GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Nutrition of Ruminants (I700063)

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

Credits 5.0 **Study time 150 h**

Course offerings and teaching methods in academic year 2024-2025

A (semester 1)	Dutch	Gent	excursion
			seminar
			lecture

Lecturers in academic year 2024-2025

Ingels, Katrijn	LA22	staff member
Fievez, Veerle	LA22	lecturer-in-charge

Offered in the following programmes in 2024-2025	**crdts**	**offering**
Master of Science in Bioscience Engineering Technology: Agriculture and Horticulture (main subject Plant and Animal Production)	5	A

Teaching languages

Dutch

Keywords

Nutrition, 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. Several excursions in this and other courses as well as discussion sessions with stakeholders 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

Group work, Seminar, Excursion, Lecture, Independent work

Extra information on the teaching methods

Theory is taught as lectures.
Knowledge clips are available for part of the theory.
Mathematical exercises are supervised in class. Feedback sessions are organised for group work on formulating rations and self-study part on mineral & vitamin requirements.

Study material

Type: Syllabus

Name: Course notes and slides Ruminant Nutrition
Indicative price: Free or paid by faculty
Optional: no
Language : Dutch
Available on Ufora : Yes

References

Ample list of references in course materials.

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 assessment, Written assessment with open-ended questions

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

Oral assessment, Written assessment with open-ended questions

Examination methods in case of permanent assessment

Written assessment with multiple-choice questions, Peer and/or self assessment, 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: 10/20
Exercises (exam): 5/20
Permanent evaluation: 5/20 (calculation of feed value estimation based on chemical analyzes;

preparations & discussion sessions regarding feed materials & rations; vitamins + minerals)