GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2022-2023

Animal Nutrition (I002653)

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

Credits 5.0	**Study time 150 h**	**Contact hrs**	50.0h

Course offerings in academic year 2022-2023

A (semester 2)	(language of instruction unknown)	Gent

Lecturers in academic year 2022-2023

Fievez, Veerle	LA22	lecturer-in-charge
Michiels, Joris	LA22	co-lecturer

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Master of Science in Bioscience Engineering: Agricultural Sciences	5	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	5	A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)	5	A

Teaching languages

English

Keywords

Ruminant nutrition, pig nutrition, feed evaluation, requirements, diet formulation

Position of the course

This course deals with ruminant and pig nutrition. The course describes feeding standards in relation to the physiological processes (maintenance, labour, growth, lactation, pregnancy) from which feeding systems for the different classes of farm animals are derived. Further, emphasis is put on specific requirements and nutritional disorders in relation to the physiological (weaning, growth, early lactation, reproduction) and metabolic status of the animal. Feed resources and their characteristics are discussed. Feed technology is introduced and new nutritional developments are discussed with stakeholders. Sustainability dilemas related to animal nutrition, choice of feed resources and possibilities to mitigate environmental threats are quantified and interactively discussed.

Contents

FEED RESOURCES & TECHNOLOGY
1. Feedstuffs, their chemical and nutritive characteristics
2. Vitamins, minerals and trace elements
3. Feed additives
4. Introduction to feed technology

RUMINANT NUTRITION
1. Energy, protein and nutrient-based evaluation systems
2. Feeding lactating animals
2.1. Nutritional management during transition
2.2. Nutritional strategies to prevent or cure metabolic, oxidative and immune stress
2.3. On farm tools to assess nutritional success and problems
3. Feeding cattle in other physiological stages
3.1. Specific aspects related to feeding of beef cattle
3.2. Specific aspects related to feeding calves

PIG NUTRITION

1. Energy, protein and amino acid evluation systems
2. Feeding gestation and lactation sows
3. Feeding growing pigs
4. Feeding piglets

FORMULATING SUSTAINABLE DIETS
1. Ruminant nutrtition and the environment
2. Pig nutrition and the environment

Initial competences

Animal Nutrition builds on certain learning outcomes of course unit Animal Physiology; or the learning outcomes have been achieved differently.

Final competences

1 Having profound knowledge in determination of nutrient content and evaluation.
2 Animal species specific requirements and their integration in energy and protein evaluation systems are known.
3 Formulation of diets based on requirements according to the production stage and level.
4 Application of linear programming to formulate diets.
5 Critically evaluate current feed evaluation systems and new developments.
6 Profound insight in the origin of metabolic disorders and the functions of non-nutritive feed additives.
7 Relate nutritional composition to animal responses and vice versa.
8 Relate nutrition to emissions towards the environment, animal health and animal welfare and assess trade-offs .

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

Practicum, Guided self-study, Excursion, Lecture, Seminar: coached exercises, Integration seminar, Seminar: practical pc room classes

Extra information on the teaching methods

Theory: oral lectures ('hoorcollege'). A limited part of the theory is offered via a learning path.
Feedstuff characteristics: personal collection of data for dairy cattle & pigs ('begeleide zelfstudie') + discussion sessions & feedback on personally collected data
Exercises: practical exercise in relation to feed evaluation, calculations in relation to energy and protein evaluation system & diet formulation (personal preparation ('zelfstandig werk') - preparation of the exercises + discussion sessions ('geleide oefeningen')), practical on farm evaluation of nutrition and production characteristics + pilot compound feed installation (excursions), compound feed formulation based on linear programming ('PC-klasoefeningen'), interactive discussion on sustainable diets with stakeholders

Learning materials and price

Course material is available. This is offered via Ufora.
Optional excursion to feed design lab (additional costs - to be determined)

References

cfr. extensive list of references in the course material

Course content-related study coaching

During the contact hours, the different topics are discussed under supervision of the lecturer. Exercises are prepared by the students based on guidelines provided by the lecturer.

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

Report, Participation, Oral examination

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Theory: period aligned evaluation
Exercises: non-period aligned evaluation

Possibility for period aligned evaluation of exercises (agreement between lecturer and student).

Exercises: assessment of cooperation and interaction during exercises and excercise preparation reports

Calculation of the examination mark

10/20 - non-period aligned evaluation
10/20 - period aligned evaluation