University of Pretoria Yearbook 2016

MSc Tropical Animal Health (Coursework) (08251020)

Duration of study	1 year
Total credits	180

Programme information

This degree primarily aims to address an international audience involved in tropical livestock and wildlife health, management and production in support of rural development, also wishing to integrate the impact of the diseases and control activities on the local ecosystems in order to increase knowledge and effectiveness of control strategies. The degree is more geared towards veterinarians and professionals with a background in Animal Health and Zoology, but it may also be of interest to medical professionals who want to broaden their scope. The modular programme is structured in such a way that a learner can, by selecting the appropriate elective and skills modules, achieve a qualification that will support various career paths, including microbiology or parasitology, veterinary field services, or general veterinary practice, to name a few.

This degree is offered as a combination of e-learning, face-to-face teaching and a compulsory collaborative induction/field-workshop. It has the following components:

- A two week compulsory induction/field-workshop
- Compulsory core modules
- Elective modules (Theory-based and Skills-based)
- Mini-dissertation
  For the MSc Tropical Animal Health the mini-dissertation will include an oral examination conducted face to face or via video conference. The oral examining panel will include an examiner from each institute (not the supervisor). A mark will be given which will constitute 10% of the final mini-dissertation mark. The dissertation will also be examined by one internal and one external examiner as stipulated by the UP regulations; a mark will be given which will constitute 90% of the final mini-dissertation mark.

Admission requirements

Subject to the stipulations of General Regulations of UP, a BVSc, a four-year BSc in Animal Science, Biological Science, or an equivalent degree is required. According to the Bologna Bachelor-Master structure, a Masters degree is required to register at ITM. (Note: A four-year BSc degree in the South African context is equivalent to a Masters degree in the Bologna system). Two years of professional experience might be required in certain cases. It remains the prerogative of the head of department (UP) or course director (ITM) 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. The web-based/online nature of the modules requires basic computer skills in order to successfully participate in the degree programme.

Additional requirements

Also consult the General Regulations. Students are required to confirm whether a module will be presented in any particular year.

Examinations and pass requirements

The MSc degree is conferred by virtue of the successful completion of coursework and a mini-dissertation within the prescribed time period. The final mark will be calculated as follows:

Coursework: 50%; Mini-dissertation: 50%. The latter will include an oral examination conducted face to face or via video conference. The oral examining panel will include an examiner from each institute (not the supervisor); a mark will be given which will constitute 10% of the final Dissertation mark. The dissertation will also be examined by one external examiner as stipulated by the UP regulations; a mark will be given which will constitute 90% of the final mini-dissertation mark.

If a student fails a module, he/she will have to repeat the module the following year. In the case of the skills-based modules, if a student fails either the online (theory) or the practical component of a module, he/she will have to repeat the module (online and practical component) the following year. Any module can only be repeated twice; if such a module is failed in both instances, the degree will not be conferred.

Research information

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 dissertation to fulfill 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/Institute guidelines. (Consult UP General Regulations)

Before or together with the dissertation, a student must submit at least one draft article in the correct format for publication in an acknowledged journal to the Faculty Administration, failing which the degree will not be conferred. The draft article must be based on the research for the dissertation and must be acceptable to the supervisor and meet subsidy requirements. (Also consult UP General Regulations)

A dissertation may not be conditionally accepted: it is either accepted (> 50%) or rejected (< 50%). In the event of a dissertation being rejected, a candidate may submit an amended version or another dissertation within two years and will bear the full cost of the examination.

Pass with distinction

The degree is conferred with distinction when a student has obtained at least 75% for the dissertation and an average of at least 75% for the modules chosen.

Curriculum: Year 1

Core modules

One health: basic concepts 801 (OHB 801)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(compulsory)

This module will introduce students to the philosophy and practice of "One Health", an approach that recognises that the health and well-being of humans, domestic animals, wildlife and the ecosystems in which they live and function and intrinsically connected.

Basic epidemiology 802 (EPL 802)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(compulsory)

A web-based introductory module in epidemiology that includes general concepts, quantification of disease prevalence and incidence, interpretation of diagnostic test results, basic sampling designs and basic statistics.

Mini-dissertation 895 (AHE 895)

Module credits	90.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Year

Module content

A mini-dissertation must be submitted 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 journal to the Faculty Administration, failing which the degree will not be conferred. The draft article must be based on the research for the mini-dissertation and must be acceptable to the supervisor and meet subsidy requirements.

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

Applied veterinary helminthology 811 (AVH 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

This module provides an introduction to the control of helminth infections of economic or public health importance in the tropics. The focus is on transmission of helminths of livestock and on sustainable methods to break the lifecycles. Practical study includes common parasitological techniques and interpretation of parasitological parameters.

Applied veterinary virology 811 (AVV 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

Theoretical and practical study of the use of cell cultures and embryonated chicken eggs for the isolation and identification of viruses.

Ticks and tick-borne diseases 814 (TBD 814)

Module credits	9.00

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

Module content

(elective)

This module gives an overview of the economically important ticks and tick-borne parasites of domestic and wild animals, their importance and insight the biology of the vectors on the transmission of the micro-organisms they transmit.

Selected tick identification 811 (TCK 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

The objective of this module is to provide the basic knowledge of the biology, ecology, life-cycles, and importance of ticks. There will be a practical session to acquire the necessary laboratory skills to identify ticks of companion animals, equids, ruminants and wildlife.

Applied molecular biology 816 (VMB 816)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

Theoretical and practical study in the principles and applications of PCR, cloning and DNA sequencing techniques.

Applied serology 811 (ASR 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English

Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

The module will enable delegates to develop proficiency in procedures in veterinary immunology and serology, and to implement and standardize different serological techniques with special emphasis on ELISA and FA techniques.

Applied veterinary bacteriology 817 (AVB 817)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

This module provides an introduction to the basic concepts of veterinary bacteriology, from sampling and handling of specimens to the methods and tools used for isolation and identification of bacteria of veterinary significance in the laboratory.

Advanced one health 812 (AHE 812)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

(elective)

This module will provide students with an understanding of health in particular social-ecological systems, with a focus on understanding the relationship between ecosystem health and infectious diseases of animals and humans, in order to improve disease control policies, ecosystem sustainability, food security and rural development.

Advanced one health: public health 813 (AHE 813)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content
(elective)

This module will focus on the human dimension of One Health. It introduces an approach to formulate a zoonotic disease control programme. After the module students should be able to explain the disease burden of a particular zoonosis, to develop an epidemiological model, to analyse its broader determinants, to appraise and prioritise possible interventions based on effectiveness, cost, feasibility and acceptability and to identify implementation challenges in a specific public health system's context.

Animal health management: high impact and emerging diseases 814 (AHE 814)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

(elective)

This module deals with the concepts and principles of basic animal health management for livestock production and trade in livestock and livestock commodities. There will be a special focus on the management of infectious diseases that have a high impact in terms of international trade because of their detrimental effects on livestock production and health and/or human health. The module will also examine the drivers for emerging and re-emerging diseases with special reference to the livestock/wildlife/human interface.

Advanced one health: policy 815 (AHE 815)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(elective)

Policy is generally defined as a plan of action on the part of a government, business or other organisation intended to influence decisions and actions in a particular direction. This module introduces the key principles in policy making in regard to animal health and trade in livestock or livestock products. It will consider the essentials of "effective" policy creation, the role of science and uncertainty in policy, policy analysis and the role of government versus the private sector in animal health.

Advanced epidemiology 803 (EPL 803)

Module credits	12.00
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1

Module content

This module builds on the subjects dealt with in the 'Basic Epidemiology' module. It includes advanced statistical models (generalised linear model, mixed models, survival analysis) and introduces quantitative risk assessment.

Surveillance and survey methodology 816 (AHE 816)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(elective)

This module deals with the concepts and principles of terrestrial animal (livestock and wildlife) health surveillance; including the design; implementation and evaluation of surveillance system; the data sources; tools and methods available to perform effective surveillance; and the evaluation and analysis of surveillance data. This module will also provide an introduction to geographic information systems (GIS) and provide basic skills on how to use GIS in epidemiological studies.

General vector-borne diseases 811 (GVD 811)

Module credits	9.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(elective)

The module gives an overview of the most important vectors and vector borne diseases, their importance and insight on the importance of the biology of the vectors on the transmission of the micro-organisms they transmit.

Applied epidemiology 804 (EPL 804)

Module credits	9.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

This module is a hands?on theoretical and practical introduction to epidemiological modelling, including simulation modelling. It assumes successful completion of the basic and applied epidemiology modules.

Curriculum: Final year

Core modules

One health: basic concepts 801 (OHB 801)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(compulsory)

This module will introduce students to the philosophy and practice of "One Health", an approach that recognises that the health and well-being of humans, domestic animals, wildlife and the ecosystems in which they live and function and intrinsically connected.

Basic epidemiology 802 (EPL 802)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(compulsory)

A web-based introductory module in epidemiology that includes general concepts, quantification of disease prevalence and incidence, interpretation of diagnostic test results, basic sampling designs and basic statistics.

Mini-dissertation 895 (AHE 895)

Module credits	90.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Year

Module content

A mini-dissertation must be submitted 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 journal to the Faculty Administration, failing which the degree will not be conferred. The draft article must be based on the research for the mini-dissertation and must be acceptable to the supervisor and meet subsidy requirements.

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

Applied veterinary helminthology 811 (AVH 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

This module provides an introduction to the control of helminth infections of economic or public health importance in the tropics. The focus is on transmission of helminths of livestock and on sustainable methods to break the lifecycles. Practical study includes common parasitological techniques and interpretation of parasitological parameters.

Applied veterinary virology 811 (AVV 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

Theoretical and practical study of the use of cell cultures and embryonated chicken eggs for the isolation and identification of viruses.

Ticks and tick-borne diseases 814 (TBD 814)

Module credits	9.00

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

Module content

(elective)

This module gives an overview of the economically important ticks and tick-borne parasites of domestic and wild animals, their importance and insight the biology of the vectors on the transmission of the micro-organisms they transmit.

Selected tick identification 811 (TCK 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

The objective of this module is to provide the basic knowledge of the biology, ecology, life-cycles, and importance of ticks. There will be a practical session to acquire the necessary laboratory skills to identify ticks of companion animals, equids, ruminants and wildlife.

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Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

Theoretical and practical study in the principles and applications of PCR, cloning and DNA sequencing techniques.

Applied serology 811 (ASR 811)

Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English

Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

The module will enable delegates to develop proficiency in procedures in veterinary immunology and serology, and to implement and standardize different serological techniques with special emphasis on ELISA and FA techniques.

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Module credits	9.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

This module provides an introduction to the basic concepts of veterinary bacteriology, from sampling and handling of specimens to the methods and tools used for isolation and identification of bacteria of veterinary significance in the laboratory.

Advanced one health 812 (AHE 812)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

(elective)

This module will provide students with an understanding of health in particular social-ecological systems, with a focus on understanding the relationship between ecosystem health and infectious diseases of animals and humans, in order to improve disease control policies, ecosystem sustainability, food security and rural development.

Advanced one health: public health 813 (AHE 813)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content
(elective)

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Animal health management: high impact and emerging diseases 814 (AHE 814)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

(elective)

This module deals with the concepts and principles of basic animal health management for livestock production and trade in livestock and livestock commodities. There will be a special focus on the management of infectious diseases that have a high impact in terms of international trade because of their detrimental effects on livestock production and health and/or human health. The module will also examine the drivers for emerging and re-emerging diseases with special reference to the livestock/wildlife/human interface.

Advanced one health: policy 815 (AHE 815)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(elective)

Policy is generally defined as a plan of action on the part of a government, business or other organisation intended to influence decisions and actions in a particular direction. This module introduces the key principles in policy making in regard to animal health and trade in livestock or livestock products. It will consider the essentials of "effective" policy creation, the role of science and uncertainty in policy, policy analysis and the role of government versus the private sector in animal health.

Advanced epidemiology 803 (EPL 803)

Module credits	12.00
Language of tuition	English
Academic organisation	Production Animal Studies
Period of presentation	Semester 1

Module content

This module builds on the subjects dealt with in the 'Basic Epidemiology' module. It includes advanced statistical models (generalised linear model, mixed models, survival analysis) and introduces quantitative risk assessment.

Surveillance and survey methodology 816 (AHE 816)

Module credits	12.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(elective)

This module deals with the concepts and principles of terrestrial animal (livestock and wildlife) health surveillance; including the design; implementation and evaluation of surveillance system; the data sources; tools and methods available to perform effective surveillance; and the evaluation and analysis of surveillance data. This module will also provide an introduction to geographic information systems (GIS) and provide basic skills on how to use GIS in epidemiological studies.

General vector-borne diseases 811 (GVD 811)

Module credits	9.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 1

Module content

(elective)

The module gives an overview of the most important vectors and vector borne diseases, their importance and insight on the importance of the biology of the vectors on the transmission of the micro-organisms they transmit.

Applied epidemiology 804 (EPL 804)

Module credits	9.00
Language of tuition	English
Academic organisation	Veterinary Tropical Diseases
Period of presentation	Semester 2

Module content

Skills training (elective)

This module is a hands?on theoretical and practical introduction to epidemiological modelling, including simulation modelling. It assumes successful completion of the basic and applied epidemiology modules.

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.