JEFFERSON COLLEGE

COURSE SYLLABUS

VAT106

Applied Pharmacology

3 Credit Hours

Prepared by:
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VAT106 Applied Pharmacology

I. CATALOGUE DESCRIPTION

A. Pre-requisite: VAT101 Introduction to Veterinary Technology and VAT113 Principles of Clinical Medicine I (both courses must be completed with a grade of “C” or better) and reading proficiency

B. 3 Semester Credit Hours

C. Applied Pharmacology provides the principles of pharmacy management, record keeping, and classification of drugs. This course also covers pharmacological concepts applicable to veterinary medicine, prescriptions, preparation of medication for dispensing, administration of medication, and interaction of drugs within various animal species. (S)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

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<th>Expected Learning Outcomes</th>
<th>Assessment Measures</th>
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<td>Describe why a veterinary technician needs to know information about drugs; explain what the different types of drug names are; recognize the characteristics of different solid and liquid dosage formulations; identify several different sources of drug information; explain the significance of the terminology used in drug references to describe drugs; list and describe the criteria for acceptable extra-label use of drugs; and describe how to report adverse drug reactions</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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<td>Describe the differences between over-the-counter and prescription drugs; describe the requirements for prescriptions and drug labels; accurately read and write abbreviations commonly used in drug orders; describe regulations and warnings regarding dispensing containers; describe reasons and procedures for handling and storing drugs; describe special storage and handling requirements for dispensing and storing controlled substances and cytotoxic and hazardous drugs; and calculate drug doses</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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<td>Describe the factors that affect movement of drug molecules throughout the body; explain the characteristics of each route of drug administration; explain the physiologic factors that change the way drugs move through the body; explain the factors that alter the way drugs are absorbed, distributed,</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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metabolized, and excreted; and explain the interaction between drugs and receptors and how that produces cellular effects

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<th>Describe the basic anatomy and physiology of the gastrointestinal system, cardiovascular system, endocrine system, respiratory system, and nervous system; and identify common drugs and explain the pharmacokinetics of drugs that affect the gastrointestinal system, cardiovascular system, endocrine system, respiratory system, and nervous system</th>
<th>In-class quiz, homework, and comprehensive final exam</th>
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<td>Describe the different mechanisms by which antimicrobials kill or inhibit bacteria or other pathogens; explain clinically significant adverse drug reactions of common antimicrobials and what can be done to limit their occurrence; explain the role of bacterial resistance, drug absorption, distribution, location of bacteria; and drug elimination play in selection of antimicrobials; and identify the drugs used to kill fungal agents and describe their advantages, disadvantages, and side effects</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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<td>Define the terminology used to describe the characteristics of disinfection agents; define the different mechanisms by which disinfectants and antiseptics kill or inhibit pathogens; describe adverse reactions of commonly used disinfectants and antiseptics and how to keep them from occurring; explain the roles of bacterial resistance, presence of organic material, and other factors involved in the selection of disinfecting agents</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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<td>Define the terminology used to describe antiparasitics; explain the mechanisms by which commonly used antiparasitics work; and describe precautions that apply to specific antiparasitics</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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<tr>
<td>Define the terminology used to describe anti-inflammatory drugs; explain the inflammation pathway; describe the mechanisms by which glucocorticoids and NSAIDS work; explain how glucocorticoids and NSAIDS differ in their effects and side effects; and describe precautions that apply to glucocorticoids, NSAIDS, and cyclooxygenase-2 inhibitor drugs</td>
<td>In-class quiz, homework, and comprehensive final exam</td>
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III. OUTLINE OF TOPICS

A. Introduction to Veterinary Pharmacology and Therapeutic Applications
   1. Role and responsibilities of today’s veterinary technician and technologist
   2. Terminology used in describing therapeutic agents
   3. Sources of drug information
   4. Information listed in drug references
   5. Reporting adverse drug reactions

B. Pharmacy Procedures, Drug Handling, and Dosage Calculations
   1. Prescription drugs versus over-the-counter drugs
   2. Prescriptions and drug orders
   3. Abbreviations used in drug orders
   4. Containers for dispensing medications
   5. Storage of drugs in the veterinary facility
   6. Specialty storage and handling requirements for controlled substances
   7. Storage and handling of cytotoxic and hazardous drugs
   8. Compounding drugs
   9. Calculating drug doses

C. Pharmacokinetics and Pharmacodynamics: The Principles of How Drugs Work
   1. Therapeutic range
   2. Dosage regimen and routes of administration
   3. Movement of drug molecules
   4. Pharmacokinetics: Absorption
   5. Pharmacokinetics: Drug distribution
   6. Pharmacokinetics: The ways drugs exert their effects
   7. Pharmacokinetics: Biotransformation and drug metabolism
   8. Pharmacokinetics: Drug elimination
   9. Using concepts of pharmacokinetics and pharmacodynamics

D. Drugs Affecting the Gastrointestinal (GI) Tract
   1. Function and control of the GI tract
   2. Emetic drugs
   3. Antiemetic drugs
   4. Antidiarrheal drugs
   5. Laxatives, cathartics, and purgatives
   6. Antacids and antiulcer drugs
   7. Ruminatorics and antibloat medications
   8. Other drugs used for GI problems

E. Drugs Affecting the Cardiovascular System
   1. Normal cardiac function
   2. Antiarrhythmic drugs
   3. Positive inotropic agents
4. Vasodilators
5. Diuretics
6. Other drugs used in treating cardiovascular disease

F. Drugs Affecting the Endocrine System
   1. The negative feedback system
   2. Drugs used to treat thyroid disease
   3. Endocrine pancreatic drugs
   4. Drugs affecting reproduction

G. Drugs Affecting the Nervous System
   1. Analgesics
   2. Tranquilizers and sedatives
   3. Anesthetics
   4. Central nervous system stimulants

H. Drugs Affecting the Nervous System
   1. Anticonvulsants
   2. Behavior-modifying drugs

I. Antimicrobials
   1. Types of antimicrobials
   2. Goals of antimicrobial therapy
   3. Resistance of microorganisms to antimicrobial therapy
   4. Concerns over antimicrobial residues
   5. Mechanisms of antimicrobial action
   6. Classes of antimicrobials
   7. Other antimicrobials used in veterinary medicine
   8. Antifungals

J. Disinfectants and Antiseptics
   1. Terminology describing disinfecting agents
   2. Appropriate use of disinfecting agents
   3. Selecting an appropriate disinfecting agent
   4. Types of disinfecting agents

K. Antiparasitics
   1. Principles of antiparasitics
   2. Internal antiparasitics
   3. Terminology used to describe internal antiparasitics
   4. Antinematodals
   5. Anticestodals
   6. Antiparasitics used in heartworm treatment
   7. Antiprotozoals
   8. External antiparasitics
9. Insect growth regulators, insect development inhibitors, and juvenile hormone mimics
10. Insect repellants

L. Anti-inflammatory Drugs
   1. Inflammation pathway
   2. Corticosteroids
   3. Glucocorticoids
   4. Nonsteroidal anti-inflammatory drugs
   5. Chondroprotective agents
   6. Other drugs used to fight inflammation

IV. METHOD(S) OF INSTRUCTION

A. Lectures
B. Homework Assignments
C. Textbooks
D. Audio-Visual Aids

V. REQUIRED TEXTBOOK(S)

Bill, R., *Clinical Pharmacology and Therapeutics for the Veterinary Technician*, (current edition), St. Louis: Mosby Elsevier

VI. REQUIRED MATERIALS

None

VII. SUPPLEMENTAL REFERENCES

None

VIII. METHOD OF EVALUATION

A. Distribution of Final Grade

There are written quizzes, homework assignments and a comprehensive final, all of which comprise the final lecture grade.
B. Assignment of Final Letter Grades

A = 93-100
B = 84-92
C = 75-83
D = 60-74
F = below 60

C. Attendance Policy

Student attendance is mandatory. There are no excused absences. Students will lose 1 point for each missed class period. If a student has more than 10 absences, he or she will be advised to drop from the course to avoid receiving a grade of “F” for the course. **Tardiness beyond 10 minutes is considered an absence.**

Students are not permitted to make up quizzes. If a student is absent on a quiz day, that quiz will count as a dropped quiz. The instructor will drop the 2 lowest quiz scores when calculating the final course grade.

The instructor may make exceptions to this policy in certain cases, i.e., illness requiring hospitalization, death in the family, etc.

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website http://www.jeffco.edu).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.
XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.