



UNIVERSIDADE DE LISBOA
Faculdade de Medicina Veterinária

Toxicology and Forensic Veterinary Medicine

Curricular Year: 3rd

Duration: 1st Semester

Credits: 5 ECTS

Teachers: Anabela Moreira (CCP and R); Berta São Braz; Hugo Pissarra; Ilda Rosa.

Contact Hours: 125H Total.

26H Lectures; 268H Practical and laboratory teaching; 13H Seminar.

Learning objectives:

The competences to be acquired are based on the integration of previously acquired knowledge with new knowledge, which includes the basic and specific concepts of the discipline and its application. At the end, the student should be able to apply the necessary methods to consider and resolve situations arising from the relationship between xenobiotics and biological systems and medico-legal action, specifically:

- Recognize the terminology, classifications and categories, criteria and methodologies to be applied.
- Interpret, transpose and/or extrapolate the general and specific concepts of Toxicology to the context of Applied Toxicology, namely in the areas of Food, Environmental, Analytical, Forensic and Clinical Toxicology, comparing and complementing it with available scientific information.
- Develop the capacity for multidisciplinary and interdisciplinary analysis and action, articulating information from different sources, in solving toxicological and medico-legal problems.

Program contents:

Theoretical Course:

General Toxicology: General concepts. Toxicokinetics and Toxicodynamia. Toxic effects and influencing factors. Toxicity with and without defined target organs. Biomarkers and Bioindicators. Toxicological tests and alternative methods. Analytical toxicology.

Special Toxicology: Natural Xenobiotics and Anthropogenic Xenobiotics.

Applied Toxicology: Clinical and Forensic Toxicology, Ecotoxicology and Food Safety.

Forensic Veterinary Medicine: Medicine and Clinics medico-legal. Forensic Thanatology and Ethology.

Practical Course and Seminars

Laboratory Work:

Collection and sending of material for toxicological analysis. Instrumental diagnostic techniques. Interpretation and discussion of analytical results in a Clinical and Forensic context.

Written Work:

Monograph on a topic of Veterinary Toxicology or Forensic Veterinary Medicine, with oral and panel presentation.

Bibliography:

Byrd, J., Norris, P. & Bradley-Siemens, N. (2020), Veterinary Forensic Medicine and Forensic Sciences. CRC Press



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- Gupta, P.K. (2019). Concepts and Applications in Veterinary Toxicology – An interactive guide. Springer
- Gupta, R. (2018). Veterinary Toxicology, basic and clinical principles (3ªEd). Elsevier.
- Hovda, L., Brutlag, A., Poppenga, R. & Peterson, K. (2016) Small Animal Toxicology. 2ªEd. Wiley-Blackwell
- Klaassen, C.D. & Watkins, J.B. (2021). Casarett & Doull's – Essentials of Toxicology. 3ª ed. McGraw-Hill Medical
- Merck, M. (2012) Veterinary Forensics, animal cruelty investigations. 2ª ed, Blackwell Publishing.
- Ottoman, K., Fielder, L. & Lewis, E. (2022). Animal Cruelty Investigations: a collaborative approach from victim to verdict. Wiley Blackwell
- Poppenga, R. & Gwaltney-Brant, S. (2011). Small Animals Toxicology Essentials. Wiley-Blackwell.
- Rogers, E. & Stern, A. (2018) Veterinary Forensics, Investigation evidence collection and expert testimony. CRC Press

Assessment:

The assessment of the theoretical component will be accomplished through a written examination including short answer / closed ended questions, multiple-choice questions (MCQ), true and false, missing words / incomplete sentences.

The practical component is assessed continuously through attendance and punctuality (attendance sheet) and ability to execute and communicate results (preparation of reports on tests carried out with a ponderation of 50% and group monographic work with a ponderation of 50%).

The final classification will be obtained using the formula: $FC = 0.5 \text{ theoretical course} + 0.5 \text{ practical course}$.

The results of the evaluation, whether final or partial, will be evaluated in order to assess the efficiency of the teaching-learning methodologies, in compliance with the objectives of the curricular unit, and to allow, in the future, eventual adjustments on the teaching methodologies and/or on the assessment of student's knowledge and skills.