



University of Pretoria Yearbook 2016

MSc Option: Ruminant Health (Coursework) (08251012)

Duration of study 3 years

Total credits 200

Programme information

This programme is offered by the Department of Paraclinical Sciences.

This degree programme underlines the major health and production considerations in domesticated ruminants. It caters for the needs of candidates who wish to extend their knowledge and skills that they have gained during their undergraduate training and aims to allow them to practise at a higher level.

The curriculum consists of compulsory modules as well as a mini-dissertation. It is primarily a web-based modular degree programme. The MSc degree is conferred by virtue of the successful completion of prescribed modules in the curriculum and a mini-dissertation. Coursework: 60%; Mini-dissertation: 40%.

Also consult the General Regulations. 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 according to the syllabi information provided in the list of modules.

Admission requirements

Subject to the stipulations of the applicable General Regulations, a BVSc, a four-year BSc in Agriculture (Animal Science), Microbiology, Zoology or Entomology or a BSc(Hons) in Microbiology, Zoology or Entomology or an equivalent degree is required.

Additional requirements

In certain cases, it remains the prerogative of the head of department to require, in addition to the entrance requirements already mentioned, the successful completion of an admissions test before registration. A student may also be required to pass a proficiency test in English (TOEFL) at an acceptable level.

Examinations and pass requirements

If a student fails a module, he/she will have to repeat the module the following year. A module cannot be repeated more than twice.

Research information

Consult the General Regulations.



On an appropriate topic depending on the field of interest of the student, a research project of limited scope must be undertaken and written in the format of a mini-dissertation to fulfil the requirements of the MSc. The research topic is determined in consultation with the supervisor and head of department and the research project must be approved according to Faculty guidelines.

Before or together with the mini-dissertation, a student must submit at least one draft article for publication in an acknowledged and accredited journal. The draft article must be based on the research for the mini-dissertation and must be acceptable to the supervisor and meet subsidy requirements. Proof of submission of the article from the relevant journal editorial office must be submitted together with the final bound mini-dissertation.

Pass with distinction

In order to obtain the degree with distinction, 75% in the mini-dissertation and a cumulative average of 75% in the core modules provided that a minimum pass mark of 60% in all the core modules are required.



Curriculum: Year 1

Minimum credits: 189

Fundamental modules

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.

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

Core modules

Ruminant health 801 (RUM 801)

Module credits	40.00
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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.

Mini-dissertation: Ruminant health 890 (RUM 890)

Module credits	90.00
Prerequisites	A BVSc, a four year BSc in Agriculture (Animal Science), Microbiology, Zoology or an equivalent degree
Contact time	20 Contact sessions
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

Mini-dissertation

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 carcasses, 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 pharmaceuticals 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 pharmaceuticals, 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 modules 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 calendar 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
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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 poisoning 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: 189

Fundamental modules

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.

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

Core modules

Ruminant health 801 (RUM 801)

Module credits	40.00
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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.

Mini-dissertation: Ruminant health 890 (RUM 890)

Module credits	90.00
Prerequisites	A BVSc, a four year BSc in Agriculture (Animal Science), Microbiology, Zoology or an equivalent degree
Contact time	20 Contact sessions
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Year

Module content

Mini-dissertation

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 carcasses, 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 pharmaceuticals 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 pharmaceuticals, 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 modules 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 calendar 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
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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 poisoning 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.