

Animal Physiology (1002644)

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

Credits 4.0 **Study time 120 h**

Course offerings in academic year 2024-2025

A (semester 1) Dutch Gent

Lecturers in academic year 2024-2025

Fievez, Veerle LA22 lecturer-in-charge

Offered in the following programmes in 2024-2025

	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. Nutrient metabolism in splanchnic and peripheral tissues

1. Splanchnic tissues.
2. Peripheral tissues: mammary gland, muscle and adipose tissue
3. Nutrigenomics

PART B – INTERACTION WITH ENDOCRINE AND PARACRINE SYSTEM

- I. Regulation voluntary feed intake
- II. Reproduction
- III. Pre-natal muscle growth

- IV. Post-natal growth
- V. Lactation

Initial competences

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

Final competences

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

Seminar, Lecture, Practical, Independent work

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 learning path 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.

Study material

Type: Syllabus

Name: Course notes Animal Physiology including slides and text
Indicative price: Free or paid by faculty
Optional: no
Available on Ufora : Yes

Type: Syllabus

Name: Course notes including slides and text
Indicative price: Free or paid by faculty
Optional: no
Language : Dutch

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.

Assessment moments

end-of-term 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

Possibilities of retake in case of permanent assessment

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.