This is the Course Descriptions and Administration sections of the 1999-2001 University of Minnesota College of Veterinary Medicine Catalog.
COURSE DESCRIPTIONS

Veterinary Medicine (CVM)

CVM 1000. Introduction to Veterinary Medicine. (1 cr; S-N only)
History of veterinary profession, careers within the profession, employment trends. Information about admission to DVM. Veterinary technology programs.

CVM 6000. Orientation to Veterinary Medicine. (3 cr; QP–CVM first yr or CVM transfer; SP–CVM first yr or CVM transfer; S-N only)
Introduction to academic and professional skills necessary for success in the veterinary curriculum and profession. Three-day pre-class orientation. Peer and faculty mentorship network.

CVM 6011. Integrative Course I. (2 cr; QP–DVM first yr; SP–DVM first yr)
Integrates subjects taught in the veterinary professional curriculum. Introduction to and practice of professional skills, including communication, ethics, teamwork, and leadership.

CVM 6012. Integrative Course II. (2 cr; QP–DVM first yr or Δ; SP–DVM first yr or Δ)
Integrates subjects taught in the veterinary professional curriculum. Introduction to and practice of professional skills, including communication, ethics, teamwork, and leadership.

CVM 6013. Integrative Course III. (2 cr; QP–DVM second yr or Δ; SP–DVM second yr or Δ)
Integrates subjects taught in the veterinary professional curriculum. Introduction to and practice of professional skills, including communication, ethics, teamwork, and leadership.

CVM 6014. Integrative Course IV. (2 cr; QP–DVM second yr or Δ; SP–DVM second yr or Δ)
Integrates subjects taught in the veterinary professional curriculum. Introduction to and practice of professional skills, including communication, ethics, teamwork, and leadership.

CVM 6021. Overview of Animal Populations I. (1 cr; QP–DVM first yr or #; SP–DVM first yr or #)
Introduction to U.S. production animal agriculture at individual producer level and to roles veterinarians play.

CVM 6022. Overview of Animal Populations II. (1 cr; QP–DVM first yr or #; SP–DVM first yr or #)
Introduction to U.S. production animal agriculture at individual producer level and to roles veterinarians play.

CVM 6030. Public Health—Veterinary Community Medicine. (2 cr; QP–DVM third yr or #; SP–6220, 6201, 6202; A-F only)
Emphasizes epidemiological approach to veterinary public health, major zoonoses, animal sentinel, meat/milk inspection, preharvest food safety, environment, occupational health/safety, euthanasia, carcass disposal methods, cruelty investigations, and welfare issues. Problem-solving examples.

CVM 6031. International Animal Disease Problems. (1-2 cr [max 2 cr]; QP–DVM or CVM grad student or #; SP–DVM or CVM grad student or #; S-N only)
Epidemiology, clinical signs, differential diagnoses, pathology, and economic impact of diseases not currently or intermittently present in the United States. International role of veterinarians in controlling disease, increasing food production, and facilitating trade.

CVM 6040. Economics of Practice. (1 cr; QP–6070 or #; SP–6070 or #)
Techniques in economic analysis. Examples of calculations needed to support economic decisions in professional life and veterinary practice management. Decision making under uncertainty, using examples for assessing and communicating potential financial, economic, and welfare benefits and risk to owners of companion and food animals.

CVM 6042. Veterinary Practice Management. (1 cr; QP–DVM or Δ; SP–DVM or Δ; S-N only)
Economic, marketing, personnel management, and accounting issues in veterinary practice management.

CVM 6044. Professional Law and Ethics. (1 cr; QP–Δ; SP–6011-6014 or Δ; S-N only)
Major legal and ethical considerations for the practice of veterinary medicine.

CVM 6050. Perspectives: Interrelationships of People and Animals in Society. (2-3 cr)
Interrelationships of people and animals. Social, economic, and health consequences, including issues such as pets and people sharing an urban environment, animal rights, and influence of cultural differences on animal-human relationships.

CVM 6060. World Food Problems. (3 cr; SP–DVM or ag or nutr sci or soc sci or grad student or #)
Multidisciplinary approach to social, economic, and technical problems of feeding world’s growing population. Principles from social, economic, plant, animal, and nutrition sciences applied to food problems.

CVM 6100. Veterinary Anatomy and Imaging. (6 cr; QP–DVM first yr or #; SP–DVM first yr or #; A-F only)
Mammalian anatomy, including developmental anatomy and normal radiographic anatomy. Small-animal portion of the course uses the dog as model animal and compared it with the cat. The large-animal portion focuses on basic anatomy of the horse and on ruminants of clinical importance in swine.

CVM 6111. Cells and Tissues. (4-8 cr; QP–DVM first yr or #; SP–DVM first yr or #; A-F only)
Cell and tissue structure: microscopic and ultrastructural morphology. Cell and molecular biology: protein and enzyme structure and function; cell organelle function; cellular signaling mechanisms; utilization of carbohydrates, lipids, proteins, and nucleic acid; regulation of gene expression.
CVM 6112. Organology. (3 cr; QP–CVM first yr or #; SP–CVM first yr or #; A–F only)
Microscopic and ultrastructural morphology of organ systems (cardiovascular, gastrointestinal, respiratory, urinary, endocrine) in mammalian domestic species.

CVM 6120. Veterinary Neurobiology. (2 cr; QP–CVM first yr or #; SP–CVM first yr or #; A–F only)
Anatomy and physiology of central nervous system (brain, spinal cord) and special senses (eye, ear, olfaction, taste).

CVM 6130. Veterinary Physiology. (4 cr; QP–CVM first yr or #; SP–CVM first yr or #; A–F only)
Fundamental principles of systemic physiology. Relationships between forces and flows in biological systems. Overview of control system theory as it relates to neurohormonal regulation. Survey of major organ systems.

CVM 6132. Reproductive Biology. (3 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Physiology of reproduction, including lactation.

CVM 6134. Principles of Veterinary Nutrition. (1 cr; QP–CVM first yr or #; SP–CVM first yr or #; A–F only)
Introduction to principles of nutrition. Basic applications and food sources for major domestic species.

CVM 6141. Veterinary Pharmacology. (3 cr; QP–CVM first yr or #; SP–CVM first yr or #; A–F only)
General principles of drug action, disposition, and clinical applications in animal patients. Pharmacology and therapeutic uses of drugs affecting the autonomic nervous system, cardiovascular system, respiratory and digestive tracts, and kidneys. Pharmacology and therapeutic uses of anti-allergic and antiinflammatory drugs.

CVM 6142. Veterinary Neuropharmacology. (1 cr; QP–CVM or #; SP–CVM or #; A–F only)
Pharmacology of drugs that have a major effect on the central nervous system: absorption, distribution, metabolism, and excretion; major mechanisms of action; clinical usefulness; side effects; drug interactions.

CVM 6201. Infectious Agents I. (3 cr; QP–CVM first yr or #; SP–CVM first yr or #; A–F only)
Introduction to classification, morphology, reproductive cycle, and epidemiology of infectious microbial agents of veterinary importance; properties of disinfectants; therapeutic uses of chemicals and drugs for sterilization, control, and treatment.

CVM 6202. Infectious Agents II. (7 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)

CVM 6210. Host Defense Mechanisms. (4 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
How the hemolymphatic system, immune system, and inflammatory processes defend an animal against invading organisms.

CVM 6220. Clinical Epidemiology. (2 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Statistical and epidemiological concepts applied to veterinary medicine.

CVM 6221. Risk Factors for Disease. (1 cr; QP–CVM or #; SP–CVM or #)
Non-microbial factors that contribute to the initiation, spread, and persistence of disease in populations of animals. Approaches to investigating outbreaks of diseases in populations.

CVM 6300. Veterinary Pathology. (7 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Reactions of cells and tissues to injury and disease, including reversible and irreversible cell injury, disturbances of circulation, blood coagulation, and alterations of cell growth and multiplication. Pathology of body systems, emphasizing reactions of specific organs.

CVM 6301. Clinical Skills I. (1 cr; QP–CVM first yr or #; SP–CVM first yr or #; S–N only)
Domestic animal behavior. Basic animal handling and management skills. First of five-part series.

CVM 6302. Clinical Skills II. (1 cr; QP–CVM first yr or #; SP–CVM first yr or #; S–N only)
Domestic animal behavior. Basic animal handling and management skills.

CVM 6303. Clinical Skills III. (1 cr; QP–CVM second yr or #; SP–CVM second yr or #; S–N only)
Domestic animal behavior. Basic animal handling and management skills.

CVM 6304. Clinical Skills IV. (1 cr; QP–CVM second yr or #; SP–CVM second yr or #; S–N only)
Domestic animal behavior. Basic animal handling and management skills.

CVM 6305. Clinical Skills V. (1 cr; QP–CVM third yr or #; SP–CVM third yr or #; S–N only)
Domestic animal behavior. Basic animal handling and management skills.

CVM 6310. Applied Diagnostics. (3 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Rationale for and principles of diagnostic and clinical chemistry labs, including test interpretation, demonstration of controls with positive and negative tests, statistical analysis, and sample submission.

CVM 6321. Surgery, Anesthesiology, Critical Care I. (4 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Introduction to principles and techniques for conducting surgical procedures, managing uncomplicated anesthesia, and providing critical care for common situations in large and small animal species.

CVM 6322. Surgery, Anesthesiology, Critical Care II. (4 cr; QP–CVM or #; SP–CVM or #; A–F only)
Common surgical, anesthetic and critical care issues in small and large domestic species.

CVM 6400. Skin and Adnexa. (3 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Normal form and function, histopathologic reaction patterns, wound healing, and clinical disease states of the skin and adnexa (horns, mammary glands) of common domestic species.

CVM 6410. Digestive System. (5 cr; QP–CVM second yr or #; SP–CVM second yr or #; A–F only)
Pathophysiology, diagnostic methods, therapeutic procedures, and preventative/management protocols for common disorders of the oral cavity and digestive tract in major domestic species.
COURSE DESCRIPTIONS

CVM 6420. Locomotor System. (2 cr; QP–DVM third yr or #; SP–DVM third yr or #; A-F only)
Presentation, pathophysiology, diagnostic, and therapeutic/management approaches for common disorders of locomotion.

CVM 6430. Cardiopulmonary System Disorders. (4 cr; QP–DVM or #; SP–DVM or #; A-F only)
Pathophysiology, presentation, diagnostic presentation, therapeutic approaches, and management protocols for common disorders of the cardiovascular and pulmonary systems.

CVM 6440. Disorders of the Special Senses. (2 cr; QP–DVM third yr or #; SP–DVM third yr or #; A-F only)
Pathophysiology, presentation, diagnostic approach, therapeutic approach, and management protocol for common neurologic and ophthalmologic disorders in domestic species.

CVM 6451. Metabolic Disorders I. (3 cr; QP–DVM second yr or #; SP–DVM second yr or #; A-F only)
Toxicites that affect domestic species. Diagnostic, therapeutic, and management approaches.

CVM 6452. Metabolic Disorders II. (3 cr; QP–DVM third yr or #; SP–DVM third yr or #; A-F only)
Pathophysiology, clinical presentation, diagnostic approach, therapeutic options, and management protocols for metabolic and endocrine based disorders of domestic species.

CVM 6460. Disorders of the Urinary System. (2 cr; QP–DVM or #; SP–DVM or #; A-F only)
Pathophysiology, clinical presentation, diagnostic approach, therapeutic options, and management protocol for common disorders of the urinary system in domestic species.

CVM 6470. Multisystemic Diseases. (3 cr; QP–DVM third yr or #; SP–DVM third yr or #; A-F only)
Pathophysiology, clinical presentation, diagnostic approach, therapeutic options, and management protocol of disorders of the immunologic and hematologic systems and of multisystemic infectious diseases.

CVM 6480. Obstetrics/Palpation. (2 cr; QP–6132 or #; SP–6132 or #; A-F only)
Techniques for pregnancy diagnosis and obstetric manipulation in domestic species. Lab.

CVM 6482. Reproductive Diseases of Domestic Animals. (2-5 cr; QP–DVM second yr or #; SP–DVM second yr or #; A-F only)
Physiology and pathology of reproduction, artificial insemination, abortive diseases, postpartum injuries, and breeding management in domestic species.

CVM 6500. Veterinary Public Health. (2 cr [max 6 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
How and why public health and regulatory agencies function; veterinarian’s role in operation of the U.S. food industry; problem solving in veterinary public health, occupational health, and environmental topics.

CVM 6502. Hospital and VDL Necropsy. (2-4 cr [max 40 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Necropsy technique, collection of tissues for laboratory analysis, interpretation of clinicopathologic findings, preparation of reports. Application of principles of basic and clinical sciences to determine cause of individual animal and group health problems. No Saturday duty on this rotation.

CVM 6505. Directed Studies in Veterinary Medicine. (2-4 cr [max 40 cr]; QP–DVM fourth yr or #; SP–DVM fourth yr or #; S-N only)
Students, under the guidance of a faculty member, conduct a special project addressing an issue in veterinary medicine. Project proposals must include hypothesis, objectives, plan of study, and product for evaluation by the faculty adviser and must be approved by CVM’s curriculum committee.

CVM 6515. Precepteeship. (2-12 cr [max 24 cr]; QP–Sr or #; SP–Sr or #; S-N only)
Students spend two weeks/rotation in a practice or other professional setting.

CVM 6525. Rotation at Other Institution. (1-12 cr [max 40 cr]; QP–DVM fourth yr or #; SP–DVM fourth yr or #; S-N only)
Students to spend one-six weeks in an organized program at another degree-granting institution, in an area either not offered at the University or in one that complements experience in a clinical rotation at the University.

CVM 6532. Hematology/Cytology/Microbiology. (2-4 cr [max 40 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Hematology/cytology lab emphasizes microscopic aspects in the dog, cat, cow, horse, sheep, goat, pig, and llama; case-oriented approach to pathophysiologic aspects of disease. Diagnostic/clinical microbiology lab uses clinical diagnostic materials: students cultivate specimens, identify bacteria and fungi, and determine susceptibility; student presentations discuss cases and outline therapy/control.

CVM 6540. Advanced Veterinary Toxicology. (2-8 cr [max 40 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
In-depth examination of toxins. Clinical, diagnostic, mechanistic, and therapeutic aspects of biotoxins, organic, and inorganic toxins that affect livestock, poultry, wildlife, and companion animals or that threaten public health.

CVM 6600. Advanced Small Animal Practice. (1-6 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Training beyond core in small animal and pocket pet medicine, surgery, and theriogenology, in preparation for clinical rotations.

CVM 6602. Small Animal Internal Medicine. (2-8 cr [max 52 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Problem solving: history taking and physical examination; record keeping; ethical issues in the management of referral cases; computerized searches and computerized diagnostic programs. Small group discussions. Students assist clinicians in the management of referral and emergency cases related to the following specialties: gastroenterology, nephrology, urology, oncology, nutrition, neurology, and cardiology.
CVM 6606. Emergency Rotation. (4 cr [max 40 cr]; QP–DVM or #; SP–DVM or #; S-N only)
Students participate in VTH emergency service (4:30-11pm weekdays; 8am-11pm weekends). Hands-on management of small animals with acute trauma and medical emergency problems. Students assist staff emergency clinicians in diagnosis/management of cases. Triage of medical/surgical patients.

CVM 6608. Small Animal Critical Care Medicine. (4 cr [max 40 cr]; QP–DVM or #; SP–DVM third or fourth yr or grad student or #; S-N only)
Critical care medicine. Blend of individual case contact and nursing assistance in the small animal ICU unit. Small group discussions focus on CPR, fluid therapy, respiratory care, and shock. Self assessment program. Students assist in management of critically ill animals.

CVM 6626. Small Animal Orthopedics. (2 cr; SP–DVM third or fourth yr or grad student or #; S-N only)
Small animal orthopedic problems and surgical procedures to correct them.

CVM 6632. Comparative Dermatology. (4 cr [max 40 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6634. Comparative Ophthalmology. (2-4 cr [max 40 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Enter-level ophthalmology. Diagnosis and treatment. Outside exam, readings, review papers, final essay exam.

CVM 6636. Cardiology. (2-4 cr [max 40 cr]; QP–DVM fourth yr or CVM grad student or #; SP–DVM fourth yr or CVM grad student or #; S-N only)
Clinical problem solving through exposure to cases of cardiopulmonary disease, including canine/feline congenital heart disease, acquired valvular/myocardial disease, dirofilariasis, arrhythmias, pulmonary disorders. Hands-on experience in conducting physical examinations, recording electrocardiograms and echocardiograms, and reading thoracic radiographs. Group discussions.

CVM 6640. Clinical Companion Animal Nutrition. (4 cr [max 4 cr]; SP–DVM third or fourth yr or #; S-N only)

CVM 6644. Community Practice. (2-4 cr [max 40 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Clinical experience using preventative health, behavior, and communication skills. Basic small animal husbandry. Client education resources. Importance of teamwork regarding the practice environment, referral cases, and community involvement. Selected pet bird and pocket pet appointments.

CVM 6647. Clinical Oncology. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Receive oncology referrals from local veterinarians. Assist in treatment decisions and therapeutic options for new cases; manage ongoing chemotherapy/radiation therapy patients. Basic principles of oncology and patient care.

CVM 6648. Advanced Oncology Rotation. (4 cr; QP–DVM third or fourth yr or grad student or #; SP–DVM third or fourth yr or grad student or #; S-N only)
Hands-on role in the Clinical Oncology Service of the VTH, admitting new cases and participating in diagnostic and staging work-ups. Procedures such as ultrasound-guided aspirations, core biopsies, bone marrow biopsies, lymph node biopsies. Monitoring/treatment of ongoing chemotherapy/radiation therapy patients. Students give short presentations relating to clinical/comparative oncology. Faculty lead discussions relating to cancer biology, immunology, epidemiology, pathology, and chemotherapy/radiation therapy.

CVM 6662. Comparative Anesthesiology. (4 cr [max 4 cr]; QP–DVM third or fourth yr; S-N only)
Pre-anesthetic, anesthetic, and post-anesthetic management of small and large animal species. Students, anesthesiologists, and technicians work as a team to determine proper anesthetic management of cases and monitor anesthetic events. Medical/surgical diagnostic information integrated with patient care plans.

CVM 6663. Small Animal Surgery. (4 cr [max 4 cr]; SP–DVM third or fourth yr or #; S-N only)
Diagnostic/therapeutic management of surgical patients. History taking, physical examination, communication, problem solving, and surgical techniques. Economic issues. Students work as part of a surgical service team with faculty member, resident, and intern.

CVM 6664. Elective Small Animal Surgery. (4 cr [max 20 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Elective surgeries such as ovariohysterectomies, neuters, declaws, and hernia repairs. Teams of three students are responsible for pre-surgical evaluation, anesthesia induction, maintenance, surgical procedure performance, and post-operative care. Students assist at Humane Society. Taught by community veterinary practitioners.

CVM 6666. Special Procedures in Veterinary Radiology. (2 cr; SP–DVM third or fourth yr or grad student or #)
Contrast agents and procedures used to examine various body systems or anatomical areas.

CVM 6668. Comparative Radiology. (4 cr [max 4 cr]; SP–DVM third or fourth yr or #; S-N only)
COURSE DESCRIPTIONS

CVM 6682. Small Animal Theriogenology. (4 cr [max 4 cr]; SP–DVM third or fourth yr or #; S-N only)
Small-animal theriogenology. Clinical techniques, including collection of reproductive histories, physical examinations, collection/interpretation of vaginal cytology specimens in the bitch, measurement/interpretation of serum progesterone concentrations in planning breeding management in the bitch, dystocia management in the bitch and queen, collection and evaluation of canine semen.

CVM 6704. Food Animal Reproduction. (1-3 cr [max 3 cr]; QP–DVM or #; SP–DVM or #; A-F only)
Common diseases affecting reproductive function in dairy, beef, swine, and small ruminants.

CVM 6706. Epidemiology and Biostatistics. (2-8 cr [max 8 cr]; SP–DVM fourth yr or grad student or #; S-N only)

CVM 6709. Advanced Building Design and Herd Evaluation. (2-8 cr [max 8 cr]; QP–DVM third or fourth yr or CVM grad student or #; SP–DVM fourth yr or CVM grad student or #; S-N only)

CVM 6711. Large Animal Internal Medicine. (2-8 cr [max 8 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Medical diseases of horses, cattle, and small ruminants. History taking, clinical diagnosis, and patient management. Assessment of treatment responses. Clinic case material supplemented by computer-based problem-knowledge couplers and case simulations. Small group discussions focus on clinical diagnosis, treatment, and prevention of common medical disorders.

CVM 6714. Large Animal Surgery. (2-4 cr [max 4 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Diagnosis and therapeutic management of lameness and surgical diseases of the large animal species (equine, bovine, small ruminants) in a hospital setting. Students work as part of the surgical service team in a referral setting.

CVM 6716. Large Animal Anesthesia. (4 cr [max 4 cr]; SP–DVM third or fourth yr or #; S-N only)
Anesthesiologists and students work as a team on large animal cases to determine proper anesthetic management and monitor anesthetic events during general anesthesia.

CVM 6721. Neonatology. (1-2 cr; S-N only)
Instruction, emergency duty, and practical application of principles in evaluating and treating sick equine neonates. Seasonal participation in clinically managing hospitalized foals and periodically reviewing past cases.

CVM 6723. Colic Management. (1 cr; SP–DVM first yr; S-N only)
Principles and techniques for evaluating and treating equine colic cases.

CVM 6724. Equine Colic Team. (1 cr; SP–6723, DVM; S-N only)
Clinically managing equine colic cases and periodically reviewing past cases, success rates, and topics in related fields.

CVM 6725. Advanced Colic Team. (1 cr [max 2 cr]; QP–CAPS 5356, DVM or #; S–6724, DVM or #; S-N only)
Clinically managing cases and periodically reviewing past cases, success rates, and topics in related fields. Students act as team leaders during clinical management and assist in lab exercises for 6723.

CVM 6727. Equine Palpation. (1 cr; QP–DVM or #; SP–DVM or #; A-F only)
Hands-on clinical experience in evaluation of equine reproductive status and reproductive disorders.

CVM 6728. Equine Reproductive Diseases. (1 cr; QP–DVM or #; SP–DVM or #; A-F only)
Reproduction patterns, breeding practices, management, artificial insemination, economics of reproductive performance, and infertility in horses.

CVM 6730. Advanced Equine Practice. (6-8 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; A-F only)
Intensive course on equine medicine, surgery, and theriogenology content and skills beyond core necessary for a student interested in entering a predominately equine practice or participating in most senior equine clinical rotations.

CVM 6734. Equine Surgery. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Two-week clinical rotation during which students participate in the examination, diagnosis, and treatment of horses with lameness or with surgically manageable diseases.

CVM 6736. Equine Lameness. (2-4 cr [max 16 cr]; QP–DVM fourth yr or #; SP–DVM fourth yr or #; S-N only)
Two week clinical rotation involving study of lameness and orthopedic diseases in the horse. Clinical lameness cases. Hands-on opportunity to diagnose and treat lame horses. Cases may be supplemented with discussions of videos of lame horses, examination of radiographs and other imaging tools, and discussion of laboratory lameness.

CVM 6738. Equine Podiatry. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Two-week didactic and laboratory course. Concepts of equine podiatry. Anatomy and physiology of the foot and hoof. In-depth seminars on diseases of the hoof and foot. Discussion of actual cases. Laboratories introduce basic techniques and methods of treatment for hoof and foot injuries.

CVM 6747. Equine Theriogenology Introduction. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Basic techniques in equine reproduction: handling of stallions and mares, teasing for estrus detection, rectal palpation and ultrasound examination of the reproductive tract, breeding management, hormone treatments, vaginal examination, uterine culture, cytology and biopsy, semen collection and evaluation, intrauterine therapy, and artificial insemination. Hands-on experience with semen cryopreservation, embryo transfer, and reproductive surgical procedures.
CVM 6748. Advanced Equine Theriogenology. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; A-F only)
Advanced techniques for evaluation, management, and treatment in equine reproductive programs.

CVM 6750. Equine Sports and Preventive Medicine. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Broad exposure to the equine industry, emphasizing various sports-performance activities and role of the veterinarian. Field trips and guest lectures provide insight into thoroughbred racing and show-horse, English, and Western pleasure-horse activities. Training methods, physiologic adaptations to exercise, diseases, rehabilitation techniques, rules/regulations relating to drug usage, and development and institution of preventative-medicine programs. Treadmill evaluation of gait, hoof balance, upper airway function. Imaging techniques for evaluation of poor performance.

CVM 6790. Advanced Small Ruminant Practice. (1 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; A-F only)
Advanced training beyond core in practice of small ruminants. Preparation for related senior rotations and entry-level practice.

CVM 6792. Small Ruminant Health and Production Rotation. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Sheep, goat, llama, and farmed-deer production, medicine, and health management. Orientation to production systems. System-based review of diseases. Seasonal nutrition and health management, purchasing/introducing new stock, facility requirements/maintenance, husbandry, diagnostic aids for disease(s), record keeping, zoosnosis, and necropsy of stock. Farm visits to evaluate health/productivity. Hands-on experience in reproductive management. Breeding-soundness exams, body condition scoring, vasectomy, ultrasound pregnancy diagnosis, castration, tail docking, disbudding, dehorning, vaccination/injection techniques, parasite control, restraint/handling, venipuncture, foot trimming, tuberculin testing. Round up seminars at which participants present their approach to specific production-limiting flock/herd problems.

CVM 6800. Bovine Palpation. (1 cr; QP–DVM or #; SP–DVM or #; A-F only)
Practice in diagnostic evaluation of bovine reproductive tract.

CVM 6802. Advanced Bovine Practice. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6804. Bovine Surgery. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6811. Dairy Theriogenology Palpation. (4 cr; QP–DVM third or fourth yr or #; SP–CAPS 5551, DVM third or fourth yr or #; S-N only)
Palpating the reproductive tract of the cow per rectum. On-farm reproductive record systems. Evaluating dairy herd reproductive performance through DHI reports. Dairy Comp 305 and DairyCHAMP reports. Farm visits, Case discussions, laboratories, student presentations.

CVM 6812. Dairy Theriogenology Management. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6814. Mastitis, Milking Machines, and Milk Quality. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6815. Ruminant Nutrition. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)
Nutrient requirements of ruminants, nutrient content of feed stuffs (primarily forages), energy utilization, protein/non-protein nitrogen utilization, nutritional disorders, formulation of adequate rations, techniques for analyzing rations, grazing.

CVM 6816. Applied Dairy Nutrition. (4 cr; QP–AnSci 5403 or equiv), DVM third or fourth yr or #; SP–AnSci 5403 or equiv), DVM third or fourth yr or #; S-N only)
Providing nutritional advice, counseling, or assessment to a dairy farm. Techniques and principles of nutrition. Problem-solving from field cases. Ration-formulation programs. "Live" case studies and herd visits. Written/oral report to client and class.

CVM 6818. Dairy Disease Control, Parasitology, and Youngstock Management. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6820. Dairy Record Analysis, Epidemiology, and Economics. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only)

CVM 6840. Swine Core. (2 cr; QP–DVM or #; SP–DVM or #)
Swine medicine, production, and health management.

CVM 6841. Advanced Swine Practice. (1-2 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #)
Six-week course on aspects of swine practice beyond DVM core.
CVM 6842. Swine Disease Diagnosis, Therapy, and Prevention. (4 cr [max 8 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Major diseases and high-health technologies. Field trips of high- and low-health farms and an abattoir for slaughter check. Problem solving and discussion of on-farm disease cases. In-clinic diagnostic techniques.

CVM 6844. Swine Production Systems. (4 cr [max 8 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Systems of commercial swine production. Information management systems; building/equipment designs; health, genetics, and nutritional systems; marketing alternatives. Influence of production systems on biological and financial endpoints. Lectures, laboratories, and special projects (individual and group).

CVM 6846. Swine Nutrition. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Nutrition and feeding management of pigs. Nutrient requirements, feeds and feed delivery, and feeding management. Computer laboratories. Farm visits.

CVM 6848. Swine Economics, Financial Management, and Marketing. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Economic theories, accounting practices, and marketing issues as they relate to the pork production. Case studies. Financial-analysis techniques.

CVM 6850. Swine Records. (2-4 cr [max 8 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) How to interpret performance measures, monitor productivity, capture data, and generate reports in managing production in the swine industry. Using records to troubleshoot problems and manage production.

CVM 6852. Swine Virology. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Lab techniques for diagnostic virology, serology, and immunology. Research techniques for use of fluorescent antibodies, determination of classes of immunoglobulins, and immunostimulation of lymphocytes.

CVM 6860. Avian Core. (2-4 cr; QP–DVM or #; SP–DVM or #; A-F only) Avian nutrition, physiology, anatomy, and disease.

CVM 6862. Pet Bird Medicine. (1-2 cr; QP–DVM or #; SP–DVM or #; S-N only) Pet bird diseases, management, and care.

CVM 6864. Poultry Health Rotation. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Records and performance analysis, evaluation of research data; disease prevention; diagnosis of poultry diseases; troubleshooting and disease treatment; processing, inspection, and food safety. Lecture, necropsy, field visits, laboratory diagnosis, serum profiling, and discussion of cases.

CVM 6931. Diseases of Zoo Animals and Exotic Pets. (1 cr; QP–DVM or grad student or #; SP–DVM or grad student or #; S-N only) Diseases of and management procedures for zoo animals and exotic pets. Restraint procedures, medication, diagnosis.

CVM 6932. Advanced Zoo Animal Medicine. (1 cr; QP–6931, DVM third or fourth yr or #; SP–6931, DVM third or fourth yr or #; S-N only) Adapting existing veterinary techniques and principles to zoo animal medicine. Animal management and preventive medicine programs.

CVM 6934. Zoo, Wildlife, Raptor. (4 cr; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; S-N only) Disease prevention and husbandry third or fourth yr. Treatment of injured, orphaned, diseased wild animals, including avian, mammalian, and reptilian species. Clinical activity dealing with companion birds. Techniques of restraint, anesthesia, and collection of diagnostic samples for various raptors.


Clinical and Population Sciences (CAPS)

CAPS 7500. Advanced Public Health. (2 cr [max 6 cr]; QP–Grad student or #; SP–Grad student or #) Provides practical experience of how and why public health and regulatory agencies function and the role veterinarians play in U.S. food industry; problem solving in veterinary public health, occupational health, and environmental topics.

CAPS 7505. Directed Studies in Large Animal Medicine. (2-4 cr [max 40 cr]; QP–; ∆; SP–; ∆; S-N only) Students, under the guidance of a faculty member, conduct a special project addressing an issue in veterinary medicine. Project proposals must be approved by CVM’s curriculum committee.

CAPS 7706. Advanced Epidemiology. (2-8 cr [max 16 cr]; QP–; #; SP–; #; S-N only) Applied and practical approach to describing data and using common statistical testing techniques. Strengths and limitations of statistical methods used in veterinary medicine and epidemiology. Students design a research program within given constraints of funding, time, and facilities and prepare a research proposal suitable for submission for competitive funding.

CAPS 7708. Advanced Analytic Techniques. (2-8 cr [max 8 cr]; SP–CVM fourth yr or grad student or #; A-F only) Principles and practices of developing and using computer systems for processing, analyzing, and interpreting various categories of animal health data. Acquiring resources necessary to undertake a research program. Developing a critical approach to reading veterinary medical literature.
CAPS 7709. Advanced Building Design and Herd Evaluation. (2-8 cr [max 16 cr]; QP–#; SP–#; S-N only)
Two week course in design of animal housing systems to promote animal well-being, health, and productivity. Evaluation of operating production units to identify and correct environmental deficiencies that contribute to production losses. Natural and mechanical ventilation systems, including their design, operation, and maintenance. Ventilation and building placement as related to clinical epidemiology of on-farm/off-farm animal flow pattern. Classroom presentations and on-farm evaluations are performed by all participants. Course emphasizes bovine and porcine species. Equine, ovine, caprine, or llama discussions may be held (depending on class preference, which must be pre-arranged). Offered once yearly. Restricted to 15 participants.

CAPS 7711. Advanced Large Animal Medicine. (2-8 cr [max 8 cr]; SP–#; S-N only)
Provides exposure to medical diseases of horses, cattle, and small ruminants. History taking, clinical diagnosis, and patient management. Assessment of treatment responses in hospitalized patients. Clinic case material is supplemented by computer-based problem-knowledge couplers and case simulations. Small group discussions focus on clinical diagnosis, treatment, and prevention of common medical disorders.

CAPS 7712. Large Animal Medicine. (4 cr; SP–Grad student or #; A-F only)
Provides exposure to medical diseases of horses, cattle, and small ruminants. History taking, clinical diagnosis, and patient management. Assessment of treatment responses in hospitalized patients. Clinic case material is supplemented by computer-based problem-knowledge couplers and case simulations. Small group discussions focus on clinical diagnosis, treatment, and prevention of common medical disorders.

CAPS 7713. Large Animal Medicine. (4 cr; SP–Grad student or #)
Provides exposure to medical diseases of horses, cattle, and small ruminants. History taking, clinical diagnosis, and patient management. Assessment of treatment responses in hospitalized patients. Clinic case material is supplemented by computer-based problem-knowledge couplers and case simulations. Small group discussions focus on clinical diagnosis, treatment, and prevention of common medical disorders.

CAPS 7714. Advanced Large Animal Surgery. (2-8 cr [max 8 cr]; SP–#; S-N only)
Provides exposure to the diagnostic and therapeutic management of lameness and surgical diseases of the large animal species (equine, bovine, small ruminants) in a hospital setting. Students work as part of a team consisting of a senior large animal surgeon, a surgical resident, an intern, and 2-6 senior students. Cases range from the routine to those requiring intensive management or the advanced diagnostic and therapeutic techniques available in a referral setting. Caseloads vary throughout the year.

CAPS 7736. Advanced Equine Lameness. (2-8 cr [max 8 cr]; SP–CVM fourth yr or grad student or #; A-F only)
Two-week course involving the study of lameness in horses. Examines clinical lameness cases. Hands-on diagnosis and treatment. Discussions of videos of lame horses, examination of radiographs and other imaging tools, and discussion theory of diagnosis/treatment of laboratory lameness. Hospitalized cases are attended before morning rounds.

CAPS 7738. Advanced Equine Podiatry. (2-8 cr; SP–CVM third or fourth yr or grad student or #; A-F only)
Two-week didactic and laboratory course. Concepts of equine podiatry. Anatomy and physiology of the hoof and foot. Seminars on diseases of the hoof and foot, including discussion of actual cases. Labs introduce basic techniques and methods of treatment for hoof and foot injuries.

CAPS 7750. Advanced Equine Sports and Preventive Medicine. (2-8 cr [max 8 cr]; SP–CVM third or fourth yr or grad student or #; A-F only)
Broad exposure to the equine industry. Emphasizes various sports performance activities and the role of the veterinarian. Field trips and guest lectures by trainers and veterinarians regarding thoroughbred racing and show horse/English/Western pleasure horse activities. Other sessions focus on training methods, physiologic adaptations to exercise, diseases, rehabilitation techniques, rules and regulations relating to drug usage, and development/institution of preventative medicine programs. Labs include treadmill evaluation of gait, hoof balance, and upper airway function, and imaging techniques for evaluation of poor performance.

CAPS 7792. Advanced Small Ruminant Medicine. (4 cr)
Sheep, goat, llama, and farmed-deer production; medicine; health management. Orientation to production systems. System-based review of diseases. Seasonal nutrition/health management, purchasing/introducing new stock, facility requirements/maintenance, husbandry, diagnostic aids for disease, record keeping, zoonosis, necropsy of stock. Farm visits to evaluate health/productivity. Hands-on reproductive management. Breeding-soundness exams, body condition scoring, vasectomy, ultrasound, castration, tail docking, disbudding, dehorning, vaccination/injection, parasite control, restraint/handling, venipuncture, foot trimming, tuberculin testing. Round up seminars at which participants present their approach to specific production-limiting flock/herd problems.

CAPS 7801. Large Animal Internal Medicine I. (3 cr; QP–DVM or grad student or #; SP–DVM or grad student or #; A-F only)
Pathophysiology, clinical manifestations, and therapeutic regimes for major organ systems of main large animal species.

CAPS 7802. Large Animal Internal Medicine II. (3 cr; QP–7801, DVM or grad student or #; SP–7801, DVM or grad student or #)
Pathophysiology, clinical manifestations, and therapeutic regimes used for major organ systems of main large animal species.
COURSE DESCRIPTIONS

CAPS 7815. Advanced Ruminant Nutrition. (4 cr [max 16 cr]; QP–CVM third or fourth yr or #; SP–CVM third or fourth yr or #; A-F only)
Nutrient requirements of ruminants, nutrient content of feed stuffs (primarily forages), energy utilization, protein and non-protein nitrogen utilization, nutrition disorders, formulation of adequate rations, techniques for analyzing rations, and grazing.

CAPS 7816. Advanced Applied Dairy Nutrition. (4 cr [max 16 cr]; QP–CVM third or fourth yr or #; SP–CVM third or fourth yr or #; A-F only)
Providing counseling or assessment to a dairy farm on its nutrition program. Discussions of techniques and scientific principles. Problem solving experiences derived from field cases. Students practice using ration formulation programs. “Live” case studies and herd visits will be made by each student including a written and oral report to the client and the class. The ruminant rotation or its equivalent (AnSci 5-403) is required to taking this rotation.

CAPS 7818. Advanced Dairy Disease. (4 cr [max 16 cr]; QP–CVM third or fourth yr or #; SP–CVM third or fourth yr or #; A-F only)
Infectious diseases and parasites that limit dairy calf performance. Management practices such as feeding, housing, and ventilation for both calves and replacement heifers. Preventive medicine practices such as colostral management, vaccination, deworming, and feed additives. Surgical procedures such as castration, dehorning, and dewclaw removal.

CAPS 7820. Advanced Dairy Records. (4 cr [max 8 cr]; QP–CVM third or fourth yr or #; SP–CVM third or fourth yr or #; A-F only)
Evaluation of a dairy herd, using biological and economic records. Prepares students for consulting, identifying causes of problems and proposing solutions. Records analysis (computer and hand records). Economic-basis dairying and financial techniques for evaluating producer decisions and veterinary recommendations. Course includes computer labs and field trips.

CAPS 7852. Swine Virology. (4 cr [max 16 cr]; QP–CVM third or fourth yr or #; SP–CVM third or fourth yr or #; A-F only)
Lab techniques for diagnostic virology, serology, and immunology. Research techniques for use of fluorescent antibodies, determination of classes of immunoglobulins, and immunostimulation of lymphocytes.

SACS 7638. Residency in Small Animal Cardiology. (2-8 cr [max 20 cr]; QP–CVM grad student or #; SP–CVM grad student or #; A-F only)
Clinical evaluation and management of cardiopulmonary disease. Students perform physical examinations, electrocardiograms, and echocardiograms; interpret radiographs; and participate in case discussions.

SACS 7648. Companion Animal Clinical Oncology. (2-8 cr [max 8 cr]; QP–CVM grad student or #; SP–CVM grad student or #; A-F only)
Students participate in admitting new cases and in diagnosis and staging work-ups; perform aspirations and core biopsies, bone marrow biopsies, and lymph node biopsies; help monitor/treat patients; and make presentations on issues in clinical/comparative oncology. Faculty lead discussions relating to cancer biology, immunology, epidemiology, pathology, and chemotherapy/radiation therapy.

SACS 7705. Independent Study in Veterinary Medicine. (2 cr; SP–DVM or #)
Arranged independent study in a clinical area of veterinary medicine.

SACS 7710. Clinician’s Analysis of Urinalysis. (2 cr; QP–DVM third or fourth yr or DVM grad student or #; SP–DVM third or fourth yr or DVM grad student or #; A-F only)
Interpreting abnormalities detected by routine urinalysis. Key concepts illustrated with clinical case material.

SACS 7715. Independent Research in Veterinary Anesthesiology. (1-6 cr; SP–Biology major or prevet or veterograd; A-F only)
Controlled study. Prospective/retrospective models of evaluation defined, critiqued, and used for experimental design and data collection. Analysis of data collection to validate research methods.

SACS 7720. Small Animal Orthopedic Radiology. (2 cr)
Roentgen signs of common bone diseases of small animals.

SACS 7722. Large Animal Orthopedic Radiology. (1-2 cr)
Roentgen signs of common bone diseases of large animals. Emphasizes the horse.

SACS 7730. Companion Animal Oncology. (2 cr; SP–DVM degree or #; S-N only)
Principles of veterinary oncology reviewed. Biologic behaviors, treatments, and prognosis of neoplastic disorders.

SACS 7732. Comparative Clinical Veterinary Dermatologic Pathology. (1 cr; SP–Grad; A-F only)
Microscopic pathology of basic dermatologic reactions and variable disease states.

SACS 7740. Residency in Veterinary Dermatology. (1-2 cr; SP–Grad; A-F only)
Rotations in veterinary dermatology clinics. Review of dermatopathology slides.

SACS 7748. Companion Animal Oncology. (4 cr)
Biologic behavior, treatment, and prognosis of various neoplastic disorders.

SACS 7770. Small Animal Roentgenology. (2-4 cr [max 4 cr]; SP–DVM third or fourth yr or grad student or #; A-F only)
Roentgen signs of bone diseases of small animals.

Small Animal Clinical Sciences (SACS)

SACS 7505. Directed Studies in Small Animal Medicine. (2-6 cr [max 16 cr]; QP–CVM grad student or #; SP–CVM grad student or #; A-F only)
Students conduct a special project addressing a specific issue in veterinary medicine under the guidance of a faculty member.
Veterinary Diagnostic Medicine (VDM)

VDM 7505. Directed Studies in Veterinary Diagnostic Medicine. (2-8 cr [max 8 cr]; SP–CVM grad student or DVM fourth yr or Δ; A-F only)
Special project under guidance of faculty member.

VDM 7950. Problems in Diagnostic Pathology. (3 cr; A-F only)
Laboratory techniques in diagnostic virology and serology.

VDM 7952. Scientific Writing and Speaking. (2 cr; A-F only)

VDM 7954. Problems in Diagnostic Virology. (1-4 cr; A-F only)
Laboratory techniques in veterinary diagnostic pathology.

VDM 7956. Seminar: Diagnostic Medicine. (1 cr; SP–Grad; A-F only)
Presentation/discussion of morphologic and etiologic features of diseases.

Veterinary Pathobiology (VPB)

VPB 2022. General Microbiology. (2 cr; SP–3 cr biol)
Fundamental principles of microbiology; bacterial metabolism, growth, and genetics; biology of viruses and fungi; control of microorganisms; host-microbe interactions; microorganisms and disease; applied microbiology. Intended primarily for non-microbiology majors.

VPB 2032. General Microbiology with Laboratory. (4 cr; SP–$MicB 2032, $Biol 2032; 3 cr biol)
Fundamental principals of microbiology; bacterial metabolism; growth and genetics; biology of viruses and fungi; control of microorganisms; host-microbe interactions; microorganisms and disease; applied microbiology. Intended primarily for non-microbiology majors.

VPB 5601. Veterinary Parasitology. (4 cr)
Helminth parasites/parasitic diseases of animals. Emphasizes principles of control.

VPB 7505. Directed Studies in Veterinary Pathobiology. (2-8 cr [max 8 cr]; SP–CVM grad student or Δ; A-F only)
Special project under guidance of faculty member.

VPB 7882. Pet Bird Medicine. (1-2 cr; QP–DVM or #; SP–DVM or #; A-F only)
Pet bird diseases: management and care.

VPB 7884. Poultry Health Rotations. (4 cr [max 16 cr]; QP–DVM third or fourth yr or #; SP–DVM third or fourth yr or #; A-F only)
Records and performance analysis; evaluation of research data; disease prevention, diagnosis, troubleshooting, and treatment; food processing, inspection, and safety. Lecture, necropsy, field visits, laboratory diagnosis, serum profiling, and discussion of cases.

VPB 7886. Avian Physiology. (2 cr; QP–5 cr systemic physiology or equiv or #; SP–5 cr systemic physiology or equiv or #)
Wild-bird and domestic-bird physiology.

Veterinary Medicine, Graduate (VMed)

VMed 7706. Advanced Epidemiology and Biostatistics. (2 cr; SP–Grad student or IV track; A-F only)
Describing data and using statistical testing techniques. Strengths and limitations of statistical methodologies.

VMed 7709. Advanced Building Design and Environment. (2-4 cr; SP–Grad student or IV track)

VMed 7842. Advanced Swine Diseases. (2 cr; SP–Grad)
Lectures and discussion on advances in diseases of swine.

VMed 7844. Advanced Swine Production Systems. (2 cr; SP–Grad student or IV track)
Swine production systems. Design, construction, staffing, pig flow, and financial aspects.

VMed 7846. Advanced Swine Nutrition. (2 cr; SP–Grad student or IV track; A-F only)
Nutritional principles and concepts in swine nutrition.

VMed 7848. Advanced Swine Economics, Financial Management, and Marketing. (2 cr; SP–Grad student or IV track; A-F only)
Economics theories, accounting practices, and marketing issues. Case studies to develop farm plans. Financial analysis techniques for farm production and expansion plans.

VMed 7850. Advanced Swine Records. (2 cr; SP–Grad student or IV track)
How to interpret data from computer health management program.
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Kathleen McLaughlin, B.A., director of development and alumni relations (410 Veterinary Teaching Hospitals; 624-5315)  
Mary A. Huml, chief of staff (445 Veterinary Teaching Hospitals; 625-9283)  
Janice L. Swanson, assistant to the director of veterinary outreach programs (414 Veterinary Teaching Hospitals; 624-2268)  
Bonnie A. Watkins, director of public relations, M.B.A. (426 Veterinary Teaching Hospitals; 624-2752)

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