Douglas College

EFFECTIVE: JANUARY, 2008
CURRICULUM GUIDELINES

A. Division: **Education** Effective Date: January, 2008

B. Department / Program Area: **Science and Technology**
Animal Health Technology

Revision [ ] New Course [X]

If Revision, Section(s) Revised:
Date of Previous Revision:
Date of Current Revision:

C: AHTT 1204 **D: Veterinary Pharmacology** **E: 3**

Subject & Course No.	Descriptive Title	Semester Credits

F: Calendar Description:

This course provides a foundation in the basic principles of pharmacology as well as a review of the mathematics needed in order to utilize drug therapies effectively and accurately. Pharmacokinetics, definitions and a review of drugs that modify each body system are included and practical applications of concepts for a variety of species are reviewed.

G: Allocation of Contact Hours to Type of Instruction / Learning Settings

Primary Methods of Instructional Delivery and/or Learning Settings:

Lecture

Number of Contact Hours: (per week / semester for each descriptor)

4 hours/week:
2 x 2 hr lectures

Number of Weeks per Semester:

15 weeks

H: Course Prerequisites:

AHTT 1103 – Veterinary Care 1

I: Course Corequisites:

None

J: Course for which this Course is a Prerequisite

None

K: Maximum Class Size:

30

L: PLEASE INDICATE:

- [ ] Non-Credit
- [X] College Credit Non-Transfer
- [ ] College Credit Transfer:

SEE BC TRANSFER GUIDE FOR TRANSFER DETAILS (www.bctransferguide.ca)

M: Course Objectives / Learning Outcomes:

Upon completion of this course students will:

1. Better understand and be able to utilize pharmacology terminology.
2. Understand the process of drug development, marketing and research.
3. Be able to describe the basic concepts of pharmacokinetics and pharmodynamics.
4. Utilize and understand the mathematical concepts used in drug kinetics, dosage calculation and drug prescribing.
5. Have reviewed the routes of drug administration used in veterinary medicine.
6. Be familiar with the types of available CNS and ANS drugs and their effects on the nervous system.
7. Understand the use of commonly used anti-parasite drugs in a variety of species.
8. Be familiar with the types of available cardiovascular and respiratory drugs and their effects.
9. Understand the role and function of antimicrobials in veterinary medicine, and be able to describe the mechanism of action of different drug classes.
10. Be familiar with the types of gastrointestinal and urinary drugs available and their modes of action.
11. Be familiar with drugs affecting muscle function, skin, reproductive and endocrine systems.
12. Be familiar with local and general anaesthetics.

N: Course Content:

The major topics in this course include the following:

Terminology & Concepts

- definitions including pharmacokinetics, pharmacodynamics, over-the-counter drugs, pharmacotherapy, prescription drugs, controlled substances, extra label drugs, and veterinary pharmacology.

- drug development and marketing -- safety, toxicity evaluation, effective and lethal dose (LD 50) and therapeutic index.

- toxic levels and safety zones.

- review of routes of administration (procedures and definitions).

Pharmacokinetics and Pharmodynamics

I. "Getting In"
II. "Moving Around"
III. "Changing"
IV. "Getting Out"

Mathematics of Pharmacology

- fractions.
- decimals and percentages.
- ratio and proportion -- measurement.
- identifying conversion factors (dimensional analysis).
- metric system and conversions.
- oral and parenteral dosing calculations.
- calculations in solutions, fluids, CRI's.

Parasiticides

Internal: anthelmintics, antinematodals, antiprotozoals, and drugs for prevention and treatment of heartworm.
External: ectoparasiticides - classes, methods of application in companion and large animals.

Overview of Drugs Affecting Each Body System

1. Nervous system - review anatomy of a neuron; CNS and ANS; the sympathetic and parasympathetic nervous systems; peripheral nervous system and drugs associated with each.
2. Cardiovascular system – review heart blood flow and electrical conduction system, pre-load, after load, rhythm, arrhythmia, inotropy. Positive inotropic drugs, cardiac glycosides and catecholamines. Antiarrhythmic drugs, calcium channel blockers, vasodilators, ACE inhibitors and vasodilators. Diuretics' role in CHF and AHF.
3. Respiratory system – anatomy; definitions; drug categories' actions and examples.
4. Musculoskeletal drugs - definitions including neuromuscular junction, acetylcholine, acetylcholinesterase, NSAID's, neuromuscular blockers, spasmolytics and anabolic steroids.
5. Gastrointestinal system - brief anatomy review and drug classes with examples.
6. Endocrine systems - feedback control systems, pituitary gland products and blood glucose regulation (diabetes management).
7. Dermatology - Oral and topical drugs used in a variety of conditions and species.
8. Urinary system - review anatomy relevant to urine- producing drug classes (diuretics); urolith preventative drug treatments; incontinence drugs.

Antimicrobial drugs

- role and function of antimicrobials -- antibiotics antifungals antivirals and Antiparasitics.
- bactericidal versus bacteriostatic antibiotics.
- broad and narrow spectrum antibiotics.
- review culture and sensitivity testing -- MIC and resistance.
- antibiotic classes and examples -- mechanism of action.

Fluid therapy

- fluid balance: concepts of intracellular and extracellular fluid.
- definitions – crystalloids, colloids, osmotic pressure, isotonic, hypotonic, rehydration, maintenance and ongoing fluid losses.
- estimating dehydration; types of fluid therapy with associated calculations.
- review of relevant emergency drugs.
- equipment used in fluid administration –client education.

Anaesthetics

- local and general

O: Methods of Instruction:

This course includes four hours of classroom instruction per week.

P: Textbooks and Materials to be Purchased by Students:

1. Lake, T. *Dosage Calculations for Veterinary Nurses and Technicians.* 2005. Butterworth-Heinemann Publishing.(required)
2. McCurnin, D.M. & Bassert, J.M., 2006, *Clinical Textbook for Veterinary Technicians.* 6th ed., Elsevier.
3. Romich, J.A., 2005, *Fundamentals of Pharmacology for Veterinary Technicians.* Thomson Delmar Learning.
4. Wanamaker, BP & Massey, K. L., 2004, *Applied Pharmacology for the Veterinary Technician 3.* 3rd ed., Saunders-Elsevier (recommended).

Q: Means of Assessment:

Quiz 1	20
Quiz 2	20
Assignments.	25
Attendance & Participation.	10
Final Exam	25
	100%

R:	Prior Learning Assessment and Recognition: specify whether course is open for PLAR No

Course Designer(s): Diane Boyle, DVM / Pauline Chow, DVM	Education Council / Curriculum Committee Representative
Dean / Director: Dr. Sandy Vanderburgh	Registrar: Trish Angus