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| Course Unit | Pharmacology and Anesthesiology | Field of study | Veterinary Science |
| Bachelor in | Veterinary Nursing | School | School of Agriculture |
| Academic Year | 2022/2023 | Year of study | 2 |
| Type | Semestral | Semester | 1 |
| Level | 1-2 | ECTS credits | 6.0 |
| Code | 9085-671-2102-00-22 | | |
| Workload (hours) | 162 | Contact hours | T 30 TP - PL 30 TC - S - E - OT 20 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) 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.
 - Principles and methods of drug administration
2. General cycle of drug in the organism and routes of administration
 - Oral versus parenteral drug forms
 - Routes of administration: topic and systemic
3. Pharmacokinetics
 - Drug Movement
 - Generic factors that affect drug absorption
 - Molecule passage through biological barriers
 - Excretory routes
4. Pharmacokinetics parameters
 - Biodisponibility; Distribution volume; Clearance; hemicresis; proorrhea; half-life; etc
5. How Do Drugs Work?
 - Structural specific and unspecified drugs;
 - Receptors
 - Affinity
 - Agonist/antagonist
 - ED50 and LD50
6. Factors that influence the action of drugs
 - Physiological factors
 - Drug interaction
 - Pathological factors
 - Hypersensitivity reactions
7. Etiotropic drugs I
 - Antiseptic; antimicrobial; β -lactamic; aminoglycoside; tetracycline, etc.
8. Etiotropic drugs II
 - Quinolones
 - Nitroimidazoles
 - Sulfonamides
 - Trimethoprim
 - Antifungals
 - Antiparasitic products, insecticides and repellents
9. Organotropic drugs
 - Central nervous system drugs, pain medication, analgesics, etc.
10. Surgery and anesthetic equipment
11. Practice
 - Material used in different administration techniques;
 - Routes of administration in different species
 - Anesthetic equipment
 - Monitoring surgery

Recommended reading

1. Grimm et al. , 2015. Veterinary Anesthesia and Analgesia. 5ª edição, John Wiley & Sons Inc, NY, EUA, 1072 pp.
2. Papich, M. 2015. Saunders Handbook of Veterinary Drugs: Small and Large Animal. 4ª edição, Saunders, Filadélfia, EUA, 928 pp.
3. Romich, J. , 2010. Fundamentals of Pharmacology for Veterinary Technicians. 2ª 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. Wanamaker, B. , Massey, K. , 2014. Applied Pharmacology for Veterinary Technicians. 5ª edição, Saunders Elsevier - Health Sciences Division, Filadélfia, EUA, 544 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. Alternative 1 - (Regular, Student Worker) (Final)
 - Practical Work - 25% (Two work assignments concerning the subjects addressed in the classes.)
 - Intermediate Written Test - 75% (Two written exams on the theoretical and practical contents taught in the course.)
2. Final written exam - (Regular, Student Worker) (Final, Supplementary, Special)
 - Final Written Exam - 100% (60% theoretical contents and 40% practical contents)

Language of instruction

Portuguese

Electronic validation

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|----------------------------|-----------------------------------|------------------------------|---------------------------|
| Susana Claudia Gomes Alves | Álvaro Luís Pegado Lemos Mendonça | Hélder Miranda Pires Quintas | Ramiro Corujeira Valentim |
| 11-03-2023 | 13-03-2023 | 14-03-2023 | 15-03-2023 |