VM4001: CLINICAL PHARMACOLOGY/ TOXICOLOGY

Effective Term
Semester A 2023/24

Part I Course Overview

Course Title
Clinical Pharmacology/ Toxicology

Subject Code
VM - Jockey Club College of Veterinary Medicine and Life Sciences
Course Number
4001

Academic Unit
Infectious Diseases and Public Health (PH)

College/School
Jockey Club College of Veterinary Medicine and Life Sciences (VM)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Completion of Year 3 courses with C grade or above

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

The course is designed to familiarize students with the modes of action of the major classes of drugs used in veterinary medicine and drug use in the clinical setting. Concepts in pharmacology are emphasized, with a focus on the rationale for drug choice, alternative drug choices available, pharmacokinetic considerations, routes of administration, individual variation in responses, dose variation in responses, side-effects and potential drug interactions/toxicities. It also provides veterinary students with a solid introduction to concepts and principles of toxicology and how they are applied in the clinical setting. Students learn about specific common toxicants, clinical signs in affected animals, and treatment protocols for the toxicants in question. Students also gain an understanding of the clinical approach to suspected or unknown toxicoses, sample collection and handling, and resources available for clinical toxicological problems. The most clinically relevant approaches or emphases required with different species' varied response to xenobiotics will also be taught.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Apply relevant pharmacokinetic and pharmacodynamics concepts to justify the selection of drugs for the treatment of veterinary patients		x		
2	Collect appropriate historical data, recognise clinical signs of intoxication and identify appropriate diagnostic samples for an individual animal or animal group suspected of exposure to common toxicants and develop a rational approach to investigation		x	x	x
3	Design treatment protocols for common diseases and toxicants using major classes of drugs and taking into consideration therapeutic outcomes, potential drug interactions or toxicities, adverse effects, risks to human health, food safety and economic issues.		x	x	x
4	Apply antimicrobial stewardship principles to demonstrate responsible use of antibiotics, parasiticides, antiviral drugs, parasite vaccines and fungicides.		x		
5	Demonstrate a sound knowledge of local and international legislation relating to the use, dispensing, and supply of veterinary medicines, and report suspected adverse reactions in compliance with these regulations to ensure correct prescription and dispensing of medicines.		x	x	

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures and tutorials	Students will explore how drugs work in different species. They will master the best practices for prescribing and dispensing medications, focusing on various drug classes such as antibiotics, antiparasitics, and pain relievers. Additionally, students will engage in strategies to combat antibiotic resistance, manage toxic exposures, and handle adverse drug reactions, developing confidence in their ability to use and manage medications effectively in veterinary practice.	1, 2, 3, 4, 5	3 hr/wk 33 hours total
2	Laboratory practicals	Students will practice the application of pharmacology to real-world clinical cases and develop confidence in the application of treatment regimens.	1, 4, 5	3 hours total
3	Clinical case discussions	Students will work in small groups to analyze clinical cases, practice role-playing veterinary consultations, and present findings. These sessions help you apply theoretical knowledge to real-world scenarios.	1, 2, 3, 4, 5	3 hours total

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Mid Term	1, 2, 3, 4, 5	45	
2	Lab assessment	1, 4, 5	5	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

3

Assessment Rubrics (AR)

Assessment Task

Examination, midterm and lab assessment

Criterion

Explain the modes of action of the major classes of drugs used in veterinary medicine and host responses. Explain the modes of action of the toxins commonly encountered in veterinary practice and describe appropriate treatments. Demonstrate correct drug selection and drug dose calculations

Excellent (A+, A, A-)

Demonstrates a highly developed knowledge and understanding of pharmacology, toxicology, and drug therapy

Good (B+, B, B-)

Demonstrates a well-developed knowledge and understanding of pharmacology, toxicology, and drug therapy

Fair (C+, C, C-)

Demonstrates a basic knowledge and understanding of pharmacology, toxicology, and drug therapy

Failure (F)

Demonstrates a lack of knowledge and understanding of pharmacology, toxicology, and drug therapy

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Additional Information for AR

Mark Range

The following is the mark range for each letter grade that must be used for assessment of courses offered by the PH and VCS Department of JCC (including Gateway Education (GE) courses).

Letter Grade	Mark Range	Letter Grade	Mark Range
A+	≥92%	C+	54-60.99%
A	87-91.99%	C	50-53.99%
A-	82-86.99%	F	<50%
B+	75-81.99%		
B	68-74.99%		
B-	61-67.99%		

Part III Other Information

Keyword Syllabus

Clinical Pharmacology Toxicology poison drug interaction diagnosis antidote therapy sample diagnostic tests antimicrobial fungicidal parasiticidal pharmacokinetics

Reading List

Compulsory Readings

	Title
1	Ramesh C Gupta (2012). Veterinary Toxicology.
2	Goodman and Gilman. Pharmacological Basis of Therapeutics.
3	Rang and Dale. Pharmacology.

Additional Readings

	Title
1	A Systems Affected Approach to Veterinary Toxicology, Val Beasley DVM, PhD, Dipl. ABVT IVIS: Veterinary Toxicology, http://www.ivis.org/advances/Beasley/toc.aspYou must register to use this site (free).
2	Konnie H Plumlee. Clinical Veterinary Toxicology.
3	Peterson/Talcott. Small Animal Toxicology.
4	A. Salam Abdullah (1990). Poisonous plants of Malaysia.
5	Ian Ramsey. BSAVA Small Animal Formulary 7th Edition.