GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2022-2023

Nutrition of Ruminants (I700063)

Course size *(nominal values; actual values may depend on programme)*

Credits 5.0	**Study time 150 h**	**Contact hrs**	72.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	Dutch	Gent	seminar: coached exercises	22.5h
			excursion	7.5h
			lecture	30.0h
			PDE tutorial	7.5h
			lecture: response lecture	3.75h

Lecturers in academic year 2022-2023

Fievez, Veerle	LA22	lecturer-in-charge

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Master of Science in Bioscience Engineering Technology: Agriculture and Horticulture (main subject Plant and Animal Production)	5	A
Master of Science in Bioscience Engineering Technology: Agriculture and Horticulture (main subject Tropical and Subtropical Agriculture)	5	A

Teaching languages

Dutch

Keywords

Nutrition, Animal husbandry, Physiology of the animal, Dairy cattle, Feed evaluation systems

Position of the course

Dairy cattle production is an important branch of the agriculture. The profitability of a dairy farm largely depends on the nutrition of the cows. Therefore, a profound knowledge of dairy cattle nutrition is essential for a Master of Science in Bioscience Engineering Technology: Agriculture and Horticulture.
Relying on a profound knowledge of the physiology of cattle in the various production stages, the student has to formulate scientifically sound diets, taking into account the economic, zoo-technical, environmental, quality and labour technical aspects. The formulations should also be made in accordance with the consumer demands regarding quality of animal end products.

Contents

- Energy metabolism, energy evaluation systems, energy requirements
- Protein metabolism, protein evaluation systems, protein requirements
- Metabolism and requirements for fat, minerals, vitamins, structure
- Feedstuffs (evaluation, intake) and ration calculation
- Feeding dairy cattle in different stages of lactation
- Environmentally friendly dairy cattle nutrition
- Relation nutrition - milk composition
- Relation nutrition - fertility
- Use of biomarkers to support diet formulation

The course is ordered in a linear way. An international excursion and several national excursions help to understand the broader context of the above mentioned topics.

Initial competences

A basic knowledge of the physiology and the digestive physiology of the cow is recommended + knowledge of the cropping principles of the main crops.
End competences of "General zoology", "Physiology of the animal", "Digestive physiology of

the animal" and "Reproductive physiology of the animal" have to be achieved.

Final competences

1 Describing the basic concepts of current feed evaluation systems.
2 Designing dietary measures for the prevention of metabolic diseases and of reproduction problems.
3 Designing nutritional measures in the context of a functional dairy feed for milk production with added health value for the consumer
4 Integration of feed planning for a dairy farm when preparing rations for animals at different physiological stages on the dairy farm.
5 Critical interpretation of roughage analyses with feed value estimates.
6 Reasoning about the effect of biotic and abiotic influences on the quality of commonly used feed materials
7 Formulating rations that lead to reduced nutrient and greenhouse gas emissions to the environment.
8 Adjusting dairy feed by means of indicators such as milk composition and milk production based on the relationship between nutrition and the various physiological processes that control milk production and composition.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Excursion, Lecture, Pde tutorial, Lecture: response lecture, Seminar: coached exercises

Learning materials and price

Teacher's course - background information +/- 400 pages (20 euro, excl. protective clothing required during excursions).

References

Course content-related study coaching

Permanent possibility to ask questions.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral examination, Written examination with open questions

Examination methods in case of periodic assessment during the second examination period

Oral examination, Written examination with open questions

Examination methods in case of permanent assessment

Peer assessment, Written examination with multiple choice questions, Open book examination, Assignment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Oral examination with written preparation.
One (open) theory question is not discussed orally (answer = written format).
Excercises: written format.

Calculation of the examination mark

Theory: 10.5/20
Exercises (exam): 5.5/20
Permanent evaluation: 4/20 (calculation of feed value estimation based on chemical analyzes; preparations & discussion sessions regarding feed materials & rations; vitamins + minerals)