

# University of Pretoria Yearbook 2016

## BVeterinary Science Veterinary Science (08130004)

**Duration of study** 6 years

**Total credits** 948

### Programme information

Each student must apply immediately after first admission to the Registrar of the South African Veterinary Council for registration as a student in Veterinary Science. Registration is compulsory and must be renewed annually for the duration of the study.

After the degree has been conferred, graduates are required to register with the South African Veterinary Council as veterinarians before they may practise in South Africa in this capacity.

### Admission requirements

**All study programmes in this Faculty include selection procedures which are based on academic merit the result of the National Benchmark Test (NBT) and a value-added form. Applicants who indicate BVSc or DipVetNurs as their first choice will be given preference. In order to retain provisional admission candidates should still comply with the minimum subject and Admission Point Score (APS) requirements based on their National Senior Certificate (NSC) results.**

- In order to register for the University degree or diploma NSC/IEB/Cambridge candidates must comply with the minimum requirements for degree studies as well as the minimum requirements of the study programme.
- Life Orientation is excluded when calculating the APS.

Minimum requirements for 2016												
Achievement level												
English				Mathematics				Physical Science				APS
NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	NSC/IEB	HIGCSE	AS-Level	A-Level	
5	3	C	C	5	3	C	C	5	3	C	C	32

The NBT and the value-added questionnaire are compulsory components of the selection process. Applicants with an APS between 30 and 32 will be considered for access into the BSc (Four-year Programme) – Biological and Agricultural Sciences. Candidates in this category are admitted into the second semester of the first year of BVSc, after successful completion of the first three semesters of the BSc (Four-year Programme).

### School-leavers

A valid National Senior Certificate (NSC) with admission for degree purposes.

- Subject requirements and an Admission Point Score (APS) as indicated. The APS is calculated from the achievement levels obtained in the six 20-credit subjects of the NSC.
- A completed National Benchmark Test (NBT). Basic performance in any component of this test is regarded as unacceptable.
- Completed value-added form.

### **Applicants with tertiary exposure**

There is an opportunity for students with previous tertiary experience to also apply for the BVSc study programme. Placement in either the first or second year of the BVSc study programme will depend on, among others, merit and subject choices.

### **International students**

A small number of international students may be admitted to the study programme, mainly those from neighbouring Southern African Development Community (SADC) countries. For matriculation exemption requirements and the calculation of the APS, please refer to pages 12 and 13 of this brochure. Equivalency of academic credits will be taken into account. Once applicants have been accepted for this study programme, they will receive a letter of acceptance from the University, which will facilitate their application for a study permit. A valid study permit, obtained in the country of origin, is a prerequisite for registration.

## **Additional requirements**

Admission will be subject to selection and the availability of places.

Applicants with an APS between 30 and 32 will be considered for access into the BSc (Four-year programme) – Biological and Agricultural Sciences. Selected candidates in this category are admitted into the second semester of the first year of BVSc after successful completion of the first three semesters of the BSc (Four-year programme). These applicants must achieve a minimum score of 4 in both Mathematics, Physical Science and English.

## **Other programme-specific information**

For some modules, only a promotional mark will be given; the module will be credited in a later semester.

### **Duration of study**

- (i) Six years of full-time study
- (ii) Seven years of full-time study for those students who access the BVSc programme through the four-year BSc programme.

## **Examinations and pass requirements**

- (i) The General Regulation G.10.1 concerning satisfactory attendance, preparation and payment of module fees, applies to examination, promotion and attendance modules. Attendance at all lectures, practical classes, clinics (including clinical orientation and holiday clinics) and excursions is compulsory. Any form of absence must be justified by submission of a medical certificate or another acceptable form of evidence. Failure to comply may lead to examination refusal.
- (ii) Admission to the examinations in some modules is subject to specific requirements – consult study guides.

The weighting of semester/year marks in the calculation of the final mark shall be 50%.

(iii) A student is required to obtain a subminimum of 40% in the examination as well as a final mark of at least 50% to pass a module. A subminimum of 40% in subdivisions of theoretical and/or practical examinations may be required as stipulated by the Dean in consultation with the head of department concerned, and as set out in the annual study guide. In terms of the General Regulation G.10.4, a semester mark or year mark of at least 50% must be obtained in attendance modules. The stipulations of the General Regulations G.12.1 to G.12.5 also apply.

A student must pass all the modules of the respective previous year of study in order to be promoted to the subsequent year of study, as well as to the clinical rotations. A single further examination will, however, be allowed for students who have only one of the following modules in the new programme outstanding at the end of the relevant academic year, provided the final mark is at least 40%:

- ANV 420 Anaesthesiology
- CLP 410 Clinical pathology
- GNS 320 General surgery
- VEM 210 Veterinary microbiology
- VIM 220 Veterinary immunology

(iv) A student who fails a module or modules in a year of study, has to repeat, subject to the stipulations of the General Regulations G.11.2 (a) to (c) and Regulation V.1(c)(ix), all the modules for that particular year of study, except modules which were passed with a final mark of at least 65%, for which full exemption is granted.

Provisional exemption is granted for an examination module passed with a final combined mark of less than 65%. This implies that at least 80% of the practical periods have to be attended and that a year/semester mark of at least 50% has to be obtained through the completion of all scheduled assessments, tests, tasks, etc., in order to obtain exemption from the examination in those modules at the end of the repeat semester/year. Examinations are compulsory in all the modules previously failed, as well as in those modules in which exemption from the examination has not been obtained. If a student fails any of these examinations (or supplementary examination), he or she will not be allowed to continue their studies in the Faculty [see V.1(c)(x)].

(v) No limit is placed on the number of modules in which supplementary examinations may be done, except in the final year of study. The nature and date of supplementary examinations are determined by the Dean in consultation with the head of department.

(vi) A head of department may require from a student who has been admitted to a supplementary examination, to do additional prescribed work for a specified period of time before he or she may take the supplementary examination as approved by the Dean.

(vii) Subject to the General Regulation, G.12.4.3, a minimum of 50% is required to pass a supplementary examination. The semester or year mark is not taken into account.

(viii) In addition to the stipulations of the General Regulation, G.3.2(b), a student will not be allowed to repeat the same year of study more than once.

(ix) A student who has to discontinue his or her studies in terms of stipulations (v) and (ix) above, may request the Dean in writing to consider his or her application for readmission to the Faculty in terms of prescribed procedures as stipulated in Application of General Regulation G.3 and Faculty Regulation V.1.c(ix) in the Faculty of Veterinary Science, University of Pretoria as approved by the Faculty Board.

(x) Repetition of the final year of study: Students who have failed more than two modules at the time of the Examination Commission meeting, must repeat the final year of the curriculum with due cognisance of rule V.1(c)(v), unless the Dean decides otherwise.

## Practical/clinical/internship information

### **Clinical experience (including practical work)**

Proof of satisfactory completion of prescribed clinical and practical components of the programme as prescribed below must be submitted to the Head: Student Administration of the Faculty, prior to the commencement of the final examinations. Failure to do so may lead to examination refusal.

In state control of stock diseases and administration: experience at an approved institution as approved by the Dean.

Practical and clinical experience at the Faculty and at approved private practices as well as other institutions as approved by the Dean.

## Pass with distinction

The BVSc degree is conferred with distinction on a student who has obtained at least 60% for each module during the last three years of study, and a cumulative average of at least 75% for all the modules in the final year of BVSc study.

# Curriculum: Year 1

Minimum credits: 146

## Fundamental modules

### Academic information management 101 (AIM 101)

**Module credits** 6.00

**Service modules**

Faculty of Engineering, Built Environment and Information Technology  
Faculty of Education  
Faculty of Economic and Management Sciences  
Faculty of Humanities  
Faculty of Law  
Faculty of Health Sciences  
Faculty of Natural and Agricultural Sciences  
Faculty of Theology  
Faculty of Veterinary Science

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Both Afr and Eng

**Academic organisation** Information Science

**Period of presentation** Semester 1

**Module content**

Find, evaluate, process, manage and present information resources for academic purposes using appropriate technology. Apply effective search strategies in different technological environments. Demonstrate the ethical and fair use of information resources. Integrate 21st-century communications into the management of academic information.

### Language and study skills 110 (LST 110)

**Module credits** 6.00

**Service modules**

Faculty of Natural and Agricultural Sciences  
Faculty of Veterinary Science

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** English

**Academic organisation** Unit for Academic Literacy

**Period of presentation** Semester 1

**Module content**

The module aims to equip students with the ability to cope with the reading and writing demands of scientific disciplines.

## Academic orientation 108 (UPO 108)

<b>Module credits</b>	0.00
<b>Language of tuition</b>	Double Medium
<b>Academic organisation</b>	Vet Sc Dean's Office
<b>Period of presentation</b>	Year

## Core modules

### Biometry 120 (BME 120)

<b>Module credits</b>	16.00
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Natural and Agricultural Sciences Faculty of Veterinary Science
<b>Prerequisites</b>	At least 4 (50-59%) in Mathematics in the Grade 12 examination, or at least 50% in both Statistics 113, 123
<b>Contact time</b>	1 practical per week, 4 lectures per week
<b>Language of tuition</b>	Both Afr and Eng
<b>Academic organisation</b>	Statistics
<b>Period of presentation</b>	Semester 2

#### Module content

Simple statistical analysis: Data collection and analysis: Samples, tabulation, graphical representation, describing location, spread and skewness. Introductory probability and distribution theory. Sampling distributions and the central limit theorem. Statistical inference: Basic principles, estimation and testing in the one- and two-sample cases (parametric and non-parametric). Introduction to experimental design. One- and twoway designs, randomised blocks. Multiple statistical analysis: Bivariate data sets: Curve fitting (linear and non-linear), growth curves. Statistical inference in the simple regression case. Categorical analysis: Testing goodness of fit and contingency tables. Multiple regression and correlation: Fitting and testing of models. Residual analysis. Computer literacy: Use of computer packages in data analysis and report writing.

### General chemistry 117 (CMY 117)

<b>Module credits</b>	16.00
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
<b>Prerequisites</b>	Final Grade 12 marks of at least 60% for Mathematics and 60% for Physical Sciences.
<b>Contact time</b>	1 practical per week, 4 lectures per week
<b>Language of tuition</b>	Both Afr and Eng
<b>Academic organisation</b>	Chemistry



**Period of presentation** Semester 1

**Module content**

General introduction to inorganic, analytical and physical chemistry. Atomic structure and periodicity. Molecular structure and chemical bonding using the VSEOR model. Nomenclature of iorganic ions and compounds. Classification of reactions: precipitation, acid-base, redox reactions and gas-forming reactions. Mole concept and stoichiometric calculations concerning chemical formulas and chemical reactions. Principles of reactivity: energy and chemical reactions. Physical behaviour gases, liquids, solids and solutions and the role of intermolecular forces. Rate of reactions: Introduction to chemical kinetics.

**General chemistry 127 (CMY 127)**

**Module credits** 16.00

<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
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<b>Prerequisites</b>	Natural and Agricultural Sciences students: CMY 117 GS or CMY 154 GS Health Sciences students: none
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<b>Contact time</b>	1 practical per week, 4 lectures per week
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<b>Language of tuition</b>	Both Afr and Eng
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<b>Academic organisation</b>	Chemistry
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**Period of presentation** Semester 2

**Module content**

Theory: General physical-analytical chemistry: Physical behaviour of gases, liquids and solids, intermolecular forces, solutions. Principles of reactivity: energy and chemical reactions, entropy and free energy, electrochemistry. Organic chemistry: Structure (bonding), nomenclature, isomerism, introductory stereochemistry, introduction to chemical reactions and chemical properties of organic compounds and biological compounds, i.e. carbohydrates and amino acids. Practical: Molecular structure (model building), synthesis and properties of simple organic compounds.

**Introductory genetics 161 (GTS 161)**

**Module credits** 8.00

<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Veterinary Science
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<b>Prerequisites</b>	MLB 111 GS
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<b>Contact time</b>	fortnightly practicals, 2 lectures per week
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<b>Language of tuition</b>	Both Afr and Eng
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<b>Academic organisation</b>	Genetics
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**Period of presentation** Semester 2

### Module content

Chromosomes and cell division. Principles of Mendelian inheritance: locus and alleles, dominance interactions and epistasis. Probability studies. Sex determination and sex linked traits. Pedigree analysis. Extranuclear inheritance. Genetic linkage and chromosome mapping. Chromosome variation.

## Molecular and cell biology 111 (MLB 111)

**Module credits** 16.00

<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
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**Prerequisites** Refer to Regulation 1.2: A candidate who has passed Mathematics with at least 50% in the Grade 12 examination

**Contact time** 4 lectures per week, 1 practical per week

**Language of tuition** Both Afr and Eng

**Academic organisation** Genetics

**Period of presentation** Semester 1

### Module content

Introductory study of the ultra structure, function and composition of representative cells and cell components. General principles of cell metabolism, molecular genetics, cell growth, cell division and differentiation.

## Medical terminology 180 (MTL 180)

**Module credits** 12.00

<b>Service modules</b>	Faculty of Health Sciences Faculty of Natural and Agricultural Sciences Faculty of Veterinary Science
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**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** Double Medium

**Academic organisation** Ancient Languages and Cultures

**Period of presentation** Semester 1 and Semester 2

### Module content

The acquisition of a basic medical orientated vocabulary compiled from Latin and Greek stem forms combined with prefixes and suffixes derived from those languages. The manner in which the meanings of medical terms can be determined by analysing the terms into their recognisable meaningful constituent parts, is taught and exercised. The functional use of medical terms in context as practical outcome of terminological application is continually attended to.

## Physics for biology students 131 (PHY 131)

**Module credits** 16.00



<b>Service modules</b>	Faculty of Education Faculty of Health Sciences Faculty of Veterinary Science
<b>Prerequisites</b>	Refer to Regulation 1.2: A candidate must have passed Mathematics with at least 50% in the Grade 12 examination
<b>Contact time</b>	1 practical per week, 4 lectures per week, 1 discussion class per week
<b>Language of tuition</b>	Both Afr and Eng
<b>Academic organisation</b>	Physics
<b>Period of presentation</b>	Semester 1

#### Module content

Units, vectors, one dimensional kinematics, dynamics, work, equilibrium, sound, liquids, heat, thermodynamic processes, electric potential and capacitance, direct current and alternating current, optics, modern physics, radio activity.

### Mathematics 134 (WTW 134)

**Module credits** 16.00

<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology Faculty of Education Faculty of Veterinary Science
<b>Prerequisites</b>	Refer to Regulation 1.2: At least 50% for Mathematics in the Grade 12 examination .
<b>Contact time</b>	4 lectures per week, 1 tutorial per week
<b>Language of tuition</b>	Both Afr and Eng
<b>Academic organisation</b>	Mathematics and Applied Maths
<b>Period of presentation</b>	Semester 1

#### Module content

*\*Students will not be credited for more than one of the following modules for their degree: WTW 134, WTW 165, WTW 114, WTW 158. WTW 134 does not lead to admission to Mathematics at 200 level and is intended for students who require Mathematics at 100 level only. WTW 134 is offered as WTW 165 in the second semester only to students who have applied in the first semester of the current year for the approximately 65 MBChB, or the 5-6 BChD places becoming available in the second semester and who were therefore enrolled for MGW 112 in the first semester of the current year.*

Functions, derivatives, interpretation of the derivative, rules of differentiation, applications of differentiation, integration, interpretation of the definite integral, applications of integration. Matrices, solutions of systems of equations. All topics are studied in the context of applications.

### Animal diversity 161 (ZEN 161)

**Module credits** 8.00

<b>Service modules</b>	Faculty of Education Faculty of Veterinary Science
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<b>Prerequisites</b>	MLB 111 GS or TDH
<b>Contact time</b>	2 lectures per week, fortnightly practicals
<b>Language of tuition</b>	Both Afr and Eng
<b>Academic organisation</b>	Zoology and Entomology
<b>Period of presentation</b>	Semester 2

#### Module content

Animal classification, phylogeny, organization and terminology. Evolution of the various animal phyla, morphological characteristics and life cycles of parasitic and non-parasitic animals. Structure and function of reproductive, respiratory, excretory, circulatory and digestive systems.

### Veterinary professional life 120 (VPL 120)

<b>Module credits</b>	3.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Semester 2

#### Module content

The focus of the five-year programme on veterinary professional life is on professional and competency development. It also aims to contribute to the development of competencies to enable veterinarians to be consummate professionals capable of dealing with the diverse challenges of professional and everyday life. The VPL 120 module specifically aims to expose students to the diversity of opportunities and career paths in the veterinary profession

## Curriculum: Year 2

Minimum credits: 149

### Core modules

#### Veterinary ethology and genetics 200 (VET 200)

<b>Module credits</b>	23.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week, 4 times per year
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Year

##### Module content

The impact of genetics on function and management of key domestic species, husbandry of and common procedures performed on key domestic species, behavioural principles of key domestic species, handling skills for key domestic animals, aspects of animal welfare.

#### Animal science 210 (VKU 210)

<b>Module credits</b>	12.00
<b>Service modules</b>	Faculty of Veterinary Science
<b>Contact time</b>	2 lectures per week, 1 practical per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Animal and Wildlife Sciences
<b>Period of presentation</b>	Semester 1

##### Module content

Origin and domestication of farm and companion animals. The ecological environment in which animal production and development is practised. Animal ecological factors that influence regional classification. Livestock species, breeds and breed characterisation and genetic variation. Basic principles of nutrition, physiology, breeding and production. Applied principles of livestock production, production management and systems (large livestock, small stock, pigs and poultry), organisation of the livestock industry and relevant legislation. Animal handling. Practical work includes identification and classification of different breeds of livestock, as well as the general care and handling of farm stock.

#### Animal science 220 (VKU 220)

<b>Module credits</b>	12.00
<b>Service modules</b>	Faculty of Veterinary Science
<b>Prerequisites</b>	VKU 210 GS of TDH
<b>Contact time</b>	1 practical per week, 2 lectures per week



<b>Language of tuition</b>	English
<b>Academic organisation</b>	Animal and Wildlife Sciences
<b>Period of presentation</b>	Quarter 2

#### Module content

Livestock ecology, interaction between genotype and environment. Production regions and systems. Animal ecological factors that influence regional classification. Animal ecological factors to be considered in production factors, planning and management of different livestock production systems. Applied principles of livestock production, production management and systems (large livestock, small stock, pigs and poultry). Conservation farming and adapted farming and management systems; environmental conservation. Practical work will consist of compulsory farm practical during vacation after the 1st year and or during the 2nd year of study in order to understand different animal production systems as well as the general care and handling of farm stock.

### Animal science 222 (VKU 222)

<b>Module credits</b>	6.00
<b>Service modules</b>	Faculty of Veterinary Science
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Animal and Wildlife Sciences
<b>Period of presentation</b>	Semester 2

#### Module content

The chemical composition of fodder. Digestive processes and the digestibility of fodder. The nutrition and nutritional requirements of farm stock. Basic composition of rations. Intensive and extensive feeding.

### Basic principles of pasture science 253 (WDE 253)

<b>Module credits</b>	18.00
<b>Service modules</b>	Faculty of Veterinary Science
<b>Prerequisites</b>	No prerequisites.
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Plant Production and Soil Sc
<b>Period of presentation</b>	Semester 1

#### Module content

The influence of biotic and abiotic factors on the productivity of different strata and components of natural and planted pastures. This will enable the student to understand the management, production, appropriate and optimal utilisation as well as the conservation of these pastures. These principles can be used to ensure sustainable animal production and health.

## Veterinary comparative anatomy 200 (VCA 200)

<b>Module credits</b>	38.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	Semester 1: 9 lectures per week, Semester 2: 11 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Anatomy and Physiology
<b>Period of presentation</b>	Year

### Module content

Anatomical terminology, early embryonic development, central and autonomic nervous systems, cutaneous appendages and musculature, thoracic limb, pelvis, pelvic limb and the head of the major domestic species. Basic avian anatomy.

## Veterinary physiology and histology 200 (VPH 200)

<b>Module credits</b>	33.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	Semester 2: 9 lectures per week, Semester 1: 8 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Anatomy and Physiology
<b>Period of presentation</b>	Year

### Module content

The light microscope, structure and function of cells and tissues, the endocrine system, the nervous system, the integument, muscle structure and function, haematology, the cardiovascular system, the respiratory system, metabolic pathways and the digestive system, the urinary system, the reproductive system, basic avian physiology and thermoregulation.

## Veterinary professional life 200 (VPL 200)

<b>Module credits</b>	7.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	9 lectures per week over 4 days
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Year

### Module content

Information management, societal roles and responsibilities of veterinarians, cultural diversity and group skills, leadership, stress management.

## Veterinary immunology 220 (VIM 220)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	6 lectures per day over 7 days, 1 seminar
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Semester 2

### Module content

Overview of the immune system, structure of antibodies, biosynthesis of immunoglobulins, antigen-receptor interaction, complement, humoral immune response, cellular immune response, selected immunodiagnostic techniques, vaccinology , basic principles of immunity to infectious and parasitic diseases.

## Veterinary microbiology 210 (VEM 210)

<b>Module credits</b>	6.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	8 discussion per day over 1 day, 2 discussion per day over 1 day, 2 lectures per day over 4 days
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Semester 1

### Module content

General introduction to microbiology, bacteriology and mycoplasmaology, pathogenesis of bacterial and mycoplasma infections, rickettsiales and pathogenesis of infection, chlamydiales and pathogenesis of infection, general introduction to fungi and pathogenesis of infection, general introduction to viruses and pathogenesis of infection, laboratory diagnosis of infectious diseases, normal flora of selected organ systems in domestic animals.

## Curriculum: Year 3

**Minimum credits: 139**

### Core modules

#### General and organ pathology 300 (GOP 300)

<b>Module credits</b>	30.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	7 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Paraclinical Sciences
<b>Period of presentation</b>	Year

##### Module content

Definitions and common causes of basic lesions in tissues and organs. Pathogenesis of basic lesions including, reversible cell injury, pigmentations, necrosis, apoptosis, circulatory disturbances, inflammation, immunopathology, growth disturbances and neoplasia. Organ pathology (with the emphasis on macroscopic changes and pathogenesis) of the various organ systems of the body.

#### Veterinary toxicology 300 (TOX 300)

<b>Module credits</b>	14.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Paraclinical Sciences
<b>Period of presentation</b>	Year

##### Module content

General principles of veterinary toxicology, with emphasis on the relevant factors and circumstances contributing to poisoning; advanced toxicology with regard to inorganic and organic compounds, fungi, cyanobacteria, plants, rodenticides, zootoxins, etc.

Plant poisonings, mycotoxicoses and inorganic and organic poisonings are discussed under the following headings: epidemiology and species affected, description, identification, distribution and poisonous principle (if applicable), mechanism of action, toxicity, clinical signs, pathology (limited to the most important lesions); diagnosis, differential diagnosis, treatment and control of prevention. A pressed plant collection or a poisonous plant collection in digital format has to be submitted.

#### Veterinary parasitology 300 (VTP 300)

<b>Module credits</b>	22.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	10 practicals per year, 4 lectures per week

<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Year

#### Module content

The objective of the module is to provide fundamentals of applied veterinary helminthology, ectoparasitology and protozoology as required by veterinarians. The module covers the life cycles, relevant morphological features, epidemiology and pathogenesis of important parasites of domestic animals. Candidates will also learn how to diagnose infections/infestations and diseases in live and dead animals as well as how to treat and control them. Where applicable, emphasis is also given on zoonotic implications.

### General surgery 320 (GNS 320)

<b>Module credits</b>	7.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	BLOCK 7: 30 lectures and 2 practicals
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Semester 2

#### Module content

General principles of surgery, applicable to all species. Principles of surgical asepsis, disinfection and sterilisation, suture materials and patterns, surgical haemostasis, traumatology, wound healing, wound infection, wound management, small animal bandages and surgical instrumentation.

### General veterinary pharmacology 300 (VPH 300)

<b>Module credits</b>	14.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Paraclinical Sciences
<b>Period of presentation</b>	Year

#### Module content

General principles of pharmaceuticals, pharmacokinetics, pharmacodynamics and pharmacotherapeutics. Regulatory control of veterinary medicines and dispensing requirements. A study of groups of functional, systemic and chemotherapeutic drugs utilised in general veterinary practice with emphasis on their pharmacological effects, general indication, safety and side effects.

### Introductory veterinary diagnostics 300 (IVD 300)

<b>Module credits</b>	28.00
<b>Prerequisites</b>	No prerequisites.



**Contact time** 3 lectures per week, 6 practicals per semester

**Language of tuition** English

**Academic organisation** Production Animal Studies

**Period of presentation** Year

### Module content

Diagnostic focus: Introduction to common diagnostic procedures used in key domestic animals including clinical examination, clinical pathology, pain assessment and sedation in relation to clinical examination, basic epidemiological concepts, basic diagnostic imaging modalities and radiation safety.

Clinical physiology focus:

Using clinical cases, the integrated homeostatic responses to disease/insult involving all the body systems. The aim of this section of IVD 300 is therefore to build on basic physiological principles and to explain changes under abnormal situations.

Veterinary research focus: IVD 300 also include a section on the role of research in veterinary science, literature reviews, research design, the role of laboratory animals in veterinary research and examples of research.

## Veterinary infectious diseases 300 (VIP 300)

**Module credits** 14.00

**Prerequisites** No prerequisites.

**Contact time** 3 discussion classes per week over 5 weeks, 3 lectures per week over 23 weeks

**Language of tuition** English

**Academic organisation** Veterinary Tropical Diseases

**Period of presentation** Year

### Module content

Veterinary infectious diseases is a module aimed at providing the student with in-depth knowledge of all aspects of diseases of food-producing and companion animals caused by viruses, bacteria, fungi and prions. The module is structured to enable students to discern which infectious diseases of animals are high impact diseases and which are of lesser significance in order of importance. The module covers the morphological and physico-chemical characteristics of the causative organisms and the epidemiology and pathogenesis of the diseases caused by them. Course candidates will also learn how to diagnose these diseases in both the living and dead animal, and the control strategies applicable, including control at the livestock/wildlife/human interface. Finally, course candidates will learn about the socio-economic importance of infectious diseases of animals with special reference to transboundary spread.

## Veterinary Professional Life 300 (VPL 300)

**Module credits** 10.00

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week over 28 weeks, 1 discussion class per week over 7 weeks

**Language of tuition** English

**Academic organisation** Veterinary Tropical Diseases

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Period of presentation	Year
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<b>Module content</b>
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This module continues with aspects of leadership and diverse personality types and builds on the framework presented earlier in the modules VPL 120 and VPL 200. The aim is to evaluate personal growth during the preceding two years and formulate personal goals for the next two years. Emotional intelligence (EQ) is included in the module and deals with the core skills of self-awareness, self-management, social awareness and relationship management. The module also deals with communication-, conflict management- and negotiation skills with particular reference to the veterinary profession. The module is concluded with basic concepts of financial skills (personal financial fitness), e.g. budgeting (personal and organisational), balance sheets and financial statements (basic understanding) as a precursor to the teaching of more detailed business management principles in the module VPL 510.

## Curriculum: Year 4

Minimum credits: 150

### Core modules

#### Anaesthesiology 420 (ANV 420)

<b>Module credits</b>	7.50
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 times per semester, 3 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Semester 2

##### Module content

Prepare for safe general anaesthesia; premedication; trachea intubation; induction and maintenance of intravenous and inhalation anaesthesia; recovery from anaesthesia; local anaesthesia and pain management; anaesthetic complications.

#### Clinical pathology 410 (CLP 410)

<b>Module credits</b>	7.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Semester 1

##### Module content

Diagnosis and treatment of anaemia, polycythemia, leukocyte kinetics, lymphohaemopoietic neoplasia; diagnosis and treatment of haemostatic abnormalities; diagnostic use of serum biochemistry, faecal and blood tests, urinalysis; cytology.

#### Diagnostic imaging 400 (DIM 400)

<b>Module credits</b>	17.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week S2, 3 lectures per week S1
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Year

### Module content

Principles of diagnostic imaging; diagnostic imaging of the abdomen, thorax, head, appendicular system and the vertebral column in dogs and cats; diagnostic imaging of the appendicular system in horses and production animals.

## Diagnostic pathology 400 (DPT 400)

**Module credits** 16.00

**Prerequisites** No prerequisites.

**Contact time** 30 practicals per year, 2 lectures per week

**Language of tuition** English

**Academic organisation** Paraclinical Sciences

**Period of presentation** Year

### Module content

Planning and conducting necropsies; diagnostic approach to the fatal conditions and diseases of dogs, cats, pigs and poultry.

## Equine medicine and surgery 410 (EQM 410)

**Module credits** 14.00

**Prerequisites** No prerequisites.

**Contact time** 7 lectures per week, 1 practical per semester

**Language of tuition** English

**Academic organisation** Companion Animal Clin Studies

**Period of presentation** Semester 1

### Module content

Lameness: disorders of the front and hind limb; disorders of the spine; fractures and emergencies; muscular disorders; insurance examinations; identification, diagnosis and treatment of important cardiovascular, gastrointestinal, nervous system, urinary, skin, multi-systemic and respiratory disorders/diseases; hydration status and correction of fluid imbalances; the equine neonate: clinical examination, diagnostic tests and selected disorders.

## Porcine health and production 420 (PHP 420)

**Module credits** 5.00

**Prerequisites** No prerequisites.

**Contact time** 2 lectures per week

**Language of tuition** English

**Academic organisation** Production Animal Studies

**Period of presentation** Semester 2

## Module content

The pig industry; breeding and husbandry; nutrition and related disorders; important diseases; biosecurity; miscellaneous conditions.

## Small animal medicine and surgery 400 (SAS 400)

<b>Module credits</b>	50.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	13 lectures per week S2, 9 lectures per week S1, 15 practicals per year
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Year

## Module content

Patient assessment; therapeutic and monitoring plans for selected key critical situations; identification, diagnosis and treatment of important cardiovascular, respiratory, gastrointestinal, liver, pancreas, peritoneal, kidney, urogenital, skin, endocrine, musculoskeletal, nervous system and eye conditions/diseases; multi-systemic conditions; dentistry; oncology; behaviour-related disorders and treatment, critical care and traumatology in dogs and cats; selected aspects of the handling, housing, nutrition, husbandry and diseases of cage birds, reptiles, small mammals, rabbits and chinchillas.

## Veterinary professional life 400 (VPL 400)

<b>Module credits</b>	11.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week over 28 weeks
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Year

## Module content

The veterinarian in context: political roles and responsibilities; collegiality and professional associations; veterinary law and ethics; stressors and stress management.

## Veterinary reproduction 400 (VRP 400)

<b>Module credits</b>	17.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	4 lectures per week, 2 practicals over 10 weeks
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Year

### Module content

The female reproductive cycle; parturition and puerperium; control of reproduction; identification, diagnosis and treatment of important diseases or malfunctions of the female reproductive system; identification, diagnosis and treatment of conditions of the neonate; male reproductive processes; identification, diagnosis and treatment of important diseases or malfunctions of the male reproductive system; venereal diseases in domestic animals; optimisation of breeding; investigation of infertility; the Animal Improvement Act.

### Poultry health and production 420 (PLY 420)

<b>Module credits</b>	5.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Semester 2

### Module content

The poultry industry; breeding and husbandry; nutrition and related disorders; important diseases; biosecurity; miscellaneous conditions; zoonosis.

## Curriculum: Year 5

Minimum credits: 380

### Core modules

#### Bovine health and production 510 (BHP 510)

<b>Module credits</b>	25.00
<b>Contact time</b>	9 lectures per week, 3 practicals per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Semester 1

##### Module content

The pathophysiology, diagnosis, prognosis, treatment and control of diseases in cattle. Aspects of clinical veterinary science, including components of clinical diagnosis, therapeutics, medicine, surgery and introductory herd health.

#### Veterinary epidemiology 510 (EPL 510)

<b>Module credits</b>	10.00
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Semester 1

##### Module content

Topics presented within an evidence-based medicine and clinical decision making framework: basic concepts of epidemiology and disease transmission, measures of disease in populations, precision and bias, causal inference, measures of association, epidemiological study design, sampling methods, disease outbreak investigation, principles of diagnostic tests.

#### Small stock health and production 510 (SSH 510)

<b>Module credits</b>	25.00
<b>Contact time</b>	6 lectures per week, 1 other contact session per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Semester 1

##### Module content

An encompassing approach including case studies, peer instruction and practical group work will enable the student to acquire, understand and apply knowledge regarding small stock production systems. Nutrition, parasite management, disease management, technology and economics will be dealt with.

## Veterinary business management 510 (VPL 510)

<b>Module credits</b>	10.00
<b>Contact time</b>	3 practicals per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Semester 1

### Module content

This module will deal with business management including basic financial reporting and development of a business plan. Marketing, promotion and sales will be studied in terms of marketing oneself and one's business. Human resources management will be approached from the perspective of staff recruitment and retention, work place discipline, as well as recognition and rewards for good work performance and application of the Labour Law in the work place. The module will be concluded with strategic client service and management that will focus on client satisfaction and dissatisfaction, approaches to deal with different categories of clients and compassion fatigue and its components.

## One health 510 (VOH 510)

<b>Module credits</b>	7.00
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Veterinary Tropical Diseases
<b>Period of presentation</b>	Semester 1

### Module content

Introduction to the One Health concept; emerging and endemic infectious diseases at human/animal interfaces; veterinary issues at human/wildlife interfaces in southern Africa; One Health approaches at human/animal/ecosystem interfaces; animal health, conservation and rural development at interfaces in southern Africa; communication and collaboration between multiple disciplines.

## Veterinary public health 510 (VPH 510)

<b>Module credits</b>	14.00
<b>Contact time</b>	6 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Paraclinical Sciences
<b>Period of presentation</b>	Semester 1



## Module content

The role of the veterinary surgeon in veterinary public health. Veterinary food hygiene and nutrition-related diseases of importance regarding food of animal origin. Meat and milk hygiene; all necessary measures, including legislation, to ensure that food of animal origin is safe, sound and wholesome at all stages of production and manufacture, up to the consumer. Veterinary aspects of environmental health. Zoonoses in veterinary science. Introduction of the use of laboratory animals in biomedical research and relevant aspects relating to animal welfare. Introduction to the social aspects of the human-animal interaction by protecting and promoting human health in communities, veterinary extension and risk communication.

## Diagnostic pathology 510 (DPT 510)

<b>Module credits</b>	9.00
<b>Contact time</b>	3 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Paraclinical Sciences
<b>Period of presentation</b>	Semester 1

## Module content

Planning and conducting necropsies; diagnostic approach to fatal conditions and diseases of small stock and cattle.

## Veterinary core practice 601 (VCP 601)

<b>Module credits</b>	53.00
<b>Prerequisites</b>	All modules up to and including the 9th semester of the BVSc curriculum.
<b>Contact time</b>	40 hours per week, Yes
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Production Animal Studies
<b>Period of presentation</b>	Semester 2

## Module content

Practical application of the theoretical aspects of small animal, production animal, equine and state veterinary practice covered in the core curriculum of the BVSc programme. Topics include medicine, surgery, reproduction, diagnostic imaging, pathology and clinical pathology, ophthalmology, dentistry and anaesthesiology of cats, dogs, cattle, small stock and horses, herd/flock health, epidemiology, economics, drug regulations, certification, animal health- and import/export regulations, veterinary public health, veterinary business management and veterinary professional life skills. The emphasis of practical exposure will be on attaining of the Day One Competencies for graduating veterinary professionals.

## Veterinary elective practice 601 (VEP 601)

<b>Module credits</b>	40.00
<b>Contact time</b>	Yes

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**Language of tuition** English

**Academic organisation** Companion Animal Clin Studies

**Period of presentation** Semester 2

**Module content**

The purpose of this module is to give students additional exposure in a practice area of interest. The aim is to provide the graduate with theoretical and practical exposure to strengthen Day 1 competencies in those components of veterinary science needed for him/her to enter the particular career path with confidence. The scope of the module is expansion, integration and practical application of knowledge established through the core component of the BVSc programme. Students will complete one of the following six practice areas: Small Animal and Exotic Practice, Rural and Wildlife Practice, Veterinary Public Health and State Veterinary Practice, Equine Practice, Intensive Animal Production Practice, and Veterinary Research Career.

## Curriculum: Final year

**Minimum credits: 280**

### Core modules

#### Veterinary core practice 602 (VCP 602)

**Module credits** 53.00

**Prerequisites** All modules up to and including the 9th semester of the BVSc curriculum.

**Contact time** Yes, 40 hours per week

**Language of tuition** English

**Academic organisation** Production Animal Studies

**Period of presentation** Semester 1

#### Module content

Practical application of the theoretical aspects of small animal, production animal, equine and state veterinary practice covered in the core curriculum of the BVSc programme. Topics include medicine, surgery, reproduction, diagnostic imaging, pathology and clinical pathology, ophthalmology, dentistry and anaesthesiology of cats, dogs, cattle, small stock and horses, herd/flock health, epidemiology, economics, drug regulations, certification, animal health- and import/export regulations, veterinary public health, veterinary business management and veterinary professional life skills. The emphasis of practical exposure will be on attaining of the Day One Competencies for graduating veterinary professionals.

#### Veterinary core practice 603 (VCP 603)

**Module credits** 54.00

**Prerequisites** All modules up to and including the 9th semester of the BVSc curriculum.

**Contact time** Yes, 40 hours per week

**Language of tuition** English

**Academic organisation** Production Animal Studies

**Period of presentation** Semester 2

#### Module content

Practical application of the theoretical aspects of small animal, production animal, equine and state veterinary practice covered in the core curriculum of the BVSc programme. Topics include medicine, surgery, reproduction, diagnostic imaging, pathology and clinical pathology, ophthalmology, dentistry and anaesthesiology of cats, dogs, cattle, small stock and horses, herd/flock health, epidemiology, economics, drug regulations, certification, animal health- and import/export regulations, veterinary public health, veterinary business management and veterinary professional life skills. The emphasis of practical exposure will be on attaining of the Day One Competencies for graduating veterinary professionals.

## Veterinary elective practice 602 (VEP 602)

<b>Module credits</b>	40.00
<b>Contact time</b>	Yes
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Semester 1

### Module content

The purpose of this module is to give students additional exposure in a practice area of interest. The aim is to provide the graduate with theoretical and practical exposure to strengthen Day 1 competencies in those components of veterinary science needed for him/her to enter the particular career path with confidence. The scope of the module is expansion, integration and practical application of knowledge established through the core component of the BVSc programme. Students will complete one of the following six practice areas: Small Animal and Exotic Practice, Rural and Wildlife Practice, Veterinary Public Health and State Veterinary Practice, Equine Practice, Intensive Animal Production Practice, and Veterinary Research Career.

## Veterinary elective practice 603 (VEP 603)

<b>Module credits</b>	40.00
<b>Contact time</b>	Yes
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Companion Animal Clin Studies
<b>Period of presentation</b>	Semester 2

### Module content

The purpose of this module is to give students additional exposure in a practice area of interest. The aim is to provide the graduate with theoretical and practical exposure to strengthen Day 1 competencies in those components of veterinary science needed for him/her to enter the particular career path with confidence. The scope of the module is expansion, integration and practical application of knowledge established through the core component of the BVSc programme. Students will complete one of the following six practice areas: Small Animal and Exotic Practice, Rural and Wildlife Practice, Veterinary Public Health and State Veterinary Practice, Equine Practice, Intensive Animal Production Practice, and Veterinary Research Career.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.