



UNIVERSIDADE DE LISBOA
Faculdade de Medicina Veterinária

Histology and Embryology

Curricular Year: 1st

Duration: 1st Semester

Credits: 9 ECTS

Teachers: Mário Pinho (CCP e R); Ana Amaral; Rute Noiva.

Contact Hours: 112H Total.

56H Lectures; 56H Practical and laboratory teaching.

Learning objectives:

Provide students with a comprehensive view of the microscopic organization of tissues and organs that make up the various apparatus and systems of the animal body, associating the histological characteristics of these elements with their functions. Provide basic knowledge about the morphological aspects and the determining biological mechanisms that characterize the embryonic development in Vertebrates.

Program contents:

Theoretical: Histology - Object of Histology. Study methods in Histology. Histology and histophysiology of the four basic tissues (epithelial, connective, muscular and nervous) and main systems of domestic animals' body (immune, circulatory, digestive, respiratory, urinary, endocrine, male and female genital and integumentary systems). Embryology - Introduction to Embryology. Fertilization. Cleavage, blastulation, gastrulation, and embryonic germ layers. Placentation and pregnancy diagnosis. Development of the digestive, respiratory, urinary, and male and female reproductive systems.

Practical: Fundamental principles of light microscopy and operating procedures of the light microscope. Histological techniques. Observation of histological preparations representing the various tissues and organs studied in theoretical classes. Semen analysis. Oocyte retrieval.

Bibliography:

Abrahamsohn P. Histologia Básica - Texto e Atlas, Junqueira & Carneiro, 13^a ed., 2017, Guanabara Koogan.

Sadler TW. Langman, Embriologia Médica. 14^a ed., 2021, Guanabara Koogan.

Pawlina W. Ross Histologia Texto e Atlas, 8^a ed, 2021, Gen Guanabara Koogan.

Liebich H-G. Veterinary Histology of Domestic Mammals and Birds: Textbook and Colour Atlas, 5th ed., 2019, 5m Books LTD.

McGeady, TA, Quinn PJ, Fitzpatrick ES, Ryan MT, Kilroy D, Lonergan P. Veterinary Embryology, 2nd ed., 2017, Wiley-Blackwell

Assessment:

1. Theoretical Component

1.1. Intermediate Test (I): In the middle of the semester, an intermediate written test will be held, consisting of multiple-choice questions covering the material taught up to that date. The intermediate test is eliminatory with respect to the assessed content. Students who obtain a grade of 9.5 or higher will be exempt from the final assessment covering that content.



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1.2. Final Exam (T): At the end of the semester, a final written exam will be held, also consisting of multiple-choice questions. It is intended for:

- a) Students who did not pass the intermediate test or who did not take it, and who will be assessed on the entire syllabus;
- b) Students who passed the intermediate test, and who will be assessed only on the content not previously covered in that test.

2. Laboratory Practice Component:

Assessment of the Laboratory Practice Component will be conducted exclusively by means of a final practical examination. The practical examination will consist of the diagnosis of four histological preparations. Only students who obtain a grade equal to or higher than 9.5 in the final written examination will be eligible to sit the practical examination.

3. Final Grade Calculation:

3.1. Students who obtain a passing grade in the Intermediate Test (I):

$$\text{Final Grade} = [(0.4 \times I + 0.6 \times T) + PL] / 2$$

3.2. Students who do not obtain a passing grade in the Intermediate Test (I), or who did not sit for it:

$$\text{Final Grade} = (T + PL) / 2$$

Final grades shall be expressed on a 0–20 scale. A minimum final grade of 10 shall be required for successful completion of the course.