

Faculty of Veterinary Science

Australia's first veterinary college was established in Melbourne by William Tyson Kendall in 1888. The building still stands in Brunswick Street, Fitzroy. When this private college closed in 1908 its task was taken on by the University of Melbourne. Professor John Anderson Gilruth was appointed Dean of the Faculty of Veterinary Science in 1909. Kendall's contribution to veterinary education is acknowledged with W T Kendall Hall, the residential facility for students at the Veterinary Clinical Centre at Werribee. Gilruth's contribution is acknowledged by the naming of the J A Gilruth Library in the Veterinary Research Institute Building at Parkville. Both Kendall and Gilruth were awarded the degree of Doctor of Veterinary Science (*honoris causa*) by the University in 1909 in recognition of their outstanding contributions to veterinary science, veterinary education and the profession.

The faculty conducts undergraduate and higher degree courses and research. It produces about 75 new Bachelor of Veterinary Science (BVSc) graduates per year as well as around 12 graduates in higher degrees.

The first and second years of the BVSc course are taught at the faculty's Veterinary Preclinical Centre on a site called the Veterinary Precinct at the corner of Flemington Road and Park Drive, Parkville. The third and fourth years are taught in the Veterinary Clinical Centre at Werribee located 33 km from the main University campus.

The faculty provides veterinary services through its veterinary clinic and hospital at Werribee and through consultative arrangements with livestock industries. Students in all years use the clinical facilities at Werribee, and have ready access to sheep and cattle farms in the western part of the State, a large population of horses and a growing urban community. The veterinary profession and various community animal organisations assist with teaching and providing practical experience for students during the course.

Objectives of the faculty

The general objectives of the Faculty of Veterinary Science are to:

- provide, at the highest international level, programs of education, postgraduate training and research in veterinary science, so that graduates are equipped with skills which allow them to develop during their careers;
- provide service to the community and the veterinary profession in terms of veterinary expertise in animal health, animal welfare, animal production, and knowledge, to ensure the quality and safety of animal products;
- continue to develop collaborative arrangements, in both teaching and research in veterinary science, with related institutions in Australia and internationally, with particular reference to Asia; and
- identify emerging concerns of the Australian and international communities in which the Faculty of Veterinary Science has special knowledge and skills, and determine the appropriate responses to these concerns.

Departments and centres of the faculty

The Department of Veterinary Science is responsible for the teaching and research in the faculty.

The Veterinary Clinic and Hospital is also a department within the Faculty. It is responsible for providing the environment for undergraduate and postgraduate students to receive clinical instruction and training or undertake research. It offers fee-based veterinary medical, surgical and pathological consultative services to the public including a 24-hour emergency service. Many animals are referred by other veterinary practices and institutions for specialist advice and assistance.

The Centre for Animal Biotechnology, established in 1990, is located at the Veterinary Preclinical Centre, Parkville.

The Centre for Equine Virology, established in 1993, is located at the Veterinary Preclinical Centre, Parkville.

Careers for veterinary science graduates

Most BVSc graduates make several job changes in their veterinary careers over 40 years and many become part of the global veterinary profession.

In Australia, private practice provides the largest demand for recent graduates, and most veterinarians own or work in a practice. This requires a variety of management and business skills. They must learn to be good communicators (while their patients are animals, their clients are humans) and work well with others, including veterinary nurses, receptionists and administrators.

Specialisation is becoming an increasing trend. Within a practice veterinarians may specialise in surgery, medicine, ophthalmology, dentistry, radiology,

acupuncture or chiropractic following postgraduate training and further examination. Some practices limit their work to (for instance) horses or small animals.

Commonwealth government veterinarians supervise quality assurance programs for both the handling of stock and the processing of meat for Australia's export meat markets. They also supervise live animal exports and imports (including imported animal products) to prevent the introduction of diseases from overseas. Some of these activities are also undertaken by accredited private veterinary practitioners.

State government veterinarians pursue animal disease control and eradication, principally in food producing species such as cattle, sheep, pigs and poultry. They are also involved in food safety by monitoring residues, contaminants and food quality.

Veterinarians also work in tertiary education, supervising postgraduate research into normal animal function and studies of animal diseases and teaching undergraduate courses, veterinary nursing, laboratory animal management and the biological sciences.

Several CSIRO divisions employ veterinarians. The work is largely research, covering areas such as animal diseases, food production, human nutrition and health, and environmental and wildlife studies.

Veterinarians with research training also work in biomedical science. The 1996 Nobel Prize in Medicine was shared by Professor Peter Doherty, a graduate in veterinary science from the University of Queensland.

Demand from the sheep, cattle, pig and poultry industries is increasing for veterinarians to provide whole-farm animal health and production management consultancy services. Increasingly, full-time positions are available with firms. Pet food companies provide job opportunities, as do pastoral companies, artificial breeding and reproductive technology services and others.

Pharmaceutical industry efforts to develop and test new drugs for both animals and humans call for veterinarians to conduct research and develop products. The work also includes the breeding, care and maintenance of the animals used in the testing of drugs.

Employment opportunities exist in zoos and wildlife sanctuaries, caring for and treating rare and valuable animals and ensuring suitable habitats are maintained. The RSPCA employs veterinarians to care for abandoned and abused animals.

Opportunities arise for veterinarians to contribute to international programs of animal production, disease control and environmental management. Australian veterinary graduates frequently go overseas for postgraduate training to PhD level or to obtain membership in specialist disciplines such as surgery, small animal medicine, radiology and anaesthesia.

A veterinary science graduate from the University of Melbourne qualifies for registration as a veterinarian in Australia. Graduates may also register to practise as veterinarians in New Zealand and the United Kingdom. With respect to North America, the University of Melbourne School of Veterinary Science is an AVMA-listed college whose graduates are eligible for registration to undertake the National Examining Board Examination in Canada and to enrol in the Educational Commission for Foreign Veterinary Graduates Certification Program in the United States. Further information on specific requirements for licensure should be obtained from the respective bodies in each country and state or province.

Courses offered

Undergraduate

- Bachelor of Veterinary Science *BVSc*
- Bachelor of Veterinary Science (Honours) *BVSc(Hons)*
- Bachelor of Animal Science* *BAnimSc*

(*open only to students doing the BVSc degree course)

Postgraduate

- Master of Veterinary Science *MVSc*
- Master of Veterinary Studies *MVS*
- Doctor of Philosophy *PhD*
- Doctor of Veterinary Science *DVSc*

Veterinary science offers opportunities for further study at the bachelor's, master's or PhD level. The Bachelor of Animal Science is an option after the second or third year of the BVSc course. It provides the opportunity to under-

take an in depth study over one year in an area of veterinary science previously studied. The coursework higher degree of Master of Veterinary Studies provides training to achieve an advanced professional competence in selected veterinary science disciplines. Research training is available to veterinary science, science or agricultural science graduates in a number of areas where the faculty has research strengths. However some clinically oriented projects would only be suitable for veterinary graduates.

Bachelor of Veterinary Science

Course aims

The aim of the BVSc course, in acknowledgement of the aims, guiding values and objectives of the University of Melbourne, is to educate students of veterinary science to the best international standards and to prepare them for careers in professional work, research and public service.

Course objectives

This course has as its objectives that graduates:

- have acquired the essential information and understand the principles appropriate to each level of achievement;
- can relate the scientific knowledge gained to the technical and vocational aspects of veterinary practices;
- have acquired academic and technical competence with animals and animal production systems, their pathogens, diseases, welfare and management;
- can organise knowledge and ideas systematically, discriminate amongst relevant data, and generalise safely;
- have developed skills in problem definition and solution, in decision-making and in program design and implementation;
- can design and conduct scientific enquiries;
- have developed leadership skills and an ability to interact effectively and communicate with professional colleagues, individuals and the general community; and
- understand the rights, privileges and responsibilities of membership of learned societies and professional associations.

Course outline

The BVSc course requires five years of university study. There are two routes of entry. Some students will be admitted on the basis of Year 12 studies into a pre-veterinary year of science at this University. Others will be admitted after completing at least one year of an approved science course at a university. The BVSc degree is required for registration to practise as a veterinary surgeon. Part-time study is not available.

The veterinary science course curriculum is arranged within several frameworks which allow lateral and vertical integration of subject matter. Key among these is the animal framework. The central focus in this framework is the management of animal health and disease. Work covers subjects which lead to the understanding of the normal and abnormal animal, how disease is produced, and how animals and their welfare are managed in the agricultural and companion animal industries.

Other frameworks are herd and flock (management of numbers of animals), production systems (for example, piggeries and vaccine laboratories), community (dealing with the two-way interaction of professionals with the community), and personal development (providing opportunities for personal development as scientist, veterinarian, environmentalist and community leader). These frameworks also link to particular subjects of the BVSc course or are a synthesis of skills acquired across the whole course.

First- and second-year subjects are discipline-based. Subjects of the clinical years are based first on body systems (for example, the cardiovascular system), then on animal species and throughout on practical clinical experience.

Lectures and practical work are required in almost all subjects. Laboratory experiments, demonstrations, clinical work and vacation work on farms and with veterinarians reinforce the theoretical content of lectures. Students work under supervision in the Veterinary Clinic and Hospital at Werribee in conditions similar to those they will encounter after graduating.

Some practical work involving the use of animals in experiments is an essential part of the course.

Course structure and requirements

Pre-veterinary year

- 600-141 Biology of Cells and Organisms (*p.1*) and
- 600-142 Genetics & The Evolution of Life (*p.1*)
- 610-141 Chemistry (*p.2*) and
- 610-142 Chemistry (*p.2*)
- 640-121 Physics A (Adv) (*p.2*) and
- 640-122 Physics B (Adv) (*p.2*)

Pre-veterinary year

- or
- 640-141 Physics A (*p.2*) and
- 640-142 Physics B (*p.3*)
- or
- 640-161 Physics: Principles & Applications A (*p.3*) and
- 640-162 Physics: Principles & Applications B (*p.3*)
- PLUS elective subject or subjects totalling 25 points.

The pre-veterinary year in the Faculty of Science has set full-time studies in biology, chemistry and physics (together 75 points) and a choice of subject(s) for the remaining 25 points of the year's work load. Students will be enrolled in a veterinary science stream within the BSc course and must pass all subjects to be able to proceed to the first year of the BVSc course.

Veterinary first to fourth year

The veterinary science course is a set course which means all subjects must be studied and completed satisfactorily. Some subjects are year long, with the others taught only in either Semester 1 or 2. Each subject in a year must be passed to pass the year and to be able to proceed to the next year of the course.

In addition to formal classes in listed subjects, practical work requirements linked to specific subjects must be completed between academic semesters or terms and between years. The requirements are summarised as follows but reference should be made also to the details of the relevant subjects and rules published for students in each year manual:

- experience in animal handling, care and management.
At least **six weeks** of practical experience on commercial farms, and up to **two weeks** at urban animal shelters such as the RSPCA and licensed wild-life rescue centres. (Both linked to the subjects Animal Health and Management 1 and 2 and to be completed during the first and second years of the course.)
- extramural work with veterinarians appointed by the faculty as academic associates.
Twelve weeks to be completed by the end of the final clinical year for Professional Practice 3.
- practical training rostered in the Veterinary Clinic and Hospital.
Two weeks for Professional Practice 1
Two weeks for Professional Practice 2
- practical instruction in clinical techniques with dairy cattle at the Rural Veterinary Centre at Maffra in Gippsland, hosted by the Maffra Veterinary Centre.
One week for Professional Practice 2.

	Points
First year	
Deals with normal animals and an introduction to the veterinary profession	
250-001 Animal Health & Management 1 (<i>p.1</i>)	18.75
250-101 Veterinary Anatomy 1 (<i>p.1</i>)	31.25
250-103 Veterinary Biochemistry (<i>p.1</i>)	18.75
250-104 Veterinary Physiology I (<i>p.1</i>)	25
250-105 Veterinary Professional Studies (<i>p.1</i>)	6.25

	Points
Second year	
Continues the study of the normal and introduces the abnormal animal and the clinical approach to health and disease	
250-201 Veterinary Microbiology (<i>p.1</i>)	18.75
250-202 Veterinary Parasitology (<i>p.1</i>)	18.75
250-203 Veterinary Pathology (<i>p.1</i>)	18.75
250-204 Veterinary Physiology 2 (<i>p.1</i>)	6.25
250-206 Veterinary Anatomy 2 (<i>p.2</i>)	12.5
250-207 Animal Health & Management 2 (<i>p.2</i>)	12.5
250-208 Introd.Vet.Clinical Sciences (Med & Sur) (<i>p.2</i>)	6.25
250-209 Veterinary Pharmacology & Toxicology (<i>p.2</i>)	6.25
In 2004, 250-209 Veterinary Pharmacology and Toxicology will be a year long course [12.5 points]	

	Points
Third year	
Continues clinical medicine and surgery and develops the systematic study of diseases of various organs and body systems in Semester 1. In Semester 2 the study of animal health, welfare and production commences according to species	
250-307 Animal Health & Management 3 (<i>p.2</i>)	12.5
250-308 Clinical Medicine and Surgery (<i>p.2</i>)	12.5
250-309 Diseases of Body Systems 1 (<i>p.2</i>)	12.5
250-310 Diseases of Body Systems 2 (<i>p.2</i>)	12.5
250-312 Dogs, Cats & Miscellaneous Pets 1 (<i>p.2</i>)	12.5
250-315 Pigs (<i>p.3</i>)	6.25
250-316 Horses 1 (<i>p.3</i>)	6.25
250-317 Cattle 1 (<i>p.3</i>)	6.25

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Third year

	Points
250-318 Small Ruminants 1 (p.3)	6.25
250-319 Professional Practice 1 (Hospital) (p.3)	12.5

Fourth year

Continues the study of animal health, welfare and production according to species in Semester 1. In Semester 2 students undertake periods of approved practical work in clinical practice, diagnostic and research laboratories

	Points
250-418 Dogs, Cats & Miscellaneous Pets 2 (p.3)	12.5
250-419 Horses 2 (p.3)	6.25
250-420 Cattle 2 (p.3)	6.25
250-421 Small Ruminants 2 (p.3)	6.25
250-422 Birds and Non-Domestic Animals (p.4)	6.25
250-423 Professional Practice 2 (Hospital) (p.4)	12.5
250-424 Professional Practice 3 (Electives) (p.4)	50

Bachelor of Veterinary Science (Honours)

The BVSc(Hons) may be awarded to students who achieve a high standard throughout the four years of the BVSc course.

Bachelor of Animal Science

Course objectives

The objectives of the course leading to the degree of Bachelor of Animal Science are:

- to provide the opportunity for a student who is, or has been, enrolled in a Bachelor of Veterinary Science course to undertake advanced studies in a discipline area related to earlier completed studies; and
- to provide a preliminary research training, under appropriate supervision, in that discipline area to a standard equivalent to the honours year of the Bachelor of Science course.

By the end of the course a student should be able to:

- plan, design and execute a small scientific investigation in that particular discipline;
- have developed competence with techniques and instrumentation used for scientific investigations in that discipline area;
- critically appraise and interpret scientific data and present results in the written and verbal forms;
- prepare the results of an investigation in a format suitable for publication in a scientific journal; and
- proceed to larger investigations and work as part of a research team under general supervision.

The BAnimSc degree course involves doing a one-year full-time research project in an area of veterinary science related to earlier completed studies. The BVSc course may then be resumed.

The Bachelor of Veterinary Science with the Bachelor of Animal Science is considered as a combined course for the purpose of student benefits.

Eligibility

Students must have completed two or more years of the BVSc course with at least a pass grade in all subjects from the previous year and have the support of the Head of the Department of Veterinary Science.

Application

Application is made on the appropriate form, through the Faculty Office. The application is completed in liaison with the supervisor and must be endorsed by the Head of the Department of Veterinary Science. Generally application should be made by 30 October.

Selection

Subject to the availability of an appropriate supervisor and research project, selection is based on academic merit, as determined by the applicant's performance in the BVSc course, and on the applicant's potential for such training.

Degree requirements

The requirement is for one year of full-time study which may include attendance at lectures, the carrying out of practical work, attendances at seminars and tutorials, and such other studies as required. The study may be undertaken in the following veterinary discipline areas:

- anatomy, embryology, histology, biochemistry, physiology, microbiology, parasitology, pathology, clinical sciences.

For each discipline the course is split into two subjects; a project (90 points) and a seminar (10 points) totalling 100 points for the award of the degree. Students undertake both subjects from the same discipline. Assessment of the

project is based on a report and assessment of the seminar on a presentation within the faculty's normal research seminar program.

List of subjects

Bachelor of Animal Science

250-494	Vet.Physiology Project (p.4)
250-484	Vet.Physiology Seminar (p.4)
250-495	Vet.Parasitology Project (p.5)
250-485	Vet.Parasitology Seminar (p.5)
250-496	Vet.Pathology Project (p.5)
250-486	Vet.Pathology Seminar (p.5)
250-497	Vet.Biochemistry Project (p.5)
250-487	Vet.Biochemistry Seminar (p.5)
250-483	Vet.Clinical Sciences Project (p.4)
250-482	Vet.Clinical Sciences Seminar (p.4)
250-478	Vet.Anatomy Project (p.4)
250-479	Vet.Anatomy Seminar (p.4)
250-480	Vet.Microbiology Project (p.4)
250-481	Vet.Microbiology Seminar (p.4)

General course information (BVSc and BAnimSc)

Animal experimentation in practical classes

Some practical work involving the use of animals in experiments is an essential part of the course.

All animal experimentation in the University must be approved by the Animal Experimentation Ethics Committee (which includes membership provision for community members with animal welfare interests).

Attendance requirements

Attendance at practical classes, tutorials and clinical rotations is compulsory. Teaching staff may take a roll to record attendance. Students failing to comply with this requirement may be excluded from examinations or results may be withheld and additional examinations or assignments given to demonstrate that the required level of competence in the subject has been attained.

Dean's Honours List

The Dean's Honours List recognises the achievements of the faculty's outstanding students each year. Students are selected on academic merit and receive a letter from the Dean and official acknowledgement on their academic transcripts.

Late submission for assessment

There will be a penalty applied for late submission of work for assessment. Details are provided in the Course and Subject Guide issued to each student for each year of the course.

Plagiarism and collusion

The University policy on plagiarism and collusion will be applied to work submitted for assessment. Details are provided in the Course and Subject Guide issued to each student for each year of the course.

Where to go for assistance

The Faculty Office is located in the Veterinary Preclinical Centre at Parkville. Staff are available to answer questions on all administrative matters and can help direct you to assistance for personal or study problems. Telephone (03) 8344 7357.

Students based at the Veterinary Clinical Centre, Werribee, may seek advice from the Dean's Office in the first instance. Telephone (03) 9731 2000.

Other help structures provided are:

- the Associate Deans (Students Preclinical), Mr C Philip and Dr H Davies, located at Parkville for academic welfare matters;
- the Associate Deans (Students Clinical), Mr G Edwards and Ms J Charles, located at Werribee for academic welfare matters;
- a mentor, who is an academic staff member, is allocated to the student at the commencement of the course for the first two years and then another at the commencement of the clinical training;
- a subject coordinator is responsible for the management of a particular subject and is able to provide academic advice and receive feedback from students on the quality of the course delivery.

Are additional studies available?

Generally the schedule of classes for veterinary science within the academic semester does not allow time for additional studies such as the Diploma of Modern Languages or the Diploma of Music (Practical) or single subjects

offered by other faculties. Students should discuss their requests with staff in the Faculty Office, and arrangements will be made to facilitate these studies where possible.

Is study overseas possible?

While the University has formal exchange agreements with a number of overseas universities, a few of which have a veterinary school, course structure and academic year differences have made it difficult to achieve any student exchanges. Often students have done an additional year to participate in a study abroad program.

Students who consider undertaking any of the practical farm work or extramural veterinary work overseas should apply to the Faculty Office or the Dean's Office for permission.

Taking leave of absence

Application for leave of absence should be made through the Faculty Office. Normally students take leave for a whole year for a variety of reasons but there is an expectation that such leave will assist their personal development. Leave of absence granted on medical grounds for less than an academic year requires that the student returns for the whole academic year in the case of first- and second-year students or the whole semester in the case of third- and fourth-year students.

Academic progress - mid-year (pre-veterinary year and BVSc course)

For the pre-veterinary year, subjects will normally be examined in the semester in which they are taught. Students will be counselled on their performances at mid-year.

For the first two years of the BVSc course the assessment load is split between mid-year and end-of-year examinations. Students who fail any component of assessment at mid-year are counselled on their performance by the subject coordinator and/or the Associate Dean (Students Preclinical) with a view to finding a solution to any academic or personal problems.

Academic progress - end-of-year (pre-veterinary year)

To continue to the first year of the BVSc course students in the pre-veterinary year must pass all their subjects at the first attempt. A special examination is regarded for this purpose as the examination and, therefore, the first attempt.

Progression in the Bachelor of Veterinary Science course - standing rules

In the Faculty of Veterinary Science, progression is by years in the first and second years and by semesters in the third and fourth years.

- a **Faculty pass:** A faculty pass for a year shall be granted if a student fails one subject with a deficiency of up to four marks, provided the excess marks in the subjects passed are at least three times the deficiency in the subject failed. A faculty pass can only be obtained at the first attempt at an examination, ie. not at a supplementary examination or in a repeat year. A special examination is regarded for these purposes as the first attempt. A faculty pass may not be awarded in the final year of the course.
- b **Supplementary examination:** A student in the course shall be granted a supplementary examination in subjects in which the student fails, provided that the student has failed in no more than two subjects and none of the marks obtained are less than 40 per cent. Supplementary examinations can only be granted at the first attempt. No supplementary examination will be held in the Winter Recess.
- c **Suspension:** After the first attempt at the assessment in a particular year, a student may be recommended for suspension if:
 - i being a student in the first year of the course:
 - fails in three or more subjects of the year; **or**
 - fails in two or more subjects of the year with an average mark of less than 40 per cent in the failed subjects; **or**
 - fails any subject of supplementary assessment.
 - ii being a student in the second or later year of the course:
 - fails in all subjects of the year or semester in the case of third and fourth year; **or**
 - passes in one subject of the year, or semester in the case of third and fourth year, but fails in the remaining subjects with an average mark of less than 40 per cent in the failed subjects.
 - iii being a student in any year of the course:
 - fails in consecutive years; **or**
 - fails at a second attempt at a year or semester.
- d **Permitted to repeat:**

- i A student in the first year of the course will **not** normally be allowed to repeat that year.
- ii A student in the second or a later year of the course may be permitted to repeat the failed year or semester in the case of third and fourth year if his or her performance falls between that described in sections b. and c.

Students whose end-of-year performance is in the suspension category will be given an opportunity to make a submission, either written, in person or both, to the Faculty's Progress Committee. The committee will take into account any special circumstances before deciding whether or not to make a formal recommendation for suspension. If the student is recommended for suspension from the course, he/she may make an appeal to the Academic Board.

Re-enrolment

An authorised re-enrolment record, student invoice and re-enrolment instructions will be sent to students in December.

Please take action as instructed.

Students who are not permitted to re-enrol in December will be contacted individually by the Faculty Office.

Resumption of course

Enquiries about resuming studies after suspension or termination from a course should be made to the Faculty Office. Students would be expected to have demonstrated some academic rehabilitation before any application would be considered.

Credit for previous study

Applicants for the Bachelor of Veterinary Science degree may make application for credit on the basis of previously completed equivalent veterinary studies.

No credits may be granted for subjects in the final two years of the course.

For more information

Further information may be obtained from:

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 The University of Melbourne
 Parkville, Victoria 3010
 Tel: +61 3 8344 7357
 Fax: +61 3 8344 7374
 Email: vet-info@unimelb.edu.au
 Web: <http://www.vet.unimelb.edu.au>