

BAGB212 Animal Biology and Genetics

ECTS Value: 5 ECTS

Overall Objectives and Outcomes

This module underpins the rest of the animal-related units in this course. It provides the essential competences related to animal biology and genetics that are crucial for the management and husbandry of animals. It goes through the major bodily systems and their interaction in order for the student to understand how farm management becomes essential in ensuring the welfare and optimum conditions for animal growth. The module then delves into the essential principles behind the design and management of a breeding program to achieve specified objectives. The module takes an applied approach and seeks to use real-life case studies to drive home the biological principles underlying farm decisions that are taken to maintain healthy animals.

By the end of this module, the learner will be able to:

Competences

- a. develop a critical understanding of the anatomical and physiological relationships of body systems of livestock animals;
- b. appraise the need for sound farm management in relation to optimizing animal physiology;
- c. manage a breeding program of a livestock animal.

Knowledge

- a. describe the functions of the various organs in the digestive, circulatory, respiratory and endocrine systems;
- b. outline the various structures in the musculo-skeletal and nervous systems;
- c. compare and contrast various bodily systems of various animals' species;
- d. understand how different bodily systems work to interact with one another;
- e. explain how traits are passed from parents to offspring;
- f. identify characteristics that need to be taken into consideration when setting up a breeding program.

Skills

- a. relate physiology of animals with requirements of a farm;
- b. relate physiology of animals with the management of a farm;
- c. diagnose animal health problem by relating to physiological status;
- d. use data generated from breeding programs to evaluate their success;

- e. decide which farm condition should be changed to improve physiology of an animal;
- f. decide which management decisions should be taken to improve physiology of animal;
- g. decide which parent stock to choose to meet breeding objectives;
- h. present rationale behind a management decision taken to improve animal physiology;
- i. work in a team to manage a breeding program;
- j. discuss ethical implications behind breeding of animals;
- k. suggest improvements to a specific animal-rearing facility to improve animal welfare;
- l. evaluate breeding program vis-à-vis farm objectives;
- m. use software to manage animal breeding program.

Mode of Delivery

This module adopts a blended approach to teaching and learning. Information related to the structure and delivery of the module may be accessed through the IfE Portal. For further details, kindly refer to the Teaching, Learning and Assessment Policy and Procedures found on the Institute for Education's website.

Assessment Methods

This module will be assessed through: Case-study and Presentation

Suggested Readings

Core Reading List

1. Frandson, R.D. et. al (2009). Anatomy and Physiology of Farm Animals- 7th Edition. Wiley-Blackwell, UK
2. Lush, J. L. (2015). Animal Breeding Plans. Andesite Press, US.
3. Crew, F.A. (2013). Animal Genetics: The Science of Animal Breeding. Home Farm Books
4. Pierce, B. (2013). Genetics: A conceptual approach. W. H. Freeman, US.

Supplementary Reading List

1. Hickman, C.P. (1997). Biology of Animals- 7th Edition. WCB/McGraw-Hill, USA