DEPARTMENT OF CLINICAL SCIENCES

Office in Veterinary Teaching Hospital, 300 West Drake Road, Room A201 (970) 297-1274
vetmedbiosci.colostate.edu/cs/ (https://vetmedbiosci.colostate.edu/cs/)

Professor Wayne Jensen, Department Head

Faculty in the Department of Clinical Sciences participate in training professional veterinary medical students and graduate students. For the veterinary medical student curriculum, students are instructed in the diagnosis, medical and surgical treatment, and prevention and management of domestic and exotic animal diseases. Through field service clinical experience, students receive on-the-farm training in livestock herd health management and production medicine. Our major clinical training center is the Veterinary Teaching Hospital, which operates state-of-the-art primary and referral services in all areas of small animal medicine and surgery, equine, and agricultural animal clinical care.

Undergraduate
No undergraduate major is offered.

Graduate

Graduate Programs in Clinical Sciences
Graduate programs offered in the department lead to Master of Science or Doctor of Philosophy degrees. Particular research focus areas within the department include epidemiology, musculoskeletal diseases, cancer biology, cardiovascular diseases, regenerative medicine, and infectious diseases of animals.

The department also offers a three-year combined master's degree and residency program in large and small animal surgery, anesthesiology, cardiology, dentistry, internal medicine, neurology, oncology, ophthalmology, dermatology, small and large animal sports medicine and rehabilitation, large and small animal theriogenology, and emergency and critical care medicine. These training programs partially fulfill requirements for board certification in these specialties. Students interested in graduate work should refer to the Graduate and Professional Bulletin (http://catalog.colostate.edu/general-catalog/graduate-bulletin/) and the Department of Clinical Sciences (https://vetmedbiosci.colostate.edu/cs/).

Master's Program
- Master of Science in Clinical Sciences (http://catalog.colostate.edu/general-catalog/colleges/veterinary-medicine-biomedical-sciences/clinical-sciences/clinical-sciences-ms/)

Ph.D.
- Ph.D. in Clinical Sciences*

* Please see department for program of study.

Courses

Clinical Sciences (VS)

VS 301 Human-Animal Interactions Credits: 3 (1-0-2)
Course Description: Explore various topics and current research related to human-animal interactions.
Prerequisite: None.
Registration Information: Completion of AUCC Category 2. Must register for lecture and recitation. Offered as an online course only. Credit not allowed for both VS 280A1 and VS 301.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 310 Communication Skills for Animal Professions Credits: 3 (3-0-0)
Course Description: Professional training and specifically tailored communication skills designed to meet the needs of animal professionals.
Prerequisite: None.
Registration Information: Sections may be offered: Online.
Terms Offered: Fall, Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 331 Histology Credits: 4 (3-2-0)
Course Description: Analysis of animal cells, tissues, and organs emphasizing light microscopy.
Prerequisite: LIFE 102.
Registration Information: Must register for lecture and laboratory. Credit not allowed for both VS 331 and BMS 330. Sections may be offered: Online.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

VS 333 Domestic Animal Anatomy Credits: 4 (3-3-0)
Course Description: Comparative functional anatomy of the dog, horse, and cow.
Prerequisite: BZ 110 or LIFE 102.
Registration Information: Must register for lecture and laboratory. Credit not allowed for both VS 333 and BMS 305. Sections may be offered: Online.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.
VS 401 Human Animal Interactions Credits: 3 (3-0-0)
Course Description: Roles animals play in society, and the impact of human and animal relationships.
Prerequisite: None.
Registration Information: Completion of AUCC Category 2. Offered as an online course only.
Terms Offered: Fall, Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 410 Pets Forever – Supporting the Life-Long Bond Credits: 3 (1-4-0)
Course Description: Opportunity to engage with older adults and individuals with disabilities and their companion animals. Enrichment of students’ experience through the opportunity to gain community service experience.
Prerequisite: HDFS 101 or PSY 100 or SOWK 110.
Registration Information: Must register for lecture and laboratory. Sections may be offered: Online.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

VS 478 Biology and Behavior of Cats Credits: 3 (3-0-0)
Also Offered As: BZ 478.
Course Description: Comprehensive inquiry into how aspects of physiology, neurobiology, development and genetics influence the behavior of domestic cats. Evolution and domestication are explored as contextual reference for some behavior problems, and differentiated from true abnormal behavior. Emphasis is on interpreting scientific experiments in feline biology.
Prerequisite: BZ 220.
Restriction: Must not be a: Freshman, Sophomore.
Registration Information: Junior standing. Sections may be offered: Online. Credit not allowed for both BZ 478 and VS 478.
Terms Offered: Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

VS 479 Biology and Behavior of Dogs Credits: 3 (3-0-0)
Also Offered As: BZ 479.
Course Description: Interactions of physiology, neurobiology, and genetics on behavior of domestic dogs, and how evolution and domestication influence behavioral traits.
Prerequisite: BZ 220.
Restriction: Must not be a: Freshman, Sophomore.
Registration Information: Junior standing. Sections may be offered: Online. Credit not allowed for both BZ 479 and VS 479.
Terms Offered: Spring, Summer.
Grade Mode: Traditional.
Special Course Fee: No.

VS 495 Independent Study Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 510 Cancer Biology Credits: 3 (3-0-0)
Also Offered As: ERHS 510.
Course Description: Cancer biology will address each of the hallmarks of cancer, including sustained proliferative signaling, evasion of growth suppression, invasion and metastasis, replicative immortality, angiogenesis, resisting cell death, genome instability and mutation, tumor promoting inflammation, deregulation of cellular energetics and avoidance of immune destruction. Lectures will integrate the biology behind these hallmarks with strategies for the treatment and prevention of cancer.
Prerequisite: BC 351 or BC 403, may be taken concurrently or BZ 310 or CM 501.
Registration Information: Credit not allowed for both ERHS 510 and VS 510.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 533 Epidemiology of Infectious Diseases/Zoonoses Credits: 3 (2-0-1)
Also Offered As: MIP 533.
Course Description: Epidemiologic features of infectious and parasitic diseases that have a major impact on community medicine.
Prerequisite: MIP 300.
Registration Information: Must register for lecture and recitation. Credit not allowed for both MIP 533 and VS 533.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 552 Applied Data Analysis Credits: 3 (3-0-0)
Course Description: Data management, application and interpretation of statistical analysis, and reporting of results for students in health science fields.
Prerequisite: STAT 301 or STAT 307.
Registration Information: Credit not allowed for VS 562, EDRM 606 and PBHL 560.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 562 Applied Data Analysis Credits: 3 (3-0-0)
Course Description: Data management, application and interpretation of statistical analysis, and reporting of results for students in health science fields.
Prerequisite: STAT 301 or STAT 307.
Registration Information: Credit not allowed for VS 562, EDRM 606 and PBHL 560.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.

VS 570 Issues in Animal Agriculture Credits: 2 (2-0-0)
Also Offered As: AGRI 570.
Course Description: Issues that have a major impact on the direction of changes in animal agriculture.
Prerequisite: None.
Registration Information: Credit not allowed for both VS 570 and AGRI 570.
Term Offered: Fall (even years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 579 Applied Animal Behavior Credits: 4 (3-2-0)
Also Offered As: NSCI 579.
Course Description: How animals learn, perceive their work, and behave, and how all of those intersect to alter behavior in managed care.
Prerequisite: BZ 300 or BZ 478 or BZ 479.
Restriction: Must not be a: Freshman, Sophomore.
Registration Information: Junior standing. Must register for lecture and laboratory. Sections may be offered: Online. Credit not allowed for both NSCI 579 and VS 579.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.
VS 600  Clinical Correlations in Large Animal Med  Credit: 1 (1-0-0)
Course Description: Comprehensive review of selected medical diseases of both equine and livestock species in a case based format. Develop an advanced understanding of the pathophysiology, diagnosis, treatment and prevention of these diseases and become familiar with the pertinent primary literature of the last three years.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Sections may be offered: Online or Mixed Face-to-Face.
Terms Offered: Fall, Spring, Summer.
Grade Mode: S/U Sat/Unsat Only.
Special Course Fee: No.

VS 602  Scientific Evaluation of Medical Literature  Credits: 2 (1-0-1)
Course Description: Method of evaluating scientific literature. Designed as a practical, rather than theoretical, approach to a literature search. Encourages research of scientific publications. The different sources of databases available and the methods of retrieving the literature are addressed.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Must register for lecture and recitation.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

VS 605  Comparative Anesthesiology  Credits: 2 (2-0-0)
Course Description: Techniques in anesthesia for large and small animals.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Must register for lecture and recitation.
Term Offered: Spring (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 606  Comparative Anesthesiology Laboratory  Credit: 1 (0-3-0)
Course Description: Techniques in anesthesia for large and small animals.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Must have concurrent registration in VS 605.
Term Offered: Spring (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 612  Plastic and Reconstructive Surgery  Credits: 2 (2-0-0)
Course Description: Advances in surgical patient care, surgical instrumentation, and reconstruction.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: DVM degree or equivalent professional medicine degree.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

VS 613  Plastic and Reconstructive Surgery Laboratory  Credit: 1 (0-3-0)
Course Description: Advances in surgical patient care, surgical instrumentation, and reconstruction.
Prerequisite: VM 786B.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

VS 626  Infertility and Genital Disease  Credits: 2 (2-0-0)
Course Description: Infectious and noninfectious causes of reproductive failure in food animals.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 628  Physiology and Pathophysiology  Credits: 3 (3-0-0)
Course Description: Overview of the normal physiology and pathophysiology of disease states of mammalian organ systems.
Prerequisite: BMS 500 and BMS 501.
Restriction: Must be a: Graduate, Professional.
Registration Information: Offered as Mixed Face-to-Face. DVM degree or equivalent professional medicine degree can substitute for BMS 500; BMS 501.
Term Offered: Fall (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 630  Orthopedic Surgery  Credits: 3 (3-0-0)
Course Description: Techniques, devices, and prosthetic materials in rehabilitating musculoskeletal problems.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 631  Orthopedic Surgery Laboratory  Credit: 1 (0-3-0)
Course Description: Procedures applied to skeletal preparations and living animals.
Prerequisite: (VM 786A or VM 786B) and (VS 630, may be taken concurrently).
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 642  Ophthalmology  Credits: 5 (4-2-0)
Course Description: Instrumentation, ocular therapeutics, and clinical ophthalmology.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

VS 644  Principles of Theriogenology  Credits: 2 (2-0-0)
Course Description: Provide basic and practical understanding of reproduction in domestic species. Including the anatomy and physiology of males and females, gamete development, fertilization, embryonic development, parturition and early neonatal care; focusing on domestic animals. In addition to basic normal physiology, characteristic disease states and potential treatments will be discussed, as well as methods for improving reproductive capabilities, such as artificial insemination and embryo transfer.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Written consent of instructor.
Term Offered: Spring.
Grade Mode: Traditional.
Special Course Fee: No.
VS 645  Surgery of the Eye  Credits: 3 (2-3-0)
Course Description: Techniques, indications, and complications.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Must register for lecture and laboratory.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 648  Food Animal Production and Food Safety  Credits: 2 (2-0-0)
Also Offered As: VM 648.
Course Description: Basic orientation to food animal production units, herd health concepts, and issues of food safety from preharvest through processing and distribution.
Prerequisite: None.
Restriction: Must be a: Graduate, Graduate cooperative program, Professional.
Registration Information: Enrollment in Food Science/Safety Graduate Interdisciplinary Studies program required. Credit not allowed for both VS 648 and VM 648.
Term Offered: Spring.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 650  Comparative Abdominal Surgery  Credits: 3 (3-0-0)
Course Description: New techniques in surgery of abdominal viscera.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 651  Comparative Abdominal Surgery Laboratory  Credit: 1 (0-3-0)
Course Description: Reparative and reconstructive abdominal surgical procedures.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: DVM degree or equivalent professional medicine degree.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 655A  Veterinary Echocardiography: Fundamentals  Credits: 2 (1-3-0)
Course Description: Fundamentals of small animal veterinary echocardiographic skills and interpretation are covered.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Admission to professional curriculum in veterinary medicine. Must register for lecture and laboratory.
Term Offered: Fall (every even years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 655B  Veterinary Echocardiography: Advanced Topics  Credits: 3 (3-0-0)
Course Description: High level analysis of echocardiographic techniques and applications in the clinical setting.
Prerequisite: VS 655A.
Restriction: Must be a: Graduate, Professional.
Registration Information: Admission to professional curriculum in veterinary medicine.
Term Offered: Spring (every even years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 660  Neurology and Neurosurgery  Credits: 3 (3-0-0)
Course Description: Diagnostic and surgical techniques for the nervous system.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Spring (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 661  Neurology and Neurosurgery Laboratory  Credit: 1 (0-2-0)
Course Description: Laboratory practice of comparative neurology (large and small animal), neurosurgical techniques and procedures.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: This is a partial semester course. DVM degree or equivalent professional medicine degree required.
Term Offered: Spring (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 665A  Advanced Topics in Veterinary Cardiology: Cardiopulmonary Pathophysiology  Credits: 3 (3-0-0)
Course Description: The pathobiology, advanced diagnostics, and treatment strategies for animals and humans with spontaneous cardiovascular disease.
Prerequisite: BMS 420.
Restriction: Must be a: Graduate, Professional.
Term Offered: Spring (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 665B  Advanced Topics in Veterinary Cardiology: Heart Failure and Cardiac Biomarkers  Credits: 2 (2-0-0)
Course Description: Review of the pathophysiology of heart failure. Discuss the diagnostic and therapeutic approach to heart failure. Clinical trial design will be reviewed prior to summarizing recent clinical trial results in humans and dogs.
Prerequisite: BMS 420.
Restriction: Must be a: Graduate, Professional.
Registration Information: DVM degree or equivalent professional medicine degree required, or by instructor permission.
Term Offered: Fall (every third year).
Grade Mode: Traditional.
Special Course Fee: No.

VS 665C  Advanced Topics in Veterinary Cardiology: Invasive Catheterization & Hemodynamics  Credits: 2 (2-0-0)
Course Description: Technical aspects of cardiac catheterization, focusing on pathophysiologic data that can be obtained during invasive catheterization procedures and interventional treatment options available.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Term Offered: Spring (every third year).
Grade Mode: Traditional.
Special Course Fee: No.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Special Course Fee</th>
<th>Term Offered</th>
<th>Grade Mode</th>
<th>Prerequisite</th>
<th>Restriction</th>
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</thead>
<tbody>
<tr>
<td>VS 665D</td>
<td>Advanced Topics in Veterinary Cardiology: Cardiac Electrophysiology &amp; Arrhythmias</td>
<td>2</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 665E</td>
<td>Advanced Topics in Veterinary Cardiology: Cardiovascular Imaging</td>
<td>2</td>
<td>No</td>
<td>Spring (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 665F</td>
<td>Advanced Topics in Veterinary Cardiology: Congenital Heart Disease</td>
<td>2</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 673</td>
<td>Thoracic and Cardiovascular Surgery</td>
<td>3</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 674</td>
<td>Thoracic and Cardiovascular Surgery Lab</td>
<td>1</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 699</td>
<td>Thesis</td>
<td>Var[1-18]</td>
<td>No</td>
<td>Fall, Spring, Summer</td>
<td>Instructor Option</td>
<td>None</td>
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<tr>
<td>VS 701</td>
<td>Postgraduate Medicine I</td>
<td>Var[1-3]</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 702</td>
<td>Postgraduate Medicine II</td>
<td>Var[1-3]</td>
<td>No</td>
<td>Spring (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 703</td>
<td>Postgraduate Medicine III</td>
<td>Var[1-3]</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 704</td>
<td>Postgraduate Medicine IV</td>
<td>Var[1-3]</td>
<td>No</td>
<td>Fall (every third year)</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 716</td>
<td>Advanced Studies in Reproduction</td>
<td>Var[1-3]</td>
<td>No</td>
<td>Fall, Spring, Summer</td>
<td>Traditional</td>
<td>None</td>
<td>Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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<tr>
<td>VS 718</td>
<td>Cancer Biology Clinical Practicum</td>
<td>2</td>
<td>No</td>
<td>Summer</td>
<td>Traditional</td>
<td>None</td>
<td>ERHS 510 or VS 510. Must be a: Graduate, Professional. DVM degree or equivalent professional medicine degree required, or by instructor permission.</td>
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</table>

**Course Description:**
- VS 665D: Advanced review of cardiac electrophysiology including ion channels, action potentials, cardiac conduction, automaticity, and cellular mechanisms of arrhythmogenesis. Interpretation of electrocardiogram and cardiac arrhythmia diagnosis in animals and humans. Basic principles of treatment of cardiac interventions including electrophysiology studies and interventions.
- VS 665E: Highlight the pathobiology, advanced diagnostics, and treatment strategies for animals with spontaneous cardiovascular disease.
- VS 665F: Overview and in-depth analysis of congenital malformations of the heart and great vessels in veterinary species, with comparison to the same diseases in humans. Complex lesions are emphasized, with a focus on pathophysiology, diagnostic findings, and therapeutic interventions.
- VS 673: Surgical approaches to the thorax and the central and peripheral cardiovascular system.
- VS 674: Surgical procedures applied to the chest, heart, and vessels. (VM 786A or VM 786B) and (VS 673, may be taken concurrently).
- VS 699: Comprehensive review, update of oncology, cardiology, reproduction, ophthalmology, and radiology.
- VS 701: Comprehensive review, update of immunology, emergency medicine, dermatology, and endocrinology.
- VS 702: Comprehensive review, update of neurology, gastroenterology, and ophthalmology.
- VS 703: Comprehensive review, update of hematology, nephrology, urology, respiratory, hepatic, and pancreatic.
- VS 704: Comprehensive review, update of oncology, cardiology, reproduction, ophthalmology, and radiology.
- VS 716: Comprehensive review, update of immunology, emergency medicine, dermatology, and endocrinology.
- VS 718: Comprehensive review, update of hematology, nephrology, urology, respiratory, hepatic, and pancreatic.

**Registration Information:**
- VS 665D: Credit not allowed for both VS 665D and VS 680A1.
- VS 665E: Must be a: Graduate, Professional.
- VS 665F: Must be a: Graduate, Professional.
- VS 673: Must be a: Graduate, Professional.
- VS 674: Must be a: Graduate, Professional.
- VS 699: None.
- VS 701: None.
- VS 702: None.
- VS 703: None.
- VS 704: None.
- VS 716: None.
- VS 718: ERHS 510 or VS 510.

**Special Course Fee:**
- VS 665D: No.
- VS 665E: No.
- VS 665F: No.
- VS 673: No.
- VS 674: No.
- VS 699: No.
- VS 701: No.
- VS 702: No.
- VS 703: No.
- VS 704: No.
- VS 716: No.
- VS 718: No.
VS 732  Veterinary Sports Medicine and Rehabilitation  Credit: 1 (1-0-0)
Also Offered As: VM 732.
Course Description: An introduction to the principles and practice of
sports medicine and rehabilitation in veterinary medicine.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: VM 732: Admission to professional curriculum in veterinary medicine. All courses must be taken in prescribed sequence in the PVM program. VS 732: DVM or equivalent professional degree or consent of instructor.
Term Offered: Fall.
Grade Mode: Traditional.
Special Course Fee: No.

VS 733  Advanced Veterinary Epidemiology  Credits: 4 (4-0-0)
Course Description: Advanced epidemiological and statistical techniques for the design and analysis of research projects.
Prerequisite: (ERHS 532) and (ERHS 542 or ERHS 544 or STAR 511 or STAR 512 or VS 662).
Restriction: Must be a: Graduate, Graduate cooperative program, Professional.
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 750  Clinical and Applied Pharmacology  Credits: 2 (2-0-0)
Course Description: Factors involved in drug dosing and variability of drug response. Applications in veterinary and human medicine.
Prerequisite: BMS 450.
Restriction: Must be a: Graduate, Professional.
Registration Information: DVM degree or equivalent professional medicine degree can substitute for BMS 450.
Term Offered: Spring (even years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 760  Methods in Orthopaedic Research  Credits: 3 (2-0-1)
Course Description: Methods utilized in orthopaedic research will be presented by reviewing basic principles followed by examples of use in research projects.
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Must register for lecture and recitation.
Term Offered: Spring (odd years).
Grade Mode: Traditional.
Special Course Fee: No.

VS 784  Supervised College Teaching  Credits: Var[1-18] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 792  Seminar  Credits: Var[1-18] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795A  Independent Study: Small Animal Medicine  Credits: Var[1-5] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795B  Independent Study: Large Animal Medicine  Credits: Var[1-5] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795C  Independent Study: Small Animal Surgery  Credits: Var[1-5] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795D  Independent Study: Equine Surgery  Credits: Var[1-5] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795G  Independent Study: Equine Orthopedics  Credits: Var[1-5] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795H  Independent Study: Large Animal Reproduction  Credits: Var[1-5] (0-0-0)
Course Description: 
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.
VS 795I  Independent Study: Anesthesiology  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795J  Independent Study: Cardiology  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795K  Independent Study: Neurology  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795L  Independent Study: Dermatology  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795N  Independent Study: Ophthalmology  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795O  Independent Study: Herd Health Management  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795P  Independent Study: Equine Lameness  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795S  Independent Study: Epidemiology  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Graduate cooperative program, Professional.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 795T  Independent Study: Human-Animal Bond  Credits: Var[1-5] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate.
Registration Information: Maximum of 5 credits allowed in course.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 796  Group Study-Medicine  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Graduate cooperative program, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 798  Research  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.

VS 799  Dissertation  Credits: Var[1-18] (0-0-0)
Course Description:
Prerequisite: None.
Restriction: Must be a: Graduate, Professional.
Terms Offered: Fall, Spring, Summer.
Grade Mode: Instructor Option.
Special Course Fee: No.