

Course Unit	Pharmacology and Anesthesiology	Field of study	Veterinary Science
Bachelor in	Veterinary Nursing	School	School of Agriculture
Academic Year	2023/2024	Year of study	2
Type	Semestral	Semester	1
Level	1-2	ECTS credits	6.0
Code	9085-783-2102-00-23		
Workload (hours)	162	Contact hours	T - TP - PL - TC - S - E - OT - O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Filipa Cristina Teixeira de Sousa Rodrigues, Susana Claudia Gomes Alves

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Basic concepts of pharmacology and veterinary treatment.
2. Routes and techniques of drug administration, methods of anesthesiology and minor veterinary surgery.
3. Become able to provide pre, intra and post surgical nurse care.

Prerequisites

Before the course unit the learner is expected to be able to:

1. Anatomy
2. Biochemical
3. Physiology
4. Microbiology
5. Immunology

Course contents

Definitions; Drug distribution and biotransformation; Pharmacokinetics; Pharmacokinetics parameters; Factors that change drugs action; Etiotropic drugs; Organotropic drugs; Pharmaceutical forms; Pharmacography; Material used in different administration techniques; Professional hazard and residue handling; Handling and operating equipment; Routes and techniques of drug administration in small and large animal.

Course contents (extended version)

1. Introduction to pharmacology
 - Pharmaceutical terminology
 - Categories of drug products
 - Veterinary drug development and control.
 - Types of medication: -Etiological -Symptomatic -Curative -Prophylactic -Confirming-Tonic -Expectant
2. General cycle of drug in the organism and routes of administration
 - Systemic administration routes: enteral and parenteral
 - Routes of administration: topic and systemic
3. Pharmacokinetics
 - Absorption
 - Generic factors that affect drug absorption
 - Passage of molecules through biological barriers: distribution, redistribution, biotransformation
 - Excretion: renal route, biliary route, pulmonary route, other routes
4. Pharmacokinetics parameters
 - Bioavailability/Volume of distribution/Clearance/Hemicresis/Half-life
5. General mechanisms of drug actions
 - Structural specific drugs
 - Structural nonspecified drugs
 - Cellular and non-cellular mechanisms of action
 - Receptor-mediated actions
 - Description of drug-receptor interaction: -Potency -Maximum effect -ED50 -LD50 -Therapeutic index
6. Factors that influence the action of drugs
 - Physiological factors
 - Pharmacological factors
 - Pathological factors
 - Hypersensitivity reactions: Type I, II, III and IV
7. Etiotropic drugs I
 - β -lactamic
 - Aminoglycoside and Tetracycline
 - Phenicolis and Lincosamides
 - Vancomycin and Fusidic Acid
 - Quinolones and Nitroimidazoles
 - Sulfonamides and Trimethoprim
 - Antiseptics and disinfectants
 - Ectoparasiticides and repellents
 - Endoparasiticides
 - Antifungals
8. Organotropic drugs
 - Cardiovascular and renal drugs
 - Endocrine system drugs
 - Respiratory system drugs
 - Digestive system drugs
 - Anti-inflammatory drugs
 - Immunomodulators: immunosupersesors and immunostimulants
9. Nervous System Medications
 - Generalities
 - Tranquilizers
 - Sedatives
 - Opioids
 - Neuroleptoanalgesia
 - Anesthetics
 - Anticonvulsants
 - Euthanasia
10. Surgery and anesthetic equipment
 - Generalities

Course contents (extended version)

- General anesthesia
- Local and regional anesthesia
- Pre-anesthesia or pre-medication
- 11. Practice
 - Pharmaceutical forms
 - Pharmacography
 - Material used in different administration techniques
 - Routes of administration in different species
 - Anesthesia and surgery support

Recommended reading

1. Grimm et al., 2015. Veterinary Anesthesia and Analgesia. 5ª edição, John Wiley & Sons Inc, NY, EUA, 1072 pp.
2. Papich, M. 2020. Saunders Handbook of Veterinary Drugs: Small and Large Animal. 5ª edição, Saunders, Filadélfia, EUA, 928 pp.
3. Romich, J., 2020. Fundamentals of Pharmacology for Veterinary Technicians. 3ª edição, Cengage Learning Inc, Boston, EUA, 704 pp.
4. Thomas, J., Lerche, P., 2016. Anesthesia and Analgesia for Veterinary Technicians. 5ª edição, Mosby Elsevier - Health Sciences Division, Filadélfia, EUA, 456 pp.
5. Martini-Johnson, L.A., 2020. Applied Pharmacology for Veterinary Technicians. 6ª edição, Saunders Elsevier - Health Sciences Division, Filadélfia, EUA, 561 pp.

Teaching and learning methods

Theoretical classes with audio-visual support. Practical classes of drug administration in different animal species. Support the veterinary surgeon in anesthesia during surgery. Pre, post and intra surgery nurse care.

Assessment methods

1. Continuous e final evaluation - (Regular, Student Worker) (Final)
 - Presentations - 20% (One work assignment for presentation concerning the subjects addressed in the classes.)
 - Intermediate Written Test - 40% (One written test on the theoretical and practical contents taught in the course.)
 - Final Written Exam - 40% (One written exam on the theoretical and practical contents taught in the course.)
2. Appeal exam - (Regular, Student Worker) (Final, Supplementary, Special)
 - Final Written Exam - 100% (One written exam on the theoretical and practical contents taught in the course.)

Language of instruction

Portuguese

Electronic validation

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25-01-2024	28-01-2024	29-01-2024	29-01-2024