

University of Cambridge: Programme Specifications

Every effort has been made to ensure the accuracy of the information contained in this programme specification. At the time of publication, the programme specification has been approved by the relevant teaching Faculty or Department. It is, however, natural for courses to develop and change over time and we reserve the right, without notice, to withdraw, update or amend this programme specification at any time.

BACHELOR OF VETERINARY MEDICINE (FINAL VET. M.B.)

1. Awarding Institution	University of Cambridge
2. Teaching Institution	University of Cambridge
3. Programmes accredited by	Royal College of Veterinary Surgeons & European Association of Establishments for Veterinary Education (EAEVE)
4. Final Award	Final Vet. M.B.
5. Programme Title	Clinical Veterinary Medicine
6. UCAS code	D100 MB/Vet MB
7. Relevant Benchmark Statement	Veterinary Science
8. Date of Programme specification	February 2006

The clinical veterinary programme at Cambridge forms part of the six year veterinary course and builds directly on the preclinical programme described in the programme specification for Medical and Veterinary Sciences and should be read in conjunction with that.

9. Programme Aims

The programme aims to produce highly motivated and adaptable veterinary graduates, with a desire for continuing education, who are well equipped to embark on a successful career in veterinary practice, bio-medical industry or public service, or in suitable cases to study for higher degrees and to become the academic teachers and researchers of the future.

Specifically, it aims:

- a To provide a stimulating and challenging learning environment where teaching is informed and enhanced by research to international standards of excellence.
- b To provide training in scientific principles and experience in evaluation and practice of research.
- c To continue to attract outstanding students with an interest in veterinary science, from a variety of backgrounds, developing their potential to enable them to contribute fully to the cultural and intellectual base of society.
- d To give these students an intellectually stimulating and diverse environment, in which they have the opportunity to develop not only their vocational but also their scientific enthusiasms and abilities to the best of their potential;
- e To use appropriate and varied methods of teaching (lectures, small-group teaching, laboratory practical work, computer-assisted learning (CAL), clinical practice, project work, extra-mural study) and assessment (formative and summative);
- f To provide effectively and rigorously teaching of the practical skills, techniques and knowledge which are essential to veterinary practice, together with their theoretical framework, building vocational instruction intensively on the scientific background provided in the preclinical veterinary course;
- g To remain responsive to advances in research, clinical practice and scholarship, and to the future needs of the veterinary profession.

10. Programme outcomes

The clinical veterinary course occupies the final 9 terms of the 18 term veterinary course at Cambridge.

On completion of the first level of the clinical course (Final Vet MB Part I & Part II), at the beginning of the 6th term of the clinical course (12th term of whole course), students should have:

Knowledge and understanding

- a knowledge of the structure and function of healthy animals, which will allow students to recognise and understand abnormal, and disease states of body systems;
- a sympathetic understanding of the handling, management and nutrition of domesticated animals and of their needs in health and disease;
- a knowledge of the principles and practice of preventive veterinary medicine and veterinary public health;
- a knowledge of reproductive physiology and genetics sufficient to understand breeding management in large and small animals;
- an understanding of the principles underlying the pathogenesis, diagnosis, epidemiology and control of infectious agents;
- basic knowledge of the law and ethical codes affecting veterinary practice;
- knowledge of the principles of surgical techniques;
- basic knowledge of diagnostic imaging, radiography, ultrasound and nuclear medicine;
- basic clinical knowledge of veterinary pharmacology, pharmacy and toxicology.

Intellectual Skills

- basic skills in diagnostic problem solving, and in formulation of treatment strategies.

Practical Skills

- the ability to take a clinical history from an owner;
- the ability to carry out a full clinical examination in all the main domestic species;
- the ability to handle and restrain animals safely;
- the ability to dispense and administer drugs to animals.

Transferable skills

- an understanding of scientific method, and an ability to apply basic scientific knowledge, sufficient to enable students to extend their knowledge of, and utilise future developments in, veterinary science.

Lecture free final year

The second level of the clinical course occupies the final four terms. By the time they sit Part III of the Final VetMB examination, students should have applied their theoretical knowledge and increased their practical skills in the areas above, and should also have acquired:

Intellectual skills

- knowledge of techniques necessary to carry out under supervision common surgical procedures in domesticated animals, including anaesthesia of most species;

Practical Skills

- an ability to manage common obstetrical problems;
- the ability to perform intravenous catheterization and to take a blood sample;
- the ability to perform basic surgical techniques;
- the ability to perform basic diagnostic laboratory techniques;

Transferable Skills

- the capacity to communicate effectively with clients and with colleagues both in the veterinary profession and in other disciplines;
- the ability to work well as a member of a team;
- the capacity to undertake successfully an extended study of a topic and to communicate the results verbally and in writing.

11. Teaching and learning methods

Students learn through a range of activities including lectures, practical laboratory work, projects, practical work in rotations, small-group teaching, seminars, experiential learning, electives and EMS, supplemented by self-learning and CAL.

Lectures are normally extensively illustrated by slides and supported by handouts indicating aims and objectives, core material and material for further study.

Laboratory practicals have a variety of formats including demonstrations, problem-solving exercises and report writing, and involve both paraclinical and clinical teaching staff where appropriate. An interactive teaching approach is encouraged.

The 4th -year Rotations provide a wide variety of learning experiences: private study, observation of veterinary practice, animal handling, basic clinical examination, radiography and necropsy work. In the 5th year this is expanded to include work at the local RSPCA clinic, practical gynaecology, clinical pathology and laboratory animal work. There are also classes on clinical examination, cattle foot-care, neurology, equine surgery, radiology and radiography.

The 6th-year Rotations involve practical clinical work in a number of disciplines in the QVSH and on the University Farm; students take personal responsibility for individual cases.

Rotations provide an opportunity for students to discuss issues with members of staff in small groups and individually.

Extra-mural studies (EMS) expose students to the practical, ethical, financial, managerial and inter-personal aspects of professional practice. A total of 26 weeks of vacation EMS is mandatory, to be completed within the three years of the clinical course. Students are encouraged to study in a variety of veterinary practices, and to spend up to five weeks abroad, in research or other specialist institutions. A week of abattoir experience and a week of diagnostic laboratory work are also required. In all these environments teaching is by extra-mural teachers engaged in their usual professional activities.

12. Support for students and their learning

The Veterinary School, the University centrally, and the Colleges, provide student support for a wide range of problems.

Clinical veterinary students have a Director of Studies and a Tutor within their college, available for academic and pastoral support respectively. The Veterinary School's Tutorial Office sends examination marks to Directors of Studies, alerting them to failure or borderline performance.

Students may approach college Tutors for pastoral guidance and for advice on financial support, which may be available from a college's own resources or a variety of other funds.

Clinical students are also entitled to use the wide variety of specialist support services provided by the University's central authorities - the Accommodation Service, Occupational Health Service, Language Laboratory, Computing Service, University Library, Counselling Service, Careers Service. CUSU and the Graduate Union also offer a variety of services.

However, since veterinary students work mainly within the School during the clinical course, support here is of prime importance.

Support and guidance within the Veterinary School

Veterinary School Clinical Supervisor (VSCS). Each clinical student, on entry, is assigned to a VSCS, who is responsible for guiding and monitoring their progress. There is a mandatory minimum termly meeting with the VSCS who provides a written report on progress to the student's College. The Veterinary School Tutorial Office circulates examination marks to VSCSs, who may pass on marks to individual students. These are accompanied with an instruction to see their VSCS if they have failed an examination, and advice to see their VSCS if their performance was borderline.

The VSCS may either give advice him/herself, decide that no further action is required, or refer the student on - to the Student Affairs Officer (see below), to his or her College Director of Studies or Tutor, or to another source of support such as the University's Counselling Service, as appropriate.

The VSCS is also responsible for advising on Extra-Mural Study, for instance on regulatory requirements, suitable placements, and placements abroad. EMS assessments are forwarded to the student's VSCS for feedback to the student should any remedial action be required.

The **EMS Co-ordinator** provides individual advice to students on EMS in the circumstances above. The EMS co-ordinator routinely sees all EMS assessment reports in case they raise general or organisational issues.

The **Academic Support Officer** is often the first port of call for students for information, and handles virtually all administration concerning the clinical veterinary course. The ASO provides administrative and secretarial support for examiners, administers travel and maintenance grants for EMS, maintains the database of EMS practices, assists the Director of Teaching in preparing the timetable, acts as Secretary to the Staff-Student Committee and Teaching Committee, and assists in the implementation of educational strategy in the Department.

The School's librarian and support staff concerned with teaching often provide first-line advice and help to students on matters within their competence.

The School has two active veterinary student societies, which provide supplementary learning experiences and social support.

Clearly, the support systems available to clinical veterinary students overlap in many ways. We see this as a strength. Students have recourse to several different sources for academic, pastoral and general advice, and this helps to ensure that it is (a) readily available when needed and (b) provided by individuals whom students find acceptable.

13. Criteria for admission

Before admission to the clinical part of the veterinary course students are required to have passed, or gained exemption from all parts of the first and second Vet MB and to have completed the 12 weeks of preclinical extramural study prescribed by the Faculty Board of Veterinary Medicine.

14. Mechanisms for evaluating and improving the quality of student learning and support

The General Board of the Faculties has a structure of committees charged with responsibility for different aspects of academic management and quality control, e.g. the Education Committee considers proposals for developments in courses, oversees the University's programme of Departmental reviews, scrutinises reports of external examiners, and seeks to promote good educational practice. The appointment of new established teaching staff is subject to scrutiny by an independent University committee chaired by the Vice-Chancellor or her deputy.

Oversight and management of day-to-day issues in the clinical curriculum is carried out by the Teaching Committee. Educational policy and strategy is developed and implemented by the Teaching Strategy Board, on behalf of the Faculty Board of Veterinary Medicine and the Head of the Department of Veterinary Medicine. The Director of Teaching chairs the Teaching Committee and Teaching Strategy Board and sits on the Faculty Board.

The staff of the Department are divided into a number of Affinity Groups, which elect members to sit on the Department's Extended Executive Committee. A small Executive Committee is concerned with day to day management of Departmental business. Issues regarding learning and teaching may be raised by the Affinity Groups and then passed to the Teaching Committee or Teaching Strategy Board as appropriate for action via the Executive Committee.

Two students are elected by their fellow-students as members of the Faculty Board, and also sit on the Veterinary Education Committee, Teaching Strategy Board and Staff-Student Committee. The latter meets termly, and open meetings for each year's students from the clinical course are held by the Director of Teaching. Students are also represented on the School's Safety Committee, which meets twice a term.

The School is subject to periodic inspection by the Royal College of Veterinary Surgeons and the European Association of Establishments for Veterinary Education (EAEVE) who accredit the course as a valid route to membership of the Royal College of Veterinary Surgeons, which enables graduates to practice veterinary medicine in the United Kingdom and the European Union.

15. Quality Management

Each member of staff's lecturing is observed by a colleague at least once every two years, and appropriate feedback is provided. A report of each assessment is passed to the Director of Teaching for action. Any significant problem is reported to (and if necessary discussed by) the Teaching Committee, or by the Teaching Strategy Board if it relates to policy and strategy.

Student questionnaires are designed by the Teaching Committee, and circulated by the Academic Support Officer, to gather information on the performance of each lecturer and the overall impact of each course. Completed questionnaires are returned at the end of each course to the Academic Support Officer, who forwards copies to the Course Organiser, to each lecturer on the course and to the Director of Teaching (who raises with the Committee those cases requiring action). The results of the questionnaires and the action taken are transmitted to students through their representatives.

Students' reports on EMS are seen by the EMS Coordinator, who reports any significant problem to the Teaching Committee.

The Course Organiser produces a written assessment of the course on its completion each year taking into account the student questionnaire responses, examination results and enhancements notified by individual lecturers, and is responsible for the annual review of the entry in the Curriculum Document to ensure that it continues to describe the aims and structure of the course accurately.

Examiners are nominated by the Faculty Board and appointed by the General Board. Each Chairman of Examiners provides a briefing pack to the External Examiner on the teaching and assessment performed in the relevant part of the course. External Examiners are required to submit a report to the Vice-Chancellor. Each point in this report is addressed by the Department's Executive Committee, in case there are educational, organizational or resource implications. A report is then made to the Faculty Board of Veterinary Medicine, which must satisfy the Education Committee of the University's General Board that issues have been or will be addressed. Matters concerning QA and course content are remitted to the Teaching Strategy Board for action.

Review Procedures

The Teaching Strategy Board and Teaching Committee provides a continuous review of courses. Changes to the curriculum are made annually, and are notified to all staff and students in the updated version of the Curriculum Document at the beginning of the Michaelmas Term.

Major curriculum changes, involving amendment of the examination structure, must be submitted to the Faculty Board of Veterinary Medicine, and to the General Board, for approval.

Course Organisers and individual lecturers may propose change in individual course content. Suggestions for change may also come through Affinity Group meetings, via the Extended Executive Committee of the Department to the Teaching Committee. Further impetus for change may come from the Teaching Committee itself when it discusses the reviews written by Course Organisers.

Teaching staff are encouraged to attend sessions provided by the University's Academic Staff Development programme, some of which are designed to meet the specific needs of newly appointed staff, whilst others aim to assist staff to develop their full potential in teaching.

The Director of Teaching considers teaching surveillance reports on individual lecturers where poor performance has been identified and discusses with the lecturer concerned ways in which performance may be enhanced, e.g. by attending Academic Staff Development courses on teaching technique. Any policy or strategy issues arising may be referred to the Teaching Strategy Board.

Teaching staff are appraised under a University programme every two years (or annually for staff without tenure).

Changes in course content/structure

The lecturer is responsible for enhancement of the content of individual lectures, both in response to feedback and in response to advances in the field of knowledge. Lecturers are required to notify the Course Organiser of enhancements to their course, for inclusion in the written course review. The Director of Teaching revises and issues a Teaching Guide to lecturers annually.

The Teaching Committee considers the summaries of student questionnaires and Course Organisers' reports to identify areas where changes in course content are needed within the context of the whole curriculum. Course Organisers implement decisions from the Teaching Committee and discuss any problems with the Director of Teaching.

16. Assessment

During the first five terms students are assessed at the end of each of the courses comprising the Final VetMB Part I examination. Assessment is of their understanding and knowledge of core material presented in the courses. Students are required to pass each subject; two resit attempts are permitted. Classification is on a Merit/Pass/Fail basis.

The exams have a multiple choice, computer marked format. The course organisers set questions, which are scrutinised by a member of the panel of official internal examiners and by the external examiner.

Certain practical skills are certified satisfactory by members of staff or EMS supervisors, and a range of specific skills must be so certified before sitting the Final VetMB Part II examination at the start of the 6th term.

Part II assesses students' understanding of the general principles of all courses comprising Part I, and ensures that students are qualified to proceed to the final section of the course. The format of this exam is of two written papers with essay or short answer style questions. There is a two hour practical exam of "steeplechase" format covering material delivered in the practical classes during the first five terms.

Successful completion of the Final VetMB Part III at the end of the 6th year enables registration as a Member of the Royal College of Veterinary Surgeons. The examination consists of written papers, practical/oral examinations, and a continuous assessment mark awarded by organisers of the final-year rotations on students' performance in the rotations.

The examination covers any material delivered in the veterinary course, but with an emphasis on the predominantly clinical courses not previously examined. Examination of this material is deferred until this time to allow formal teaching to be consolidated by work in rotations and in EMS. External examiners monitor the standard and fairness of the Final VetMB Part I, II and III examinations.

Continuous assessment: the strength of the assessment system is that the course examinations in Part I encourage continuous study throughout the year and monitor students' progress regularly. Continuous assessment in the final year provides students with regular assessment of their performance in clinical rotations, which is marked in categories appropriate to the subject - for instance, knowledge, problem-solving skills, professional attitudes and teamwork. Weaknesses are identified and opportunities for remedial work and reassessment are available if the required standard is not reached.

Project work: individual written reports on 4th-year Assignments are required before students pass the Final VetMB Part II.

The 6th-year Electives are assessed by means of a pass/fail grading on the written submission, and the elective supervisor certifying diligent attendance.

Satisfactory completion of 26 weeks of EMS is a requirement before sitting the Final VetMB Part III. Assessment is via feedback questionnaires from both the student and the extra-mural teacher following each period of EMS.

17. Structure of the clinical veterinary course

The clinical veterinary course was completely revised in 1994 and is under continual review and development. A Teaching Review was carried out in 2005, and changes arising from it are currently under negotiation with a view to implementation.

The core curriculum in the 4th and 5th year is based on separate but related courses, some of which have a body systems basis and some a discipline or a species basis. The courses are arranged in two dovetailing wedges of predominantly paraclinical and predominantly clinical teaching. Paraclinical and husbandry teaching predominates early in the 4th year, but gradually diminishes as the more clinical wedge of courses, which begins early in the 4th year, expands to fill the first two terms of the 5th year. This structure provides an overlapping and integrated progression from paraclinical to clinical training.

Integration of clinical teaching with basic science and paraclinical teaching is provided wherever possible and appropriate to encourage students to see the clinical course as a whole rather than as separate paraclinical and clinical entities.

4th and 5th year students progress through a number of different disciplines in groups, normally of 6 or 12. These rotations provide an introduction to practical clinical work, complement the 4th and 5th year lecture courses, and prepare the students for EMS, which begins after the first term of the 4th year. Rotations also provide an introduction to final-year clinical work in the QVSH.

During the 4th year all students undertake an assignment which requires (a) a literature search and review (b) a short oral presentation. This develops transferable skills such as search and review, and communication.

The last half of Term 6, and Terms 7 and 8 of the clinical course, are devoted to vocational clinical training in the QVSH and certain associated institutions. This period is virtually lecture-free, but a variety of small-group teaching and seminars is provided. Students take individual responsibility for case management and client relations within a supervised and supportive environment, as part of small groups normally of 6 or 12. Working in small groups also develops team-working skills.

Students are required by the RCVS to spend at least 26 weeks on EMS. The Department offers students support in arranging and undertaking a programme of placements in a variety of practice and other veterinary environments suited to their own developmental needs and interests. Two weeks in a Veterinary Investigation Centre, and either one week in an abattoir or three weeks in a veterinary practice offering substantial meat hygiene work, are compulsory. Up to five weeks abroad, or in a research or specialist institution, can be credited.

Near the end of the 6th year 8-10 weeks are devoted to elective study. This enables students to study a subject of their choice in greater depth than is possible during the core course. A variety of subjects are offered by members of staff but students are also free to arrange their own programme, provided it is approved by the Elective Organiser. All electives are assessed by written dissertation.

4th Year Courses

- Alimentary System
- Animal Breeding
- Biology of Infectious Disease in Domestic Species (BIDDS)
- Cattle Husbandry and Medicine
- Clinical Pathology Introduction
- Clinical Pharmacology and Toxicology
- Dentistry
- Evidence Based Medicine (EBM)
- Equine Husbandry
- Laboratory Animal Medicine
- Nutrition
- Parasitology I
- Parasitology II
- Pig Husbandry and Medicine
- Poultry Husbandry and Diseases
- Part 1: Animal Housing and Environmental Physiology
- Part 2: Animal Welfare
- Principles of Surgery
- Radiography and Radiology
- Reproductive Pathology
- Respiratory System
- Sheep and Goats Husbandry and Medicine
- Urology
- Veterinary Public Health
- Pathology Seminars
- Project

4th Year Clinical Rotations

- Abattoir Visit
- Clinical Pharmacology and Toxicology
- Equine Clinical Studies
- Farm Animal Clinical Studies
- Post Mortem
- Radiography
- Small Animal Clinical Studies
- Visits to Local Veterinary Practices
- Private Study

5th Year Courses

- Anaesthesia
- Cardiology
- Cattle Husbandry and Medicine
- Dentistry
- Dermatology
- Endocrinology and Metabolic Diseases
- Equine Medicine
- Equine Orthopaedics
- Equine Surgery
- RCVS Ethics
- Haematology & Cytology
- Infertility and Obstetrics
- Neurology
- Oncology
- Ophthalmology
- Orthopaedic Pathology
- Small Animal Medicine
- Small Animal Orthopaedics
- Small Animal Soft Tissue Surgery
- State Veterinary Medicine

5th year Clinical Rotations

- Clinical Pathology
- Equine Surgery
- Farm Animal Clinical Methods and Bovine Foot Care
- Gynaecology
- Laboratory Animals
- Neurology
- Private Study
- Radiography
- RSPCA Clinic

6th year Clinical Rotations

- Anaesthesia
- Equine Studies Medicine and Surgery
- Farm Animal Studies
- Radiology
- Small Animal Medicine / Oncology and Clinical Pathology
- Small Animal Orthopaedic Surgery
- Small Animal Soft Tissue Surgery
- Electives (one chosen from)
 - Soft tissue surgery
 - Small animal medicine & oncology
 - Small animal orthopaedics
 - Diagnostic pathology
 - Farm animal population medicine
 - Exotic animals
 - Equine studies
 - Equine reproduction
 - Ophthalmology
 - Individual electives (by arrangement)

18. Progression requirements

Students must pass all elements of the Final Vet MB part I before they can be a candidate for Part II. Also they must pass Part II and fulfil all requirements regarding EMS, compulsory skills certification and elective before they can be a candidate for Part III.

A pass in the Final Vet MB Part III allows graduates to register as Members of the Royal College of Veterinary Surgeons and to practise in the UK and the EU.

19. Employers

As a vocational course it is validated by official visits from the Royal College of Veterinary Surgeons and European Association of Establishments for Veterinary Education (EAEVE). Possession of the Vet. M.B. degree entitles the holder to become a registered member of the Royal College of Veterinary Surgeons.

There is also extensive interaction with employers through the Extra Mural Studies (EMS) requirements and the feedback provided from these placements. External examiners are also often veterinary practitioners, particularly for the Final Veterinary Exam Part III.