

PHYSIOLOGY I

Code: 90017 Curricular Year: 2nd Semester: 3rd Compulsory Credits: 4.5 ECTS

Lecturer(s): António Freitas Duarte (R), Graça Ferreira Dias (CCP)

1. Contact hours:

Lectures - 28 h Pratical - 28 h Total - 56 h

2. Objectives:

Theoretical and practical learning of the different concepts and physiologic mechanisms for maintaining homeostasis in domestic animals. Development of the necessary skills to understand, explain, and interpret the knowledge of veterinary physiology, and integrate it with animal production and pathology/clinical courses.

3. Programme:

Neurophysiology: Introduction to the nervous system. Physiology of the muscle and neuromuscular synapse. Concept of reflex and stretch receptors of the skeletal muscle.

Concept of upper and lower neurons and their dysfunction. Control of posture and motion by the brain - Cerebellar functions. Autonomic nervous system.

Endocrinology: The neuroendocrine system. Endocrine glands and their function: The thyroid gland; the adrenal glands; Endocrine pancreas; Calcium and phosphate metabolism.

Gastrointestinal physiology: Regulation of the gastrointestinal function. Movements of the gastrointestinal tract. Secretions of the gastrointestinal tract. Digestion and absorption: non-fermentative processes. Digestion in ruminants: fermentative processes.

Respiratory function: Respiratory system structure and function. Ventilation, diffusion and gas transport to the periphery. Ventilation-perfusion relationships. Mechanics of breathing and control of ventilation.

4. Bibliography:

- Klein B.G. 2020. *Cunningham's Textbook of Veterinary Physiology*. 6th Ed. W. B. Saunders Company. Philadelphia.
- Hall J.E. & Hall M.E. 2020. *Guyton and Hall Textbook of Medical Physiology*. 14th Ed. Elsevier.
- Laboratory handouts prepared by the teaching staff.

5. Assessment:

Continuous evaluation (optional): quizzes performed at the end of each block of lectures (30%).and a final written examination (70% of final classification, including theoretical and practical evaluation). Final evaluation: if the student chooses not to attend the quizzes, the final mark is entirely based on the final written examination.