GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2022-2023

Animal Physiology (I002644)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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

Credits 4.0 **Study time 120 h** **Contact hrs** 40.0 h

Course offerings in academic year 2022-2023

A (semester 1) Dutch Gent

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: Agricultural Sciences	4	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	4	A
Exchange Programme in Bioscience Engineering: Cell and Gene Biotechnology (master's level)	4	A

Teaching languages

Dutch

Keywords

Digestion, reproduction, growth and lactation physiology

Position of the course

The course is building on the basic course on Vertebrates from Zoology II. This course aims to gain insight into important physiological processes in the functioning of farm animals. In this course the emphasis is on the physiological background of these processes at animal, tissue and cell level. The course focuses on integrative thinking and making the student aware of dynamic physiological processes and their interaction in animals. The starting point is digestive physiology and the nutrient flows that arise here. The importance of these flows and their interaction with endocrinological processes for reproduction, growth and lactation are discussed successively. From this biological / physiological background, examples are given of biotechnological applications, measures to protect the health and welfare of the animal and to reduce emissions to the environment.

Contents

PART A – NUTRIENT FLUXES.
I. Digestion & absorption
1. Evolutionary and morphological adaptations of the digestive system to digestion of cell walls.
2. Digestion and nutrient flux from the rumen.
3. Digestion and nutrient flux from stomach, small intestine and large intestine.
4. Quantification of digestion in different parts of the digestive tract
II. Transport & intermediate metabolism
1. Transport end products fat digestion
2. Liver metabolism
III. utrient metabolism in splanchic and peripheral tissues
1. Splanchic tissues.
2. Peripheral tissues: mammary gland, muscle and adipose tissue
3. Nutrigenomics

PART B – INTERACTION WITH ENDOCRINE AND PARACRINE SYSTEM
I. Reproduction
II. Pre-natal muscle growth
III. Post-natal growth
IV. Lactation
V. Regulation voluntary feed intake

Initial competences

The student has general, basal knowledge on animal physiology and biology of birds and mammals.

Final competences

1 1 Having insight in physiological aspects in relation to production and reproduction of farm animals.
2 2 Being able to link different physiological processes with each other
3 3 The student gets insight in new biotechnological developments in animal production.
4 4 Interpret laboratory test results in function of physiological aspects of digestion, lactation, growth and reproduction.
5 5 Analyzing a practical problem with regard to digestion, lactation, growth and reproduction.
6 6 Integrated interpretation of endocrine processes and nutrient flows.
7 7 Forumulate ethically and socially founded value judgments based on scientific knowledge on animal physiology.

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

Guided self-study, lecture, practicum, seminar: practical PC room classes

Extra information on the teaching methods

The theory is taught as a lecture. A number of knowledge clips are also made available. In the lessons, some example exercises are included that are commonly solved in class. The practical exercises consist of lab experiments (3), a virtual lab exercise and two calculation exercises which are solved independently based on guidelines. Guided self-study concerns mainly independent preparation of lectures and practicals on the basis of notes and self-tests which are made available.

Learning materials and price

Course material is available. Cost: 15 EUR

References

Diverse literature sources (reference books on animal nutrition, digestive tract, physiology, genetics & recent publications)

Course content-related study coaching

The teaching staff (professors) can be contacted during contact hours to solve questions. Teaching assistants can be contacted concerning exercises.

Evaluation methods

end-of-term evaluation

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

Written examination with open questions, oral examination

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

Written examination with open questions, oral examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

Exam: 3 questions are prepared and discussed orally. 1 written theory question + 1 written exercise

Calculations - report: permanent evaluation

Calculation of the examination mark

Theory exam: 16/20; Exercise exam: 3/20; calculations permanent evaluation: 1/20.