

# VETERINARY MEDICINE

## VME 5244 Physiology: Organ Systems 4 Credits

**Grading Scheme:** Letter Grade

Emphasizes domestic animals commonly encountered in veterinary medicine. Physiology of nervous, muscle, blood, cardiovascular, respiratory, renal, gastrointestinal, and endocrine systems.

**Prerequisite:** knowledge of general biochemistry.

## VME 5715C Small Animal Soft Tissue Minimally Invasive Surgery 0-1 Credits

**Grading Scheme:** Letter Grade

Introduction to the current state of laparoscopy and thoracoscopy in small animal surgery. Lectures will focus on specific procedures and associated case selection considerations. Descriptions of required and recommended instrumentation as well as procedural steps will be presented and basic techniques will be practiced in the laboratory setting on trainers.

**Prerequisite:** Baccalaureate degree or permission of an academic advisor of a student in a premedical Baccalaureate program such as animal science, biology, or physiology & Enrollment in a graduate clinical or laboratory medicine/surgery program.

## VME 6010 Aquatic Animal Conservation Issues 3 Credits

**Grading Scheme:** Letter Grade

An online introduction to some controversial conservation issues, surrounding aquatic species, ranging from invertebrates to marine mammals, culminating in a 5-page grant proposal and review.

**Prerequisite:** None.

## VME 6011 Introduction to Aquatic Wildlife Health Issues 3 Credits

**Grading Scheme:** Letter Grade

An online introduction to the natural history, anatomy, physiology, behavior, and health issues of aquatic wildlife: marine mammals, sea turtles, crocodylians, and some fish and invertebrates, culminating in a five-page grant proposal and review.

**Prerequisite:** None.

## VME 6014 Marine Mammal Biology 3 Credits

**Grading Scheme:** Letter Grade

This is an introductory online course for graduate students designed to provide an introduction to a variety of marine mammal species including cetaceans, sirenians, pinnipeds, mustelids, and ursids. Each module will broadly explore a particular theme related to the study of marine mammals, including basic biology, physiology, and conservation and management. Each module will consist of multiple lectures, assigned readings, and an assignment and/or quiz.

**Prerequisite:** BSC 2010 and BSC 2010L and BSC 2011 and BSC 2011L and two additional Science classes (examples include PCB 4723C or ZOO 3713C or PCB 4043C or ZOO 2203C or ZOO 4926 or GLY 3083C or FAS 4932 or ZOO 4403C or VME 4012 or instructor permission).

## VME 6015 Sea Turtle Medicine and Rehabilitation 3 Credits

**Grading Scheme:** Letter Grade

This online course is designed to provide an introduction to the clinical care involved in the rescue and rehabilitation of sea turtles. In this course, students will gain foundational knowledge in sea turtle biology, anatomy, and physiology and how each of these factor into the clinical care and management of sea turtles during rescue events and in rehabilitation settings.

**Prerequisite:** Successful completion of a Bachelor of Science degree or instructor permission.

## VME 6017 Manatee Health & Conservation 3 Credits

**Grading Scheme:** Letter Grade

Introducing graduate students to manatee natural history, anatomy, physiology, behavior, conservation and health issues. Students will gain a working knowledge of these topics, exposure to current experts in these fields, be able to evaluate and discuss common health and mortality issues, and explain current management strategies.

**Prerequisite:** None.

## VME 6051 Cruelty to Animals and Interpersonal Violence 3 Credits

**Grading Scheme:** Letter Grade

The relationship between cruelty to animals and interpersonal violence has been substantiated by as significant body of work in the social sciences. Participants in this course will gain a fundamental knowledge of this connection, examine both qualitative and quantitative studies and case histories of the correlation between cruelty to animals, child abuse, domestic violence, elder abuse, and teen violence. Participants will learn how to recognize the connection between cruelty to animals and human violence and will review a variety of intervention programs for victims and at-risk or offending populations.

**Prerequisite:** None.

## VME 6052 Animal Crime Scene Processing 3 Credits

**Grading Scheme:** Letter Grade

This course provides the student with formal academic training in basic crime scene processing techniques specialized for the analysis of crime scenes involving injured or deceased animals, or scenes involving acts of animal cruelty. A focus will be on the recognition, documentation, and preservation of various types of physical evidence involving animal abuse, cruelty, neglect and death.

**Prerequisite:** None.

## VME 6053 Skeletal Trauma Analysis in Animals 3 Credits

**Grading Scheme:** Letter Grade

Provides an introduction to skeletal trauma in nonhuman remains. Also covered will be skeletal evidence of other types of abuse including starvation, infection, or neglect. Skeletal pathology will be addressed.

## VME 6054 Scientific and Legal Principles of Forensic Evidence 3 Credits

**Grading Scheme:** Letter Grade

This course will focus on crime scene integrity, crime scene searches, chain of custody issues, courtroom presentation of physical evidence, and expert witness testimony. Emphasis will also be placed on the management of scene personnel, the media, victims, and suspects.

**Prerequisite:** None

## VME 6056 Animal Law 3 Credits

**Grading Scheme:** Letter Grade

Animal law is a quickly growing field and is becoming essential to social policy in the United States as well as around the world. This course introduces and surveys important overarching legal themes that occur throughout the unique relationship between humans and animals.

## VME 6070 Systematic Review and Meta-Analysis for Biomedical Research 2 Credits

**Grading Scheme:** Letter Grade

This course is an introduction to systematic review and meta-analysis, an essential research synthesis tool for researchers to appraise currently available primary research objectively and to identify gaps in research.

**VME 6071C Medical 3D Printing 3 Credits****Grading Scheme:** Letter Grade

This course will cover the application of 3D printing technologies in the field of medicine. It will cover subjects from image acquisition with the correct parameters, image processing, image mask creation, importing to 3D software, manipulation in the 3D environment and exporting the file for successful 3D printing. This will cover a large number of mechanical and biological considerations for repair and replacement of soft and hard tissues and joints.

**Prerequisite:** EGM 3520 or EGM 2511 or BME 2202 or EGM 3400 EMA 3000L.**VME 6100 Infectious Disease Management for Animal Shelters 3 Credits****Grading Scheme:** Letter Grade

Explores all aspects of practical infectious disease management in animal shelters, including prevention, diagnosis, management, and outbreak investigations.

**Prerequisite:** VME 6810 and VME 6811 and VME 6816.**VME 6140 VMS Graduate Journal Club: Mucosal Immunology 1 Credit, Max 4 Credits****Grading Scheme:** Letter Grade

Critical analysis of recently published research reports in the field of mucosal immunology.

**Prerequisite:** Permission of Instructor.**VME 6195 Wildlife Virology: Emerging Wildlife Viruses of Veterinary and Zoonotic Importance 3 Credits****Grading Scheme:** Letter Grade

Wildlife Virology is a 3-credit graduate-level course focusing on pathogenic viruses that are naturally maintained in wildlife species which are transmissible to humans, domestic animals, and other wildlife/zoological species. Covers a comprehensive and diverse set of RNA and DNA viruses that naturally infect free-ranging mammals, birds, reptiles, amphibians, and fish.

**Prerequisite:** Specific introductory coursework is not required prior to taking this course, although a basic background in general microbiology or virology is recommended.

**VME 6200 Fundamentals of Respiratory Physiology 3 Credits****Grading Scheme:** Letter Grade

Provides the fundamental concepts of respiratory physiology. This will be accomplished by learning the physiological mechanisms involved in the movement of air into the lung, transfer of oxygen and carbon dioxide across the gas exchange surface, transport of these gases by the blood, delivery of these gases to the tissues, acid-base balance in the blood and the neural control of breathing.

**Prerequisite:** BCH 3025 or equivalent, MAC 2233 or equivalent, PHY 2020 or equivalent, or permission of program.**VME 6200L Laboratory Assessments for Fundamentals of Respiratory Physiology 2 Credits****Grading Scheme:** Letter Grade

Introduces and applies essential concepts and methods of respiratory physiology measurements and assessments to graduate students including an understanding of to calibrate instruments, how to measure physiological parameters, how to determine lung volumes, breathing patterns, respiratory gases and apply these measurements to human and animal assessments. Students will learn the types of equipment that are used for respiratory physiological assessments and the application to humans and animals.

**VME 6430C Contemporary Issues in Small Animal Surgery 3 Credits****Grading Scheme:** Letter Grade

Current or significant scientific papers from the veterinary and human literature, formal presentations will be given on topics relevant to contemporary small animal surgery, including comparative/translational aspects. Emphasizes morbidity and mortality discussions on recent clinical soft-tissue and orthopedic case material.

**Prerequisite:** DVM (or equivalent degree); master's students or Small Animal Surgical Residents pursuing a master's degree.**VME 6464 Molecular Pathogenesis 3 Credits, Max 6 Credits****Grading Scheme:** Letter Grade

Papers on mechanisms of pathogenesis and molecular approaches toward diagnosis and control of either parasitic or viral and bacterial diseases. Focus varies each semester.

**Prerequisite:** biochemistry, immunology, or consent of instructor.**VME 6505 Autoimmunity 1 Credit, Max 3 Credits****Grading Scheme:** Letter Grade

Biological and biochemical aspects of immunology, focusing on molecular and cellular events involved in genetic susceptibility, pathogenesis, and treatment of human autoimmune diseases.

**Prerequisite:** GMS 6006 or consent of instructor.**VME 6508 Veterinary Virology: Molecular and Evolutionary Biology of Animal Viruses 3 Credits****Grading Scheme:** Letter Grade

Veterinary Virology is a 3-credit (3 hours of lecture/week) graduate-level course focused on understanding the common, fundamental molecular and evolutionary mechanisms used by veterinary viruses to infect and spread efficiently to cause disease in animal hosts.

**Prerequisite:** Previous introductory coursework in molecular biology and/or general microbiology/virology is recommended, although not required.

**VME 6570 Wildlife Conservation and Forensic Science 3 Credits****Grading Scheme:** Letter Grade

Learning the fundamental concepts of animal conservation and protection. The course will also address the applicability and importance of forensic science in wildlife investigations, including an introduction to the scientific and forensic method, crime scene analysis and processing, types of evidence, evidence collection, and field analyses.

**VME 6571 Forensic Applied Animal Behavior 3 Credits****Grading Scheme:** Letter Grade

Reviewing Forensic Applied Animal Behavior, which is defined as the application of knowledge of animal behavior to the purpose of the law. This includes documenting the behavioral effects of abuse, neglect or inadequate care that may be in violation of laws, regulations, and industry or community standards.

**VME 6572 Forensic Aspects of Agricultural Animal Welfare 3 Credits****Grading Scheme:** Letter Grade

Introducing agricultural animal welfare with a focus on the legal aspects associated with abusive care of agricultural animals. This course explores scientific and ethical dialogue on agricultural animal welfare issues. Completing this course will provide an understanding of current U.S. laws governing agricultural animal welfare as well as the ability to minimally evaluate and assess the welfare of an agricultural animal.

**VME 6573 Applications of DNA for Companion Animal and Wildlife Cases 3 Credits****Grading Scheme:** Letter Grade

Introducing the student to the basic understanding of DNA and how it is used to identify species and provide evidence for criminal investigations. Upon completion of this course, the student will have basic knowledge of how DNA is used to identify species, gender and individual identification, chain of custody, and the agencies and laboratories doing veterinary and wildlife forensic DNA assays.

**VME 6574 Aquatic Animal Pathology and Forensic Science 3 Credits****Grading Scheme:** Letter Grade

Addresses aquatic animal pathology and the types of injuries seen in aquatic animal forensic cases. Necropsy techniques and subsequent sample analysis, background historical, ecological and conservation information regarding each species examined, and related forensic techniques including sampling, handling, and legal concerns by renowned species researchers and professionals will be covered.

**VME 6575 Veterinary Forensic Medicine 3 Credits****Grading Scheme:** Letter Grade

Introducing students to the application of veterinary medicine to the forensic sciences. Course topics will focus on the interpretations of injury patterns, cause, manner and mechanism of death. Upon completion of this course, the student will have a basic knowledge of the pathological documentation required for scenes involving animals, including recognition of abuse, crime scene investigation, and interacting with the legal community.

**Prerequisite:** None.**VME 6576 Veterinary Forensic Pathology 3 Credits****Grading Scheme:** Letter Grade

Introducing and developing in-depth the field of veterinary forensic pathology, including how to perform and document, through photographs and written reports, a professional necropsy.

**VME 6577 Practicing Pathology 3 Credits****Grading Scheme:** Letter Grade

Strengthening and broadening students' knowledge of the pathologic basis of disease as well as specific systemic diseases, and how to apply this knowledge when performing a necropsy. Necropsy technique itself will be covered in depth. The course teaches astute observation, accurate description, and educated interpretation of the changes observed at necropsy, in addition to postmortem case management, using examples of relevance in shelter populations.

**VME 6578 Forensic Veterinary Osteology 3 Credits****Grading Scheme:** Letter Grade

Providing an introduction to the non-human skeleton emphasizing the general identification of complete and fragmentary skeletal remains. This course, will cover bone biology, development and anatomy, taphonomy, age, and sex. This knowledge forms the underpinning for advanced study in veterinary forensic osteology or zooarchaeology. Learning objectives will be accomplished through a combination of lecture material, readings, quizzes, a case study, and online active discussions.

**VME 6579 Veterinary Forensic Radiology and Imaging 3 Credits****Grading Scheme:** Letter Grade

Students completing this course will gain an understanding of how radiology and imaging can be used in the veterinary forensic sciences. Topics include: imaging modalities, the performance, interpretation and reportage of veterinary imaging studies as applied to the courts or the law.

**VME 6580 Cybercrime in Wildlife Investigations 3 Credits****Grading Scheme:** Letter Grade

Provides an understanding of cybercrime from perspectives of wildlife investigations. Computer forensics, mobile device technology, email and network forensics, basics of electronic evidence and processing an electronic crime scene are covered. Also provides a comprehensive analysis of the legal principles that apply to cybercrime and electronic trade in wildlife.

**VME 6581 Working Dogs in Conservation and Forensic Science 3 Credits****Grading Scheme:** Letter Grade

Abilities of the canine nose are well-documented. Working dogs are being increasingly utilized for their olfactory skills in conservation and forensic science for the calculation of population trends of endangered species, the eradication of invasive species in protected environments, identification of disease, and the identification of infestations and chemical contaminants.

**VME 6582 Introduction to Forensic Medicine 1 4 Credits****Grading Scheme:** Letter Grade

This course covers the basic elements of forensic medicine and focuses on the role of the forensic pathologist in the investigation of crime and death. Although much of forensic medicine, relies on the principles of morbid anatomy as discovered in earlier centuries, more recent techniques are also presented.

**VME 6583 Applied Companion Animal & Livestock Forensic Genetics 3 Credits****Grading Scheme:** Letter Grade

This course will continue from Applications of DNA for Forensic and Wildlife Cases (VME 6573). Students will use the previous information to describe collection of evidence, chain of evidence, laboratory protocols, data analysis, and report writing while doing in depth data analysis to resolve complex cases.

**Prerequisite:** VME 6573.**VME 6602 General Toxicology 3 Credits****Grading Scheme:** Letter Grade

General principles of toxicology. Mechanisms for occurrence of toxic effects in target organs and tissues.

**Prerequisite:** background in biochemistry, physiology, and pharmacology.**VME 6603 Advanced Toxicology 3 Credits****Grading Scheme:** Letter Grade

Survey of the health effects of each major class of toxicants.

**Prerequisite:** VME 6602.**VME 6604 Literature Survey in Toxicology 1-2 Credits, Max 2 Credits****Grading Scheme:** Letter Grade

Critical presentation and evaluation of current literature in selected topics in toxicology.

**VME 6605 Toxic Substances 3 Credits****Grading Scheme:** Letter Grade

In-depth information on signs, symptoms, underlying mechanisms, diagnosis, and management of poisoning by drugs and chemicals.

**Prerequisite:** VME 6602**VME 6607 Human Health Risk Assessment 4 Credits****Grading Scheme:** Letter Grade

Conceptual approaches and computational techniques for quantitative health risk assessment.

**VME 6610 Ecotoxicology 3 Credits****Grading Scheme:** Letter Grade

This course will present conceptual and fundamental knowledge required to discern the impacts of environmental contaminants on wildlife and ecosystems.

**Prerequisite:** Permission of the program.**VME 6613 Forensic Toxicology I 3 Credits****Grading Scheme:** Letter Grade

Analytical techniques used to examine forensic drug and forensic toxicology specimens.

**Prerequisite:** organic chemistry recommended.**VME 6614 Forensic Toxicology II 3 Credits****Grading Scheme:** Letter Grade

Toxicology of compounds commonly encountered in forensic specimens.

**Prerequisite:** VME 6613.**VME 6615 Veterinary Forensic Toxicology 3 Credits****Grading Scheme:** Letter Grade

Encompassing the concepts of veterinary forensic toxicology including basic principles of veterinary toxicology, legal aspects of veterinary toxicology, utilization of veterinary diagnostic laboratories in forensic cases, conducting veterinary toxicology field investigations, history-taking, and proper collection, handling and preservation of samples. Species-relevant aspects of veterinary toxicology will be covered.

**VME 6616 Veterinary Drug Ecotoxicology 3 Credits****Grading Scheme:** Letter Grade

Veterinary agents, as administered to livestock, exotic, and companion animals may pose considerable repercussions to wildlife and the environment. Students will review the necessary features of a healthy, balanced ecosystem and recognize the species that are most susceptible to exposure in conjunction with key toxicological concepts and terminologies.

**VME 6617 Environmental Risk Assessment of Veterinary Drugs 3 Credits****Grading Scheme:** Letter Grade

Provides a comprehensive understanding of the hazards that veterinary agents can pose to wildlife and the environment. Details methods for hazard mitigation and the suite of actions that can be taken to preempt risks. Students will also gain deeper insight into the breadth of pertinent environmental and wildlife regulations.

**Prerequisite:** Critical Thinking and Environmental Monitoring of Veterinary Agents (VME 6XXX)**VME 6618 Ecological Risk Assessment 3 Credits****Grading Scheme:** Letter Grade

When quantitative environmental risk assessments are performed, both a human health and an ecological risk assessment are usually required. This course fills that knowledge deficit and provides students with the methodologies and techniques used to protect ecosystems. The course provides conceptual approaches and quantitative techniques for performing ecological risk assessments.

**Prerequisite:** Basic toxicology or ecotoxicology course.**VME 6620 The Practice of Regulatory Toxicology 3 Credits****Grading Scheme:** Letter Grade

Regulatory toxicology includes the evaluation of substances in prescribed assays, the goal of which is to determine hazards to humans. This course will review the basics in the practice of conducting using prescribed in vivo and in vitro systems and evaluating the results.

**Prerequisite:** VME 6602.**VME 6621 New Approach Methodologies in Toxicology 3 Credits****Grading Scheme:** Letter Grade

New Approach Methodologies are a rapidly evolving set of computational and cell based model systems as an alternative to traditional animal based testing which are transforming the fields of toxicology, hazard and exposure assessment, and regulation. Introduce students to New Approach Methodologies, the diversity of methods, their emerging use in regulatory toxicology, and ongoing discussions about their strengths and limitations.

**Prerequisite:** Permission of program.**VME 6650 Principles of Mammalian Pharmacology 4 Credits****Grading Scheme:** Letter Grade

Principles of drug action. Emphasizes mechanisms of action and side effects for major drug classes used in humans and other mammals.

**Prerequisite:** graduate-level physiology course.**VME 6651 Seminars in Veterinary Anesthesia and Analgesia 2 Credits, Max 8 Credits****Grading Scheme:** S/U

Weekly seminar series on topics in anesthesia and analgesia of veterinary species including pharmacology, physiology with a focus on cardiorespiratory and pain pathophysiology, anesthesia equipment, airway management, anesthetic management of patients with co-existing diseases, and challenges posed by anesthetizing unique species. Presented by residents, graduate students, faculty, and visiting speakers.

**Prerequisite:** Consent of the instructor is required;**Corequisite:** Student must be enrolled in a graduate program and must have a DVM or equivalent professional degree.**VME 6710C Advanced Small Animal Airway and Thoracic Surgery 1 Credit****Grading Scheme:** Letter Grade

Intensive review of surgical diseases of the thorax and respiratory tract in cats and dogs. Lectures will focus on the etiology, diagnosis, surgical treatment, and prognosis for the discussed conditions. Surgical approach options will be discussed in depth. These procedures will be practiced in the laboratory setting on cadavers.

**Prerequisite:** Must be a graduate student registered at the University of Florida.**VME 6711 Small Animal Abdominal Surgery 1 Credit****Grading Scheme:** Letter Grade

An intensive review of surgical diseases of the abdominal cavity in cats and dogs. Lectures will focus on the etiology, diagnosis, surgical treatment, and prognosis for each of the discussed conditions. Surgical approach options will be described and discussed in depth including location, positioning, technique, instrumentation and procedural steps.

**Prerequisite:** This course is offered to UF graduate students with interest in research and management of small animal abdominal surgery in dogs and cats.**VME 6712C Small Animal Interventional Radiology 1 Credit****Grading Scheme:** Letter Grade

Serves as an introduction to the current state of interventional radiology in small animal surgery. Lectures will focus on specific procedures associated case selection considerations.

**Prerequisite:** Graduate students enrolled in UF CVM graduate program in Veterinary Medical Sciences.**VME 6714C Small Animal Orthopedic Minimally Invasive Surgery 1 Credit****Grading Scheme:** Letter Grade

Introduction to the current state of arthroscopy and minimally invasive fracture repair in small animal surgery.

**Prerequisite:** Graduate students enrolled in UF CVM or another academic unit in UF Health Science Center.

**VME 6720C Developmental and Acquired Small Animal Orthopedic Diseases 1 Credit****Grading Scheme:** Letter Grade

A review of various developmental and acquired orthopedic diseases affecting dogs and cats. Lectures focus on the pathophysiology, diagnosis, specific treatments, and prognosis. Descriptions of required and recommended approaches, instrumentation, and procedural steps for appropriate surgical management of applicable abnormalities will be detailed.

**Prerequisite:** Baccalaureate degree or permission of the course coordinator, students in programs such as animal science, biology, or physiology; or enrollment in a graduate clinical or laboratory medicine or surgery program.

**VME 6721 Advanced Small Animal Fracture Management 1 Credit****Grading Scheme:** Letter Grade

An intensive review of surgical fracture management in dogs and cats. Introductory lectures focus on fracture etiology. The majority of the course will be devoted to an in depth discussion of implant systems utilized to stabilize fractures in small animals. Final lectures will involve in-depth reviews of specific fracture types and their management. The review will also focus on comparative aspects relating to analogous fractures in human patients.

**Prerequisite:** Baccalaureate degree, particularly students enrolled in graduate clinical or laboratory medicine or surgery program. Students pursuing a baccalaureate degree such as animal science or biology or physiology can enroll with coordinator permission.

**VME 6722 Advanced Small Animal Arthrology in Dogs and Cats: Disease, Reconstruction, and Arthroplasty 1 Credit****Grading Scheme:** Letter Grade

An intensive review of advanced surgical and medical research and the clinical management of joint diseases and injuries in dogs and cats. The first three lectures will focus on the etiology, pathophysiology, manifestation and diagnostic strategies of degenerative, immune mediated, and septic arthropathies. The majority of the course will be devoted to in-depth evaluation of specific surgical techniques used to address joint instabilities using biologic or prosthetic reconstruction techniques.

**Prerequisite:** This course is offered to UF graduate students with interest in research and management of small animal arthrology, disease, reconstruction, and arthroplasty in dogs and cats.

**VME 6766 Laboratory Quality Assurance/Quality Control 3 Credits****Grading Scheme:** Letter Grade

Procedures for ensuring quality practices in the analytical laboratory.

**VME 6767 Issues in the Responsible Conduct of Research 1 Credit****Grading Scheme:** S/U

Presentation and discussion of issues; guiding principles and potential pitfalls.

**VME 6771 Veterinary Epidemiologic Research 3 Credits****Grading Scheme:** Letter Grade

Design, analysis, and interpretation of epidemiologic studies.

**VME 6800 Welfare and Wellness for Pets and People 1 Credit****Grading Scheme:** S/U

Promotes wellness for those who care for pets by rehearsing skills needed for taking care of oneself and colleagues with the same attention used to promote welfare for pets.

**Prerequisite:** Must be currently enrolled as a professional veterinary student, DVM candidate, at the UF College of Veterinary Medicine to take the VEM 5XXX version of the course OR must be currently enrolled as a UF graduate student.

**VME 6801 Principles of Management in Animal Shelters 3 Credits****Grading Scheme:** Letter Grade

A survey course to introduce students to management skills applicable in a shelter setting.

**Prerequisite:** VME 6819.

**Corequisite:** Access to a local animal shelter where you can observe and/or review organizational techniques and methods applied for managing volunteers and staff.

**VME 6810 Integrating Veterinary Medicine with Shelter Systems 3 Credits****Grading Scheme:** Letter Grade

Understanding and appreciation of the critical role played by veterinarians in protecting the health and welfare of sheltered dogs and cats.

**Prerequisite:** Permission of department.**VME 6811 Shelter Animal Physical Health 3 Credits****Grading Scheme:** Letter Grade

Construction, critique, and implementation of policies and protocols to protect and enhance the physical health and well-being of sheltered dogs and cat, including recognizing and responding to threats to physical health.

**Prerequisite:** Permission of department.**VME 6812 Problem-Oriented Approach to Shelter Animal Behavior and Welfare 3 Credits****Grading Scheme:** Letter Grade

Concepts related to shelter behavior programs; evaluation of quality of shelter behavior programs; and implementation of changes to promote shelter animal behavior and welfare.

**Prerequisite:** VME 6813;

**Corequisite:** Have ready access to shelter dogs or cats to work on cases.

**VME 6813 Behavioral Health for Shelter Dogs and Cats 3 Credits****Grading Scheme:** Letter Grade

Introduces canine and feline behavior so students will understand how and why dogs and cats end up in shelters, what can be done to enhance their behavioral health while they are in the shelter, how to manage common shelter behavioral issues, and how behavior influences adoptions and retention.

**Prerequisite:** Permission of department.**VME 6814 Principles of Teaching for Animal Shelters 3 Credits****Grading Scheme:** Letter Grade

Introduces pedagogical skills necessary for effectively teaching in the setting of an animal shelter.

**VME 6815 Animal Shelter Population Management by the Metrics 3 Credits****Grading Scheme:** Letter Grade

Teaches the fundamentals of using shelter data to make data-driven decisions to enhance animal health and improve operational efficiency.

**VME 6816 The Role of the Animal Shelter in Protecting Community and Public Health 3 Credits****Grading Scheme:** Letter Grade

Enhances the ability of shelter medical professionals to serve as informed and active protectors of human and animal health in their communities.

**VME 6817 Humane Euthanasia Practices for Animal Shelters 3 Credits****Grading Scheme:** Letter Grade

Serves to establish best practices for students interested in coaching shelters in humane euthanasia. Prerequisites would be that you have access to an animal shelter where you can observe and discuss euthanasia practices during the course.

**VME 6818 High Quality High Volume Spay Neuter 3 Credits****Grading Scheme:** Letter Grade

Gives students in-depth knowledge of HQHVSN (High Quality High Volume Spay/Neuter) and introduces skills necessary for evaluating, improving, and developing successful HQHVSN programs based on community need.

**VME 6819 Principles of Leadership in Animal Shelters 3 Credits****Grading Scheme:** Letter Grade

Advances have occurred in animal sheltering and shelter medicine in recent years, and effective leadership is crucial to navigate this change in order to build healthy organizational culture and fulfill its mission. Students will be aware of their strengths as a leader, and of areas for additional development.

**VME 6820 Introduction to Veterinary Disaster Response 1 Credit****Grading Scheme:** Letter Grade

Be prepared to respond to veterinary disaster events as a volunteer. Recognize the standards of care for operating emergency animal shelters and transporting pets before and after disaster events. Understand the need for animal shelters to maintain all-hazard plans and adapt plans in the face of a pandemic.

**Prerequisite:** Currently enrolled as a graduate student or with departmental approval.

**VME 6830 Principles of All Hazard Responding in Animal Welfare 3 Credits****Grading Scheme:** Letter Grade

Provides students with in-depth knowledge of the all hazards approach to emergency planning and response and how it affects people and animals.

**Prerequisite:** VME 6820 can be taken as a prerequisite or concurrently with this course.

**VME 6840 Life-Enhancing Strategies of Animal Welfare Organizations 3 Credits****Grading Scheme:** Letter Grade

This course explores innovative, life-enhancing programs and strategies that promote optimal animal health and welfare, ideal community and personnel involvement and organizational success of animal welfare organizations.

**Prerequisite:** Access to a local animal shelter where you can observe and/or review organizational programs, structure and function related to animals, volunteers, and staff.

**VME 6841 Communications and Marketing for Animal Welfare Organizations 3 Credits****Grading Scheme:** Letter Grade

Understand the unique benefits and challenges of external communications and marketing in animal welfare organizations.

**Prerequisite:** Permission of department.

**Corequisite:** Relationship with a local animal shelter to view communications and marketing campaigns (can be done by websearch, email, telephone, or in person).

**VME 6842 Fundraising and Development for Animal Welfare Organizations 3 Credits****Grading Scheme:** Letter Grade

Understand how to create and maintain a successful development program that supports the important mission of an animal welfare organization.

**Prerequisite:** Permission of department.

**Corequisite:** Access to a nonprofit animal welfare organization and their development staff, fundraising program, and IRS form 990s.

**VME 6905 Problems in Veterinary Medical Sciences 1-4 Credits, Max 12 Credits****Grading Scheme:** Letter Grade

Problems in Veterinary Medical Sciences

**VME 6907 Mechanisms of Microbial Virulence Journal Club 1 Credit, Max 4 Credits****Grading Scheme:** Letter Grade

Covers contemporary topics in host-microbe interactions by focusing on critical analysis of recently published manuscripts. The selected articles will cover the molecular mechanisms that bacteria, viruses and parasites utilize for pathogenesis of various hosts, such as animals, insects, and nematodes.

**VME 6910 Supervised Research 1-5 Credits, Max 5 Credits****Grading Scheme:** S/U

Supervised Research

**VME 6931 Seminar in Veterinary Medical Sciences 1 Credit, Max 8 Credits****Grading Scheme:** S/U

Seminar in Veterinary Medical Sciences

**VME 6932 Seminar in Physiological Sciences 1 Credit, Max 8 Credits****Grading Scheme:** S/U

Weekly seminar series on topics in comparative physiological sciences, including nervous, cardiovascular, gastrointestinal, urogenital, and musculoskeletal systems.

**VME 6933 Seminar in Infectious Diseases and Experimental Pathology 1 Credit, Max 8 Credits****Grading Scheme:** S/U

Weekly seminar series on topics in infectious diseases of animals presented by students, faculty, and visiting speakers.

**VME 6934 Topics in Veterinary Medical Sciences 1-4 Credits, Max 10 Credits****Grading Scheme:** Letter Grade

Studies in topics involving new developments and/or research techniques in veterinary medical sciences.

**Prerequisite:** consent of instructor.

**VME 6936 Seminar in Pathophysiology 1 Credit, Max 8 Credits****Grading Scheme:** S/U

Weekly seminar series in mammalian pathophysiology.

**Prerequisite:** physiology, biochemistry.

**VME 6937L VMS Graduate Seminar Series 1 Credit****Grading Scheme:** Letter Grade

This course is a forum for CVM graduate students and faculty to exchange information that can advance animal health, human health, and environmental health.

**Prerequisite:** Student must be enrolled in PhD or MSc program.

**VME 6938 Topics in Aquatic Animal Health 1 Credit, Max 4 Credits****Grading Scheme:** Letter Grade

Presentation/discussion by students of selected articles relating to aquatic animal health, including both vertebrates and invertebrates.

**VME 6939 Topics in International Shelter Medicine 3 Credits****Grading Scheme:** Letter Grade

Introduces and familiarizes students to the unique challenges of practicing shelter medicine in international, resource-limited environments.

**VME 6940 Supervised Teaching 1-5 Credits, Max 5 Credits****Grading Scheme:** S/U

Supervised Teaching

**VME 6950 Capstone Project Presentation 1-3 Credits****Grading Scheme:** Letter Grade

Students design and present to a live online audience a culminating project and e-portfolio that demonstrates their academic achievement and ability to use the knowledge and skills gained while completing the online MS Veterinary Medical Sciences, Concentration in Shelter Medicine.

**VME 6951 Communicating Research About Shelter Medicine 1 Credit****Grading Scheme:** Letter Grade

Apply principles of good writing and strong visual layouts for transforming academic research into public documents that can be shared during your Capstone Project Presentation as well as at conferences, meetings, or the animal shelter workplace.

**Corequisite:** It is best taken after your advisor has approved your Capstone Project proposal (or research topic) so you can begin working on your presentation.

**VME 6971 Research for Master's Thesis 1-15 Credits****Grading Scheme:** S/U

Research for Master's Thesis

**VME 7979 Advanced Research 1-12 Credits****Grading Scheme:** S/U

Research for doctoral students in veterinary medical sciences before admission to candidacy. Designed for students with a master's degree in the field of study or for students who have been accepted for a doctoral program. Not appropriate for students who have been admitted to candidacy.

**VME 7980 Research for Doctoral Dissertation 1-15 Credits****Grading Scheme:** S/U

Research for Doctoral Dissertation