year Three modules include a range of formats that are relevant to the training of a future research scientist, including:

- Production of grant proposals
- Technology evaluations
- Laboratory reports
- Critical paper reviews
- Literature projects
- Essays
- Presentations The optional Year Three module in Practical Investigative Biology includes a Practical Skills assessment which involves the assessment of key skills such as:

- Performing appropriate calculations
- Selecting and making suitable diagnostic gels
- Analysing the results of restriction enzyme digests.

18. Programme structures and requirements, levels, modules, credits and awards

The Biological Sciences degree is a linear, non-modular programme in its first two years. In the Third Year, each student follows a programme of modules and course units from those offered by the RVC and/or other institutions.

Year One is valued at 120 credits at Level 4; Year Two, 120 credits at Level 5; and Year Three, 120 credits at Level 6.

Year One (London campus)

- Systems and Investigative Biology
  Covers anatomy and physiology, experimental design, scientific method, statistics and epidemiology.
- The Living Cell
  Designed to provide an understanding of the cellular basis of biology, focusing on cell structure, function and communication.
- The Moving Animal
  An introduction to the fundamental concepts of animal locomotion.
- Inheritance, Reproduction and Development
  Introduces regeneration of animals, explaining inheritance and reproduction, and leads on to how genes control body form and function during embryogenesis.
- Basic Concepts in Immunology
  Provides a comprehensive introduction to the fundamental concepts of immunology.
- Problem Definition and investigation
  Introduction to problem-based learning approaches and the research laboratory environment.
- Supervised Science Report
  An extended library-based literature review of a current research topic in animal science, supervised by an academic member of staff.
  Year 1: Example 4 Week Library Projects.

Year Two (London campus)

- The Enemy Within
  The molecular basis of degenerative and proliferative conditions, including neoplasia, cancer and autoimmune diseases.
- The Enemy Without
  Microbiology and parasitology – the role of infection in animal disease, including the factors determining transmission and virulence, and pathological effects.
- Pharmacology: Principles and Practice
  How cutting-edge pharmaceuticals can be used to probe normal and diseased mechanisms and to form a basis for therapy.
- 6-Weeks Research Project
  You will undertake a short research project and present the results in the form of a project report and as an oral presentation. This helps to provide a smooth transition to the design and execution of the third year project and to subsequent post-graduate specialisation at Master's and Doctoral level or academic and industrial research careers.
  Year 2: Example 6 Week Research Projects.

Year Three (London / Hertfordshire campuses)
RVC study options include**:

- Comparative Animal Locomotion
- Advanced Skeletal Pathobiology
- Advanced Reproduction and Development
- Animal Behaviour and Welfare
- Infection and Immunity
- Advanced Concepts in Biobusiness
- Wild Animal Biology
- Parasitology of Tropical Human and Veterinary Disease
- Comparative Models of Diseases
- Endocrine and Metabolic Syndromes
- Practical Investigative Biology
- Veterinary Pathology
- Genetics in Action
- Prevention versus Cure

The first two years, involving the normal and diseased animal, act as the foundation for more specialised, in-depth study in the third year, including a substantial research project and report.
**Alternatively, students may choose third year course elements from the range provided by other constituent Colleges of the University of London, or, by special arrangement, according to their needs, course elements from outside the University of London.
Year 3: Example Research Projects:

The generic theme will continue throughout the first two years and will comprise:

- finding and using information
- what makes a professional scientist?
- epistemology
- scientific method
- statistics
- data recording
- basic epidemiology
- experimental design
- risk
- analytical tools
- ethics
- communication skills
- leadership
- team building and function
- business and financial management

patent law

19. Work Placement Requirements

N/A