University of Pretoria Yearbook 2016

MVeterinary Medicine Laboratory Animal Science (08250211)

Duration of study 2 years

Programme information

This programme is offered by the Department of Paraclinical Sciences.

Attendance requirements

i. Unless stipulated otherwise, the Dean must be satisfied that the candidates will have sufficient access to appropriate facilities and, where necessary, supervision by an appropriate person to complete the work required for the degree at a satisfactory level.
ii. Attendance requirements are determined in each individual case by the head of department concerned.
iii. Candidates will be required to keep a logbook or similar record of experiential training which is to be signed by the supervisor every 6 months. The logbook or other suitable record is to be made available for auditing when the specialist module is monitored by the South African Veterinary Council.

The master's degree in Veterinary Medicine is a professional degree and equips the student with a broad scientific background in the theoretical and practical aspects of the chosen field of study.

The MMedVet degree may entitle the holder to registration as a specialist with the South African Veterinary Council together with other requirements as determined by Council. Candidates are encouraged to review current Council guidelines on specialist registration.

Students are required to confirm whether a module will be presented in any particular year. This enquiry should be directed to the relevant head of department.

Also consult the UP General Regulations

Admission requirements

Subject to the stipulations of the applicable General Regulations, a candidate must be in possession of the BVSc or an equivalent degree. In certain cases, the head of department under which a specific field of study for the MMedVet falls, may require that a candidate first obtains a BVScHons degree with modules applicable to the particular MMedVet degree programme. Please note the prerequisites listed under certain programmes.
A minimum of 60% in each module may be required before a student may commence studies for the MMedVet degree.

Additional requirements

Candidates are required to be qualified veterinarians registered with the South African Veterinary Council or authorized by the South African Veterinary Council and to work in the field of specialization under supervision of an approved supervisor for the required duration at a facility approved for this purpose.

The number of students that can be admitted to the MMedVet degree programme annually depends on the training capacity of a department, the number of specialists appointed and the number of available posts.

Other programme-specific information

Any two appropriate elective module(s) of at least 30 credits as approved by the HOD.

Examinations and pass requirements

Also consult the applicable General Regulations.

i. The examination(s) in the specialist field of study may only be taken from the end of the second year of study onwards.
ii. The nature and duration of the specialist module's examination(s), which will test fully the theoretical knowledge as well as the practical skills of the student, is determined by the head of department in which the chosen field of study is offered.
iii. A minimum examination mark of 50% is required in each of the theoretical and practical and oral sections of the specialist module.
iv. Students who intend applying for membership of a specialist college abroad later on, should bear in mind that many of these colleges require a final mark of at least 60% for admission.

Research information

Mini-dissertation

Also consult the General Regulations.

i. A student must submit a mini-dissertation, which deals with the particular field of specialization.
ii. A mini-dissertation is based on a research project or related research projects (which need not be original), planned and written down by the student within the theme of the chosen specialization. (Assistance with statistical processing, applied specialised procedures, etc. is allowed, but must be acknowledged.) The student may use appropriate research done previously, to add to the writing of the mini-dissertation.

    Earlier, related publications by the student may be bound with the mini-dissertation, but may not substitute the complete text of the mini-dissertation. Publications that are submitted, must be rounded off by means of an extensive introduction, materials, and information concerning methods and a discussion of the results. The mini-dissertation will be evaluated by an external examiner, who may not necessarily attend the final examination.

iii. The average of the separate marks awarded by all the examiners, constitutes the final mark for the mini-dissertation. The minimum pass mark is 50%. A student who has failed may be permitted by the Dean, on the recommendation of the head of department concerned, to submit an amended mini-dissertation for final adjudication.

Pass with distinction

In order to obtain the degree with distinction, a minimum final mark of 75% is required for the field of specialization and the mini-dissertation.

Curriculum: Year 1

Minimum credits: 569

Core modules

Laboratory animal science 800 (PFK 800)

Module credits	400.00
Prerequisites	VRM 812 and a research project.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

An advanced module in the role of the veterinarian in laboratory animal medicine and practical aspects relating to the promotion of a productive scientific effort in the biomedical sciences.

Mini-dissertation: Laboratory animal science 890 (PFK 890)

Module credits	130.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Research methodology 812 (VRM 812)

Module credits	9.00
Language of tuition	English
Academic organisation	Vet Sc Dean's Office
Period of presentation	Semester 1 and Semester 2

Module content

A web-based introductory module in research methodology that includes planning and undertaking a research project or clinical trial, collecting and analysing data, scientific writing, and enabling preparation and presenting of a research protocol.

Elective modules

Pathology: Wildlife 806 (PAT 806)

Module credits	28.00
Prerequisites	No prerequisites.
Language of tuition	English

Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

The emphasis of the module is on practical diagnostic pathology (including forensic pathology) and its outcomes will enable a veterinarian to investigate disease and the cause of death in wildlife. The approach will emphasise the following: After conducting a necropsy, a diagnosis is finalised by also considering the results of other diagnostic tests and ancillary data; when it is not possible to make a final diagnosis, the formulation of a list of differential diagnoses and a strategy to resolve the problem; compiling interim and final report(s) that are scientifically sound, presentable to a court of law and reflect a degree of professionalism that is commensurate with a professional person. The theoretical component includes selected information dealing with incidental findings and 'non-lesions', species-specific infectious diseases, and non-infectious diseases.

Necropsy technique and interpretation 807 (PAT 807)

Module credits	28.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

An advanced module in necropsy techniques, interpretation and specimen collection.

Ophthalmological pathology 808 (PAT 808)

Module credits	20.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Macroscopic and microscopic pathology of the diseases of the eyes of domestic animals.

Selected infectious diseases: Pigs 815 (SID 815)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content
A theoretical study of the epidemiology, diagnosis and control/eradication of important infectious diseases of pigs.

Veterinary industrial pharmacology 800 (VIP 800)

Module credits	50.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Veterinary pharmaceutical discovery and development.
Non-clinical safety and preclinical toxicology. Clinical safety and efficacy evaluation. Good laboratory and clinical practices. Drug statutory and application requirement. Drug application submission. Regulatory procedures, evaluation and veterinary drug control. Drug residue risk assessment. Product planning, production management and quality assurance. Drug marketing, pricing and promotion. Technical services, training, extension, product support and complaint investigation.

Veterinary public health: Meat hygiene 881 (VPH 881)

Module credits	40.00
Prerequisites	No prerequisites.
Contact time	10 practicals per week
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to all aspects of red meat hygiene relating to prevention and control of zoonoses and other diseases transmitted by meat, welfare of livestock, pre-harvesting, harvesting and post-harvesting aspects of red meat production, practical application of HACCP relating to the specific activities, prevention and control of chemical residues in meat, including veterinary drug residues and appropriate national and international legislation. An understanding of how these relate to applied research relevant to industry or public health (including the ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Veterinary public health: Poultry food hygiene 882 (VPH 882)

Module credits	40.00
Prerequisites	No prerequisites.

Contact time	10 practicals per week
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to all aspects of poultry hygiene relating to prevention and control of zoonoses and other diseases transmitted by meat, eggs or other poultry products, welfare of poultry, pre-harvesting, harvesting and post-harvesting aspects of poultry meat or egg production, practical application of HACCP relating to the specific activities, prevention and control of chemical residues, including veterinary drug residues and appropriate national and international legislation. An understanding of how these relate to applied research relevant to industry or public health (including the ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Veterinary public health: Veterinary milk hygiene 883 (VPH 883)

Module credits	40.00
Prerequisites	No prerequisites.
Contact time	10 practicals per week
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to all aspects of milk hygiene relating to prevention and control of zoonoses and other diseases transmitted by milk, or other dairy products, welfare of livestock, pre-harvesting, harvesting and post-harvesting aspects of milk production or dairy products, practical application of HACCP relating to the specific activities, prevention and control of chemical residues, including veterinary drug residues and appropriate national and international legislation. An understanding of how these relate to applied research relevant to industry or public health (including the ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Veterinary public health: Environmental health and biosecurity 884 (VPH 884)

Module credits	40.00
Prerequisites	No prerequisites.
Contact time	10 practicals per week
Language of tuition	English

Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to control of zoonoses of environmental origin, biosecurity relating to food of animal origin and management of disasters and emergencies involving animals and animal products, safe collection and disposal of animal carcases, condemned meat or other animal products and animal wastes. The prevention, control and impact assessment of pollution by livestock production or industries, population control of animals in rural and urban environments to prevent zoonoses, occupational health of veterinary staff, management of the veterinary public health aspects of disasters and emergencies, evaluation of human-animal interactions and their impact on human health including animal facilitated therapy. An understanding of appropriate national and international legislation and how these relate to industry or public health (including ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Advanced fundamentals of pharmacology 876 (FAK 876)

Module credits	30.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Scope and historical development of veterinary pharmacology.
Veterinary pharmaceutics and formulation theory.
Pharmacokinetic theory, pharmacokinetic analysis and modelling.
Bioequivalence theory and evaluation.
Physicochemical and molecular basis of drug action.
Dose response and calculation of dose response parameters.
Pharmacological modulation of organ and body functions.
Molecular basis of action and pharmacological effects of chemotherapeutic agents.
Adverse drug reactions, interactions and pharmacovigilance.
Comparative species pharmacology, pharmacogenomics and pharmacogenetics.
Background on complementary medicines.
Fundamentals of pharmacological research.

Clinical pharmacology 877 (FAK 877)

Module credits	30.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	English

Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Advanced veterinary pharmacology including pharmaceutics, pharmacokinetics, pharmacotherapeutics and pharmacodynamics. Clinical pharmacology relevant to selected domesticated, exotic and wildlife species in the area of specialization (capita selecta), including species-specific therapeutic objectives and rational pharmacotherapy; specialised drug therapy pertaining to relevant species and/or organ systems; drug use control and adverse drug reactions.

Basic veterinary epidemiology 851 (EPL 851)

Module credits	10.00
Prerequisites	A BVSc or equivalent qualification. Non-veterinary graduates will be considered under exceptional circumstances. Recommended: Grade 12 Mathematics.
Contact time	1 other contact session per week, 1 web-based period per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1

Module content

An introductory module in veterinary epidemiology designed to provide a sound foundation in epidemiology that can be applied in practice and upon which further studies can be built. The module covers aspects of population medicine, disease outbreak investigation, clinical epidemiology, experimental studies, observational studies, surveys, basic analytical tools and diagnostic tests

Biostatistics in veterinary science 852 (EPL 852)

Module credits	20.00
Prerequisites	BVSc or equivalent qualification and Grade 12 Mathematics.
Contact time	2 seminars per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1

Module content

This module provides the student with a foundation in basic statistical methods commonly used by postgraduate students in veterinary science. It covers statistical building blocks, confidence intervals, hypothesis testing, chi-square procedures, regression and correlation, paired and pooled t-tests, analysis of variance and non-parametric tests.

Analytical veterinary epidemiology 853 (EPL 853)

Module credits	20.00
Prerequisites	EPL 851 and EPL 852

Contact time	2 seminars per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 2

Module content

This module provides the student with further knowledge and skills in veterinary epidemiology and an introduction to certain more advanced statistical methods commonly used in veterinary science, including adjustment for confounding, multiple linear regression, logistic regression and survival analysis, and will provide the basis for further studies and research involving these techniques.

Animal health information management 855 (EPL 855)

Module credits	5.00
Prerequisites	No prerequisites.
Contact time	1 web-based period per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1 or Semester 2

Module content

This module covers the principles and practice of the collection, entry, storage, management and processing of animal health-related data. It provides the knowledge necessary to be able to effectively work with data in veterinary epidemiology and animal health research.

Scientific reasoning in veterinary epidemiology 856 (EPL 856)

Module credits	5.00
Prerequisites	No prerequisites.
Contact time	1 web-based period per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

This module covers, using practical examples, the processes of scientific reasoning and critical thinking applicable to veterinary epidemiology, and equips the student to use clear lines of reasoning in developing and testing hypotheses and making inferences, and to be able to critically evaluate information presented in the literature.

Reproductive physiology 801 (GSK 801)

Module credits	20.00
Prerequisites	No prerequisites.

Contact time	30 contact hours per semester
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 1

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current application and potential developments in selected aspects of reproductive physiology of animals.

Assisted reproduction 802 (GSK 802)

Module credits	30.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 2

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments in selected aspects of assisted reproduction in animals.

Female infertility 803 (GSK 803)

Module credits	20.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 3

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments pertaining to selected aspects of infertility in female animals.

Male breeding soundness and andrology 804 (GSK 804)

Module credits	20.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 4

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments pertaining to selected aspects of breeding soundness and andrology in male animals.

Reproduction: Capita selecta 805 (GSK 805)

Module credits	20.00
Prerequisites	No prerequisites.
Contact time	5 Seminars per week over a period of 4 weeks
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments pertaining to selected aspects of reproduction in animals. This module includes selected aspects from two or more of the modules GSK 801 to GSK 804. The purpose of this module is to provide Masters degree students doing a course other than the MSc Option: Veterinary Reproduction or the MMedVet (Gyn) the opportunity to do an elective module in a limited selection of aspects of reproduction. Students planning to do the GSK 805 module must discuss their studies with the coordinators of moduless GSK 801 to GSK 804 before registering for the module to allow those coordinators to prescribe to the student which of the modules the student should participate in, what aspects of the relevant modules the student should study, and when those modules will be presented. Depending on which of the GSK 801 to GSK 804 modules the student should do selected aspects of the GSK 805 Reproduction *capita selecta* module may run over one or two calender years.

Small stock health 801 (SSH 801)

Module credits	40.00
Contact time	1 discussion class per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

The module content will be based on advanced theoretical training in small stock health with emphasis on principles of population health and production programmes, animal health economics, monitoring health and production. The module will enable students to integrate and apply knowledge so that health and production problems can be identified and solved on a flock basis and health status and production effectiveness of small stock flock can be raised from a holistic and cost effective viewpoint.

Ruminant health 801 (RUM 801)

Module credits	40.00

Prerequisites	A BVSc, a four year BSc in Agriculture (Animal Science), Microbiology, Zoology or an equivalent degree
Contact time	1 seminar per week, 1 discussion class per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

Advanced theoretical training in ruminant health with emphasis on the pathophysiology, diagnosis, treatment and control of non-infectious diseases, specifically applicable to conditions of the gastro-intestinal tract, liver, production diseases, cardiovascular system, respiratory system, nervous system, musculo-skeletal system, skin and appendages.

Bovine herd health 801 (BHH 801)

Module credits	40.00
Prerequisites	A BVSc, a four year BSc in Agriculture (Animal Science), Microbiology, Zoology or an equivalent degree
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

The primary aim of this module is to provide the candidate with the skills and competence to promote the health and production efficiency of cattle operations (dairy, beef and feedlots). The module will enable students to integrate and apply knowledge so that health and production can be monitored and problems can be identified and solved on a herd basis. The module content will be based on advanced theoretical training in bovine herd health with emphasis on principles of herd health and production programmes, animal health economics, monitoring dairy herd health and production (applied nutrition, fertility, udder health, foot health, general cow health, calves and replacement heifers), monitoring the health and performance of beef cow calf enterprises (resource base, forage and beef cow-calf stock flow, applied nutrition, fertility, young stock, integrated resource, health and management program), and beef feedlots

Poultry health and production 871 (PHP 871)

Module credits	32.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

Advanced training in poultry health and production systems. The emphasis of the module is on practical health management and will enable poultry veterinarian to advise on the control of disease in poultry production systems. Compile interim and final reports that are scientifically sound, and reflect a degree of professionalism that is commensurate with a professional poultry veterinarian.

Veterinary toxicology: Organ/systems toxicology 801 (TOK 801)

Module credits	30.00
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

The objective of this module is to provide advanced training in veterinary toxicology, including plant poisening syndromes, mycotoxicoses, organic and inorganic intoxications as well as zootoxicoses of veterinary importance. This will enable the candidate to develop proficiency in routine toxicological field investigations, treatment of intoxications, diagnostic procedures and to provide sound advice on preventative measures.

Mechanisms of disease 871 (PAT 871)

Module credits	20.00
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Mechanisms of disease (for Medicine students)

Histology 800 (HIS 800)

Module credits	20.00
Language of tuition	English
Academic organisation	Anatomy and Physiology
Period of presentation	Year

Module content

An in-depth comparative study of light microscopical structure and detailed ultrastructure of all the tissues and organs of domestic animals, birds and selected wildlife species.

Curriculum: Final year

Minimum credits: 569

Core modules

Laboratory animal science 800 (PFK 800)

Module credits	400.00
Prerequisites	VRM 812 and a research project.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

An advanced module in the role of the veterinarian in laboratory animal medicine and practical aspects relating to the promotion of a productive scientific effort in the biomedical sciences.

Mini-dissertation: Laboratory animal science 890 (PFK 890)

Module credits	130.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Research methodology 812 (VRM 812)

Module credits	9.00
Language of tuition	English
Academic organisation	Vet Sc Dean's Office
Period of presentation	Semester 1 and Semester 2

Module content

A web-based introductory module in research methodology that includes planning and undertaking a research project or clinical trial, collecting and analysing data, scientific writing, and enabling preparation and presenting of a research protocol.

Elective modules

Pathology: Wildlife 806 (PAT 806)

Module credits	28.00
Prerequisites	No prerequisites.
Language of tuition	English

Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

The emphasis of the module is on practical diagnostic pathology (including forensic pathology) and its outcomes will enable a veterinarian to investigate disease and the cause of death in wildlife. The approach will emphasise the following: After conducting a necropsy, a diagnosis is finalised by also considering the results of other diagnostic tests and ancillary data; when it is not possible to make a final diagnosis, the formulation of a list of differential diagnoses and a strategy to resolve the problem; compiling interim and final report(s) that are scientifically sound, presentable to a court of law and reflect a degree of professionalism that is commensurate with a professional person. The theoretical component includes selected information dealing with incidental findings and 'non-lesions', species-specific infectious diseases, and non-infectious diseases.

Necropsy technique and interpretation 807 (PAT 807)

Module credits	28.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

An advanced module in necropsy techniques, interpretation and specimen collection.

Ophthalmological pathology 808 (PAT 808)

Module credits	20.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Macroscopic and microscopic pathology of the diseases of the eyes of domestic animals.

Selected infectious diseases: Pigs 815 (SID 815)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content
A theoretical study of the epidemiology, diagnosis and control/eradication of important infectious diseases of pigs.

Veterinary industrial pharmacology 800 (VIP 800)

Module credits	50.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Veterinary pharmaceutical discovery and development.
Non-clinical safety and preclinical toxicology. Clinical safety and efficacy evaluation. Good laboratory and clinical practices. Drug statutory and application requirement. Drug application submission. Regulatory procedures, evaluation and veterinary drug control. Drug residue risk assessment. Product planning, production management and quality assurance. Drug marketing, pricing and promotion. Technical services, training, extension, product support and complaint investigation.

Veterinary public health: Meat hygiene 881 (VPH 881)

Module credits	40.00
Prerequisites	No prerequisites.
Contact time	10 practicals per week
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to all aspects of red meat hygiene relating to prevention and control of zoonoses and other diseases transmitted by meat, welfare of livestock, pre-harvesting, harvesting and post-harvesting aspects of red meat production, practical application of HACCP relating to the specific activities, prevention and control of chemical residues in meat, including veterinary drug residues and appropriate national and international legislation. An understanding of how these relate to applied research relevant to industry or public health (including the ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Veterinary public health: Poultry food hygiene 882 (VPH 882)

Module credits	40.00
Prerequisites	No prerequisites.

Contact time	10 practicals per week
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to all aspects of poultry hygiene relating to prevention and control of zoonoses and other diseases transmitted by meat, eggs or other poultry products, welfare of poultry, pre-harvesting, harvesting and post-harvesting aspects of poultry meat or egg production, practical application of HACCP relating to the specific activities, prevention and control of chemical residues, including veterinary drug residues and appropriate national and international legislation. An understanding of how these relate to applied research relevant to industry or public health (including the ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Veterinary public health: Veterinary milk hygiene 883 (VPH 883)

Module credits	40.00
Prerequisites	No prerequisites.
Contact time	10 practicals per week
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to all aspects of milk hygiene relating to prevention and control of zoonoses and other diseases transmitted by milk, or other dairy products, welfare of livestock, pre-harvesting, harvesting and post-harvesting aspects of milk production or dairy products, practical application of HACCP relating to the specific activities, prevention and control of chemical residues, including veterinary drug residues and appropriate national and international legislation. An understanding of how these relate to applied research relevant to industry or public health (including the ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Veterinary public health: Environmental health and biosecurity 884 (VPH 884)

Module credits	40.00
Prerequisites	No prerequisites.
Contact time	10 practicals per week
Language of tuition	English

Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

A coherent and critical understanding and application of the theory and research methodologies and techniques relevant to control of zoonoses of environmental origin, biosecurity relating to food of animal origin and management of disasters and emergencies involving animals and animal products, safe collection and disposal of animal carcases, condemned meat or other animal products and animal wastes. The prevention, control and impact assessment of pollution by livestock production or industries, population control of animals in rural and urban environments to prevent zoonoses, occupational health of veterinary staff, management of the veterinary public health aspects of disasters and emergencies, evaluation of human-animal interactions and their impact on human health including animal facilitated therapy. An understanding of appropriate national and international legislation and how these relate to industry or public health (including ability to select and apply research methods effectively). Ability must be shown to rigorously critique and evaluate current research and participate in scholarly debates in this area of specialisation. Ability must be demonstrated to relate theory to practice and vice versa and to think epistemologically.

Advanced fundamentals of pharmacology 876 (FAK 876)

Module credits	30.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Scope and historical development of veterinary pharmacology.
Veterinary pharmaceutics and formulation theory.
Pharmacokinetic theory, pharmacokinetic analysis and modelling.
Bioequivalence theory and evaluation.
Physicochemical and molecular basis of drug action.
Dose response and calculation of dose response parameters.
Pharmacological modulation of organ and body functions.
Molecular basis of action and pharmacological effects of chemotherapeutic agents.
Adverse drug reactions, interactions and pharmacovigilance.
Comparative species pharmacology, pharmacogenomics and pharmacogenetics.
Background on complementary medicines.
Fundamentals of pharmacological research.

Clinical pharmacology 877 (FAK 877)

Module credits	30.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week
Language of tuition	English

Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Advanced veterinary pharmacology including pharmaceutics, pharmacokinetics, pharmacotherapeutics and pharmacodynamics. Clinical pharmacology relevant to selected domesticated, exotic and wildlife species in the area of specialization (capita selecta), including species-specific therapeutic objectives and rational pharmacotherapy; specialised drug therapy pertaining to relevant species and/or organ systems; drug use control and adverse drug reactions.

Basic veterinary epidemiology 851 (EPL 851)

Module credits	10.00
Prerequisites	A BVSc or equivalent qualification. Non-veterinary graduates will be considered under exceptional circumstances. Recommended: Grade 12 Mathematics.
Contact time	1 other contact session per week, 1 web-based period per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1

Module content

An introductory module in veterinary epidemiology designed to provide a sound foundation in epidemiology that can be applied in practice and upon which further studies can be built. The module covers aspects of population medicine, disease outbreak investigation, clinical epidemiology, experimental studies, observational studies, surveys, basic analytical tools and diagnostic tests

Biostatistics in veterinary science 852 (EPL 852)

Module credits	20.00
Prerequisites	BVSc or equivalent qualification and Grade 12 Mathematics.
Contact time	2 seminars per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1

Module content

This module provides the student with a foundation in basic statistical methods commonly used by postgraduate students in veterinary science. It covers statistical building blocks, confidence intervals, hypothesis testing, chi-square procedures, regression and correlation, paired and pooled t-tests, analysis of variance and non-parametric tests.

Analytical veterinary epidemiology 853 (EPL 853)

Module credits	20.00
Prerequisites	EPL 851 and EPL 852

Contact time	2 seminars per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 2

Module content

This module provides the student with further knowledge and skills in veterinary epidemiology and an introduction to certain more advanced statistical methods commonly used in veterinary science, including adjustment for confounding, multiple linear regression, logistic regression and survival analysis, and will provide the basis for further studies and research involving these techniques.

Animal health information management 855 (EPL 855)

Module credits	5.00
Prerequisites	No prerequisites.
Contact time	1 web-based period per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1 or Semester 2

Module content

This module covers the principles and practice of the collection, entry, storage, management and processing of animal health-related data. It provides the knowledge necessary to be able to effectively work with data in veterinary epidemiology and animal health research.

Scientific reasoning in veterinary epidemiology 856 (EPL 856)

Module credits	5.00
Prerequisites	No prerequisites.
Contact time	1 web-based period per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

This module covers, using practical examples, the processes of scientific reasoning and critical thinking applicable to veterinary epidemiology, and equips the student to use clear lines of reasoning in developing and testing hypotheses and making inferences, and to be able to critically evaluate information presented in the literature.

Reproductive physiology 801 (GSK 801)

Module credits	20.00
Prerequisites	No prerequisites.

Contact time	30 contact hours per semester
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 1

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current application and potential developments in selected aspects of reproductive physiology of animals.

Assisted reproduction 802 (GSK 802)

Module credits	30.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 2

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments in selected aspects of assisted reproduction in animals.

Female infertility 803 (GSK 803)

Module credits	20.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 3

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments pertaining to selected aspects of infertility in female animals.

Male breeding soundness and andrology 804 (GSK 804)

Module credits	20.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Quarter 4

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments pertaining to selected aspects of breeding soundness and andrology in male animals.

Reproduction: Capita selecta 805 (GSK 805)

Module credits	20.00
Prerequisites	No prerequisites.
Contact time	5 Seminars per week over a period of 4 weeks
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

This module will provide advanced theoretical study in and critical appraisal of the principles, concepts, current applications and potential developments pertaining to selected aspects of reproduction in animals. This module includes selected aspects from two or more of the modules GSK 801 to GSK 804. The purpose of this module is to provide Masters degree students doing a course other than the MSc Option: Veterinary Reproduction or the MMedVet (Gyn) the opportunity to do an elective module in a limited selection of aspects of reproduction. Students planning to do the GSK 805 module must discuss their studies with the coordinators of moduless GSK 801 to GSK 804 before registering for the module to allow those coordinators to prescribe to the student which of the modules the student should participate in, what aspects of the relevant modules the student should study, and when those modules will be presented. Depending on which of the GSK 801 to GSK 804 modules the student should do selected aspects of the GSK 805 Reproduction *capita selecta* module may run over one or two calender years.

Small stock health 801 (SSH 801)

Module credits	40.00
Contact time	1 discussion class per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

The module content will be based on advanced theoretical training in small stock health with emphasis on principles of population health and production programmes, animal health economics, monitoring health and production. The module will enable students to integrate and apply knowledge so that health and production problems can be identified and solved on a flock basis and health status and production effectiveness of small stock flock can be raised from a holistic and cost effective viewpoint.

Ruminant health 801 (RUM 801)

Module credits	40.00

Prerequisites	A BVSc, a four year BSc in Agriculture (Animal Science), Microbiology, Zoology or an equivalent degree
Contact time	1 seminar per week, 1 discussion class per week
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

Advanced theoretical training in ruminant health with emphasis on the pathophysiology, diagnosis, treatment and control of non-infectious diseases, specifically applicable to conditions of the gastro-intestinal tract, liver, production diseases, cardiovascular system, respiratory system, nervous system, musculo-skeletal system, skin and appendages.

Bovine herd health 801 (BHH 801)

Module credits	40.00
Prerequisites	A BVSc, a four year BSc in Agriculture (Animal Science), Microbiology, Zoology or an equivalent degree
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

The primary aim of this module is to provide the candidate with the skills and competence to promote the health and production efficiency of cattle operations (dairy, beef and feedlots). The module will enable students to integrate and apply knowledge so that health and production can be monitored and problems can be identified and solved on a herd basis. The module content will be based on advanced theoretical training in bovine herd health with emphasis on principles of herd health and production programmes, animal health economics, monitoring dairy herd health and production (applied nutrition, fertility, udder health, foot health, general cow health, calves and replacement heifers), monitoring the health and performance of beef cow calf enterprises (resource base, forage and beef cow-calf stock flow, applied nutrition, fertility, young stock, integrated resource, health and management program), and beef feedlots

Poultry health and production 871 (PHP 871)

Module credits	32.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

Advanced training in poultry health and production systems. The emphasis of the module is on practical health management and will enable poultry veterinarian to advise on the control of disease in poultry production systems. Compile interim and final reports that are scientifically sound, and reflect a degree of professionalism that is commensurate with a professional poultry veterinarian.

Veterinary toxicology: Organ/systems toxicology 801 (TOK 801)

Module credits	30.00
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

The objective of this module is to provide advanced training in veterinary toxicology, including plant poisening syndromes, mycotoxicoses, organic and inorganic intoxications as well as zootoxicoses of veterinary importance. This will enable the candidate to develop proficiency in routine toxicological field investigations, treatment of intoxications, diagnostic procedures and to provide sound advice on preventative measures.

Mechanisms of disease 871 (PAT 871)

Module credits	20.00
Language of tuition	English
Academic organisation	Paraclinical Sciences
Period of presentation	Year

Module content

Mechanisms of disease (for Medicine students)

Histology 800 (HIS 800)

Module credits	20.00
Language of tuition	English
Academic organisation	Anatomy and Physiology
Period of presentation	Year

Module content

An in-depth comparative study of light microscopical structure and detailed ultrastructure of all the tissues and organs of domestic animals, birds and selected wildlife species.

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.