

University of Pretoria Yearbook 2016

MScAgric Animal Science: Livestock Production and Ecology (03250441)

Duration of study2 yearsTotal credits180

Programme information

The curriculum for the MScAgric degree (Animal Science) (Livestock Production and Ecology) consists of the following:

A dissertation of 180 credits; or

A dissertation of 150 credits and advanced study in the major subject/s, augmented by ancillary modules to the maximum of 30 credits that may be prescribed by the Dean on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

Residence

On the recommendation of the head of department, the Dean may set specific residential requirements for the MScAgric degree.

Renewal of registration

As long as progress is satisfactory, renewal of the registration of a master's student will be accepted for the second year of the study. Registration for a third and subsequent years will only take place when the Student Administration of the Faculty receives a written motivation which is supported by the head of department and Postgraduate Studies Committee.

Curriculum

Subject to programme-specific requirements, the curriculum for the MScAgric degree consists of the following: a. A dissertation; and

b. Further study in the major subject/s, augmented by ancillary modules prescribed by the Postgraduate Studies Committee, on the recommendation of the head of department. Such ancillary modules may be taken simultaneously with the major subject/s. Candidates in possession of the BScAgricHons degree may be exempted from additional ancillary modules.

General

Candidates are required to familiarise themselves with the General Regulations regarding the maximum period of registration and the requirements on the submission of a draft article for publication.

Admission requirements

The minimum admission requirements are a BScAgric degree with specialisation in Animal Science or an equivalent applicable degree, with a minimum weighted average of 60% for modules in the particular field of



specialisation in the fourth year of study.

Examinations and pass requirements

- i. The examinations in the ancillary modules should be successfully completed prior to, or simultaneously with, the examinations in the major subject/s, unless the Faculty Board decides otherwise.
- ii. General Regulation G.12.2 applies to the calculation of marks.
- iii. In order to obtain the MScAgric degree, the candidate must pass all prescribed modules, including the examination in the major subject/s, as well as the dissertation.



Curriculum: Year 1

Core modules

Dissertation: Animal science 890 (VKU 890)

Module credits	180.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year
Module content	
Dissertation of 180 credits.	

Elective modules

Large stock science 800 (GVK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Management programmes and systems for beef cattle, dairy cattle and horses. Optimal use of breeds and regional adaptation of cattle. The stud industry and commercial units. Indigenous breeds and production development. The application of animal science practices and the practise of techniques for breed improvement. Seminars, class discussions, literature studies and assignments on certain fields. Research and production techniques. Agro-economic, agro-ecological and socio-economic assignments can be prescribed.

Small stock science 800 (KVK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year



Advanced aspects of the small stock industry. The wool, fur and meat production potential of South Africa. Production trends and factors influencing them. Production systems. The influence of flock composition on production. Discussions, seminars and prescribed scientific literature studies on various aspects of the small stock industry.

Production physiology 801 (PFS 801)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Specialised study of physiological and anatomical factors that influence growth, development, reproduction and production. Stress and intensification effects on the metabolism of animals. The mechanisms of disease and erosion losses and the modification of reproduction and growth. Specific topics are studied by way of literature, seminars, discussions and research assignments.

Poultry science	800	(PVK	800)	
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Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 1 discussion class per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Specialised study of the management of hatcheries, broiler and layer production units, broiler breeding parent farms, ostriches, cage bird, game bird and waterfowl units, as well as threatened species in conservation programmes. Planning of production units and facilities. Determining ventilation requirements, disease control and biosecurity systems. Product quality, marketing and promotion of birds and their products. Computer aided management systems and product projection. Execution of projects in certain areas of specialisation. Studies aimed at optimising production efficiency and minimising risk.

Animal breeding and genetics 801 (TLR 801)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 seminar per week, 1 discussion class per week
Language of tuition	Both Afr and Eng



Academic organisation	Animal and Wildlife Sciences
Academic organisation	Animal and Wildlife Sciences

Period of presentation Year

Module content

Specialised studies in quantitative and molecular animal breeding in various livestock species. Advanced statistical modelling and EBV estimation. Application of genetic theory in practice with relation to heritability of quantitative characteristics. Advanced theory on the role of molecular technology in genetic improvement of farm animals. Experimental designs for QTL and MAS research and biodiversity studies as well as principles of genomic EBVs and GWAS. The study entails seminars, a literature study and discussion of selected topics relating to the industry specialisation programme. Discussion of research methods and results under local conditions. Policies regarding animal breeding.

Monogastric nutrition 801 (VGE 801)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Advanced study with specialisation in the nutrition of monogastric species for example poultry, dogs, pigs, aquaculture species, pets, cage birds, game birds and waterfowl as well as monogastric species in zoos and game breeding ranches. The study entails research, seminars and practical assignments.

Ruminant nutrition 802 (VGE 802)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Advanced study of foregut and hindgut digestive processes and flow dynamics. Manipulation of digestion, end product metabolism, ad libitum and controlled feed intake. Energy, protein, mineral and vitamin requirements and standards for beef and dairy cattle, small stock and horses. Appropriate ration formulation. The study entails lectures, seminars, practical assignments and a research project with the results reported in a research paper.

Pig science 800 (VKD 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 1 discussion class per week



English
Animal and Wildlife Sciences
Year

Specialised study concerning pig production, considerations when planning pig production units, policy planning and market conditions. Production physiology, housing, nutritional management, breeding practices, diseases and hygiene. Products. Practical scientific and industry orientation through different assignments.

Meat science 801 (VLE 801)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Advanced study of carcass and meat quality characteristics as influenced by breeding, nutrition, physiology, growth and development as well as treatment and processing technology. Cattle, sheep, goats, pigs, poultry and game. Processing. Saleability, marketing methods, consumer profiles. Organisation and legislation.

Livestock ecology 800 (VNE 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

The study of animal-environment and genotype-environment interactions and the impact on natural resources. Adaptational mechanisms of breeds and species. The formulation of optimal farming systems with respect to adaptation. The determination of biological outputs and the classification of animal breeds and species in terms of biological traits. Research and study assignments are executed taking the academic needs of the candidates into consideration.

Wool science 800 (WLK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week



Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Discussions and literature studies on advanced subjects concerning wool and fibre. Factors influencing wool and mohair production. The influence of environment, nutrition and breeding on the chemical and physical composition of wool and mohair. Factors influencing classing, processing and marketing of wool. Discussions and seminars on techniques in quantifying physical and chemical characteristics of wool and mohair, relevant literature and research techniques. Evaluation of variation in skin and fibre.



Curriculum: Final year

Core modules

Dissertation: Animal science 890 (VKU 890)

Module credits	180.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year
Module content	
Dissertation of 180 credits.	

Elective modules

Large stock science 800 (GVK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Management programmes and systems for beef cattle, dairy cattle and horses. Optimal use of breeds and regional adaptation of cattle. The stud industry and commercial units. Indigenous breeds and production development. The application of animal science practices and the practise of techniques for breed improvement. Seminars, class discussions, literature studies and assignments on certain fields. Research and production techniques. Agro-economic, agro-ecological and socio-economic assignments can be prescribed.

Small stock science 800 (KVK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year



Advanced aspects of the small stock industry. The wool, fur and meat production potential of South Africa. Production trends and factors influencing them. Production systems. The influence of flock composition on production. Discussions, seminars and prescribed scientific literature studies on various aspects of the small stock industry.

Production physiology 801 (PFS 801)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Specialised study of physiological and anatomical factors that influence growth, development, reproduction and production. Stress and intensification effects on the metabolism of animals. The mechanisms of disease and erosion losses and the modification of reproduction and growth. Specific topics are studied by way of literature, seminars, discussions and research assignments.

Poultry science 800 (PVK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 1 discussion class per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Specialised study of the management of hatcheries, broiler and layer production units, broiler breeding parent farms, ostriches, cage bird, game bird and waterfowl units, as well as threatened species in conservation programmes. Planning of production units and facilities. Determining ventilation requirements, disease control and biosecurity systems. Product quality, marketing and promotion of birds and their products. Computer aided management systems and product projection. Execution of projects in certain areas of specialisation. Studies aimed at optimising production efficiency and minimising risk.

Animal breeding and genetics 801 (TLR 801)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 1 seminar per week, 1 discussion class per week
Language of tuition	Both Afr and Eng



Academic organisation	Animal and Wildlife Sciences
Academic organisation	Animal and Wildlife Sciences

Period of presentation Year

Module content

Specialised studies in quantitative and molecular animal breeding in various livestock species. Advanced statistical modelling and EBV estimation. Application of genetic theory in practice with relation to heritability of quantitative characteristics. Advanced theory on the role of molecular technology in genetic improvement of farm animals. Experimental designs for QTL and MAS research and biodiversity studies as well as principles of genomic EBVs and GWAS. The study entails seminars, a literature study and discussion of selected topics relating to the industry specialisation programme. Discussion of research methods and results under local conditions. Policies regarding animal breeding.

Monogastric nutrition 801 (VGE 801)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Advanced study with specialisation in the nutrition of monogastric species for example poultry, dogs, pigs, aquaculture species, pets, cage birds, game birds and waterfowl as well as monogastric species in zoos and game breeding ranches. The study entails research, seminars and practical assignments.

Ruminant nutrition 802 (VGE 802)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Advanced study of foregut and hindgut digestive processes and flow dynamics. Manipulation of digestion, end product metabolism, ad libitum and controlled feed intake. Energy, protein, mineral and vitamin requirements and standards for beef and dairy cattle, small stock and horses. Appropriate ration formulation. The study entails lectures, seminars, practical assignments and a research project with the results reported in a research paper.

Pig science 800 (VKD 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 lecture per week, 1 discussion class per week



English
Animal and Wildlife Sciences
Year

Specialised study concerning pig production, considerations when planning pig production units, policy planning and market conditions. Production physiology, housing, nutritional management, breeding practices, diseases and hygiene. Products. Practical scientific and industry orientation through different assignments.

Meat science 801 (VLE 801)

Module credits	15.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

Advanced study of carcass and meat quality characteristics as influenced by breeding, nutrition, physiology, growth and development as well as treatment and processing technology. Cattle, sheep, goats, pigs, poultry and game. Processing. Saleability, marketing methods, consumer profiles. Organisation and legislation.

Livestock ecology 800 (VNE 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week
Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Module content

The study of animal-environment and genotype-environment interactions and the impact on natural resources. Adaptational mechanisms of breeds and species. The formulation of optimal farming systems with respect to adaptation. The determination of biological outputs and the classification of animal breeds and species in terms of biological traits. Research and study assignments are executed taking the academic needs of the candidates into consideration.

Wool science 800 (WLK 800)

Module credits	15.00
Prerequisites	No prerequisites.
Contact time	1 discussion class per week, 1 lecture per week



Language of tuition	English
Academic organisation	Animal and Wildlife Sciences
Period of presentation	Year

Discussions and literature studies on advanced subjects concerning wool and fibre. Factors influencing wool and mohair production. The influence of environment, nutrition and breeding on the chemical and physical composition of wool and mohair. Factors influencing classing, processing and marketing of wool. Discussions and seminars on techniques in quantifying physical and chemical characteristics of wool and mohair, relevant literature and research techniques. Evaluation of variation in skin and fibre.

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.