Pharmacy Student Veterinary Compounding
ONLINE COURSE + LAB

SYLLABUS Online Course | Fall 2021

Course Description

This course trains students in providing comprehensive veterinary pharmacotherapy expertise, care, products, and compounds for non-human patients. Reading assignments and online class participation will facilitate the generation of a learning community and multi-input discussions about case studies. Hands-on laboratory exercises will reinforce the learning experience. The full course consists of two components: an online component that contains approximately 4 to 6 hours of didactic work per week and a two-day compounding laboratory experience at PCCA.

Requirements

Current enrollment in an accredited College/School of Pharmacy.

Recommended Textbook

Plumb DC. Veterinary Drug Handbook, 9th ed. Wiley-Blackwell Publishing, 2018. Online/App access available to students for $4.95 per year - www.plumbsveterinarydrugs.com

Student Learning Objectives

This introductory level course will prepare pharmacy students to effectively provide pharmaceutical expertise, care, products and compounds to non-human patients in a variety of career settings. Following completion of the course, participants will be able to:

- Recall and apply relevant statute, regulation, rule and guidance to providing medical therapies and consultation for non-human patients.
- Recall and apply principles of non-human species anatomy and physiology to drug disposition in non-human patients.
- Recall and apply principles of disease state management in the 7 major non-food producing species of non-human patients.
- Recall, analyze, and apply toxicological potential of drugs, excipients, foods and household items to non-human patients.
- Communicate veterinary-specific health and drug related information to pet owners, veterinarians, professional colleagues, and community groups.

Major areas of focus will include anatomy, physiology, drug disposition, species-specific toxicology, and common diseases for 7 non-human species; regulatory and ethical considerations for drug use in non-human species; case presentations and discussions of medication management; key concepts in veterinary compounding; prescription review and dispensing; and caregiver counseling for drug administration and monitoring in non-human patients.

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The class format utilizes online independent study learning modules as well as live virtual discussions. These discussions will be used throughout the course to provide a hands-on, problem-solving team approach to managing veterinary patient cases through disease state and case presentations, compounding problems and exercises, prescription reviews and caregiver counseling for drugs dispensed to non-human patients.

The first portion of the online component will introduce students to anatomical and physiological influences on drug disposition in non-human patients, principles of toxicology in non-humans, and legal and ethical considerations for non-human patients. The learning objectives for the first half of the program include the ability to:

1. Become familiar with the physiological and metabolic features that affect drug disposition in a given species.
2. Know which drugs are likely to be problematic in the species because of anatomical, physiological, and toxicological differences.
3. Understand the differences between prescription drug laws and regulations related to veterinary versus human medicine.

The second portion of the program will focus on species-specific disease states and treatment options including compounding opportunities. The role of the pharmacist in providing medication therapy management for various disease states in each of 7 species will be reviewed. Systems review for relevant endocrine disease, neurological disease, gastrointestinal disease, cardiovascular disease, neoplastic disease, dermatological disease, and infectious disease in dogs, cats, horses, rabbits, ferrets, birds and reptiles are presented.

Structure of the Course

Online Didactic Component

- 10 online modules punctuated with active learning exercises including live virtual discussions
- Discussion topics will vary in theme, and may require investigation, research, critical thinking, application of concepts and creative thinking
- Students unable to participate in live discussions must communicate this information prior to the scheduled events. Students with excused absences will be provided the opportunity to receive a discussion grade by submitting a research paper covering relevant compounding topics (details provided by course facilitator)

Module Content

- **Assigned readings:** Online modules and peer-reviewed articles
- **Assessments:** Multiple choice questions based on the readings (completed online)

Hands-on Laboratory Component

The laboratory component will be conducted at the PCCA facility in Houston, Texas. The laboratory will consist of a two-day, hands-on experience (total of 16 hours) that investigates the interrelationship between veterinary pharmacotherapeutic principles and compounded formulations. Dosage forms included in the laboratory component are unique formulations specifically appropriate for veterinary patients.

Course Grade

Assessments	30%	Weeks 1 - 10
Live Virtual Discussions	10%	Tuesday, September 21, 2021 (7:00 PM - 7:30 PM CT) - 30 mins Tuesday, October 5, 2021 (7:00 PM - 8:30 PM CT) - 90 mins Tuesday, November 2, 2021 (7:00 PM - 8:30 PM CT) - 90 mins
Midterm Exam	30%	Tuesday, October 19, 2021 (7:00 PM - 8:30 PM CT)
Final Exam	30%	Tuesday, November 16, 2021 (7:00 PM - 8:30 PM CT)
Lab Session at PCCA		December 13-14, 2021 (9:00 AM – 6:00 PM CST)
Total	100%	

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Exams

The midterm and final exam will be administered online. If the scheduled exam dates or times need to be rescheduled due to an approved absence, this information must be communicated to the course facilitators 48 hours prior to the scheduled exam. If this information is not provided within the required 48 hours, the exam will automatically start at an 85 for the highest possible score.

Certificate Award

To receive a certificate of completion, the student must 1) achieve a final grade of 80% or higher within the online component and 2) successfully complete the laboratory experience.

Course Outline

1. Anatomy, Physiology and Drug Disposition for Non-Human Species
2. Principles of Toxicology for Non-Human Species
3. Legal and Regulatory Issues for Non-Human Patients
4. Providing Pharmaceutical Care and Compounds for Canine Patients
5. Providing Pharmaceutical Care and Compounds for Feline Patients
6. Providing Pharmaceutical Care and Compounds for Equine Patients
7. Providing Pharmaceutical Care and Compounds for Exotics (Ferrets & Rabbits)
8. Providing Pharmaceutical Care and Compounds for Exotics (Reptiles & Birds)
9. Compounding Opportunities
10. Evaluation of Veterinary Prescriptions

Program Fee

$995 - This fee includes access to online course material and all laboratory fees. Travel arrangements and costs are student responsibilities. PCCA offers a special student rate at our recommended hotel.

Registration

Interested students are encouraged to visit PCCA's website at bit.ly/PCCA-Institute for more information and to register for the course.

Original Course Content Developer

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