

UNIVERSITY OF MINNESOTA

COLLEGE OF VETERINARY MEDICINE



DVM
Doctor of
Veterinary
Medicine

**Course
catalog**
2023

First year required courses

Fall semester

Credits

CVM 6000 Gopher Orientation and Leadership Experience (GOALE)	2
Introduces skills necessary for success in the curriculum and profession, and includes peer and faculty mentoring	
CVM 6008 Integrated Physiology	6.5
Fundamental principles of animal metabolism and physiology, including the function of cells, skeletal muscle, heart and vascular system, gastrointestinal tract, and nervous system	
CVM 6900 Microscopic Anatomy I	2
Introduces microscopic and ultrastructural morphology of cells, tissues, organs, and organ systems	
CVM 6903 Anatomy I	4
Gross and developmental anatomy of domesticated mammals, includes a carnivore dissection (using the dog as a model with comparative features of the cat)	
CVM 6904 Clinical Skills I	2
Basics of animal handling and restraint, foundational clinical skills in large and small animals	
CVM 6905 Professional Development I	1.5
First course in the Professional Development Series. The goal of this course is to help students transition to veterinary school, and later, to the veterinary profession	
CVM 6906 Critical Scientific Reading	1
Major aim of course is to prepare veterinary students to think scientifically, for multiple career pathways, and an increasingly important role for veterinarians in comparative medicine	
CVM 6911 Immunology	2
Introduces immunology, including innate and adaptive immunity and cells and molecules involved in protection against infectious agents and cancers; an overview of antibody-antigen-based testing and immune-mediated disease	
CVM 6914 Preventive Medicine	4
Preventive care of common domestic species; covers behavior, nutrition, vaccinology, parasite control, reproduction control, management of neonates, biosecurity, backyard poultry, and non-traditional pets	

Spring semester

Credits

CVM 6203 Veterinary Leadership	1
The course will build on learning objectives of the GOALE program with emphasis on growth mindset and leadership development	

CVM 6907 Professional Development II	1.5
This course is the second in the PD course series. Students will continue to work within the CBVE framework and the four streams that are at the heart of the course series	
CVM 6908 Anatomy II	3
Gross and developmental anatomy of domesticated mammals; includes an ungulate dissection (focuses on the horse with emphasis on clinically important aspects of ruminant and swine anatomy)	
CVM 6909 Clinical Skills II	1
Basics of animal handling and restraint; foundational clinical skills in large and small animals	
CVM 6910 Physiology II	4
Fundamental principles of systemic physiology through survey of major organ systems, including gastroenterology, urology, and reproductive biology	
CVM 6912 Basic Pathology	2
Reactions of cells and tissues to injury, including retrogressive changes, cell death, pigments, circulatory disturbances, inflammation, and alterations of cell growth	
CVM 6913 Agents of Disease I	4
Virology, bacteriology, and parasitology of common domestic species	
CVM 6936 Microscopic Anatomy II	2
Identification, description, and understanding of basic structure and elements of cells and basic tissues, and the structure and organization of organ systems presented	
CVM 6981 Clinical Correlations I	1
Integrative problem-based discussion of all species	
CVM 6992 Veterinary Genetics and Genomics	1
This course integrates principles of genetics and genomics, with the goals of illustrating how an understanding of these molecular biosciences enables a better understanding of the many mechanisms at play in animal health and disease	
CVM 6939 Non-Traditional Pets	1
Introduction to the care and handling of a variety of small animals including reptiles, amphibians, rodents, rabbits and ferrets, seen by veterinarians in primary care practice. This course provides an overview of gross and radiographic anatomy, major infectious diseases and their management, and normal behavior in domestic environments	

Thrive Through Life	4
This small animal course is a mixture of didactic classroom lectures, laboratory exercises and small group discussions. It will integrate key concepts of nutrition, behavior and dentistry for optimal care of small animals from birth to geriatric care	

Second year required courses

Fall semester

Credits

CVM 6917 Agents of Disease II	5
International diseases and virology, bacteriology, and parasitology of common domestic species	
CVM 6918 Pharmacology I	2
Principles of pharmacokinetics as applied to the use of antimicrobials and other drugs in animal patients; clinical pharmacology of antibacterial, antifungal, and antiparasitic drugs; principles of pharmacodynamics and adverse drug reactions; and pharmacology of drugs affecting the autonomic nervous system and the medically-important target organs it innervates	
CVM 6919 Systemic Pathology	5
Reactions of specific organ systems to injury; applications to diagnosis of specific diseases at gross and microscopic levels	
CVM 6920 Clinical Pathology I	2.5
Hematology and cytology, integration of diagnostic plan, generation of clinical pathology data, statistical concepts, and interpreting results to guide patient management	
CVM 6921 Clinical Skills III	2
Advanced clinical skills in large and small animals, experiential learning at the CVM and external sites	
CVM 6922 Clinical Epidemiology	1.5
Statistical and epidemiological concepts	
CVM 6923 Public Health	2
An epidemiological approach to veterinary public health, covering major zoonoses, animal sentinels, meat and milk inspection, food safety, environment, occupational health and safety, euthanasia and carcass disposal methods, cruelty investigation, and animal welfare issues	
CVM 6924 Small Animal Medicine I	2
Multisystemic infectious diseases and hematological and immunological disorders of dogs and cats	
CVM 6925 Diagnostics Laboratory	2
Hands-on diagnostic laboratory, including sample- handling, parasitology, microbiology, urinalysis, and serologic testing	
CVM 6928 Large Animal Medicine I	2
Multisystemic infectious diseases and hematological and immunological disorders of large animal species	
CVM 6938 Professional Development III	1.5
This course is the third of six in PD course series. Students will continue to work within the CBVE framework and the four domains that are at the heart of the course series	

Spring semester

Credits

CVM 6926 Small Animal Medicine II	5
Common disorders of the gastrointestinal, endocrine, and urinary systems in dogs and cats	
CVM 6927 Small Animal Surgery I	3
Orthopedic disorders, lameness, and abdominal surgery in small animals	
CVM 6929 Large Animal Surgery I	3
Orthopedic disorders, lameness, hoof and foot disorders, and abdominal surgery in large animals	
CVM 6935 Veterinary Imaging I	3
General principles of interpretation of diagnostic radiographs, musculoskeletal and abdominal radiography in large and small animals	
CVM 6937 Pharmacology II	2
Pharmacology of drugs affecting the urinary and digestive systems, pharmacological alleviation of inflammation and pain in animal patients	
CVM 6941 Clinical Skills IV	2
Advanced clinical skills in large and small animals, experiential learning at the CVM and external sites	
CVM 6942 Clinical Pathology II	3
Serum chemistry analysis, diagnostic plan integration, clinical pathology data generation, statistical concepts, and interpreting results to guide patient management	
CVM 6943 Avian core	2
Avian nutrition, physiology, anatomy, and disease	
CVM 6945 Large Animal Medicine II	3
Common disorders of the gastrointestinal, endocrine, and urinary systems in large animal species	
CVM 6971 Dermatology	2
Case-based discussion of common dermatological conditions that affect dogs and cats	
CVM 6982 Clinical Correlations II	1
Integrative problem-based discussion in all species	
CVM 6953 Professional Development IV	1.5
This course is the fourth in the PD course series. Students will be (re-)introduced to the CBVE framework and the four streams that are at the heart of the course series. Entering veterinary school and the veterinary workforce bring new sets of opportunities and challenges	

Third year required courses

Fall semester

Credits

CVM 6944 Small Animal Surgery II and Anesthesia 4.5

Surgery of the urogenital and cardiopulmonary systems in small animal species; clinical principles of anesthesia in small animal and exotic species, including anesthetic protocols and monitoring, anesthetic equipment, and pain control

CVM 6946 Large Animal Surgery II 1.5

Surgery of the urogenital and respiratory systems in large animal species; principles of field anesthesia and analgesia

CVM 6947 Veterinary Imaging II 2

Interpretation of diagnostic radiographs of the thorax, spine, and urogenital structures

CVM 6949 Comparative Theriogenology 3

Diagnosis, treatment, control, and prevention of common reproductive disorders; breeding soundness examination; and reproduction management in large and small animals

CVM 6952 Clinical Skills V 1

Advanced clinical skills in large and small animals; hospital clerk duty

CVM 6970 Professional Development V 2

Advanced communications, economics, marketing, personnel management, accounting, and client relations in veterinary practice management

CVM 6954 Small Animal Medicine III 5

Common disorders of the cardiopulmonary and neurological systems; basic principles of oncology in small animal species

CVM 6969 Large Animal Medicine III 4.5

Common medical disorders of the large animal neurological, muscular, cardiovascular, and respiratory systems; core medical problems of swine

CVM 6974 Veterinary Toxicology 2

Mechanisms by which common toxicants encountered in residential, natural, and agricultural or industrial settings exert their deleterious effects in animals; approaches to treating common toxicoses from toxicant exposure

Spring semester

Credits

CVM 6959 Orientation to Clinics 2.5

Medical records, infection control, and isolation procedures; communications review; hospital policies and procedures; radiation safety; rotation assessment; and state and national licensure

CVM 6743 Professional Development VI 1.5

The content for this series of courses (6 total that span 3 years) Will assist veterinary students in learning basic knowledge and concepts important for veterinary professional development (PD)

CVM 6972 Ophthalmology 1.5

Common procedures for evaluation, diagnosis, and treatment of eye disorders in domestic species

Students take three required courses and selectives (elective classes for some students but required for others in a track). All students register for at least 12 credits but, depending on career goals and interests, some students take 20 or more credits, which tailors their experience, regardless of track.



Third year selective courses

Spring selective courses

Credits

CVM 6956 Small Animal Selective I 3

Track-specific knowledge and skills for students intending to work with dogs and cats

CVM 6957 Small Animal Selective II 3

Track-specific knowledge and skills for students intending to work exclusively with dogs and cats

CVM 6958 Small Animal Problems 2

Problem-oriented approach to canine and feline cases

CVM 6960 Equine Selective I 2.5

Track-specific knowledge and skills for students intending to work with horses

CVM 6961 Equine Selective II 3

Track-specific knowledge and skills for students intending to work exclusively with horses

CVM 6973 Small Animal Behavior 1

Introduction to abnormal and undesired animal behavior, diagnostic procedures, and behavioral and pharmacological modifications



CVM 6962 Equine Problems 2

Problem-oriented approach to equine cases

CVM 6968 Obstetrics Lab .5

practical laboratory in which students practice obstetric procedures, including a full fetotomy, that were described in lecture during the fall semester Comparative Theriogenology course

CVM 6963 Food and Fiber I: Food and Fiber Practice 4

Introduces food animal practice at any level, including mixed practice with backyard producers and dedicated species practitioners; covers principles common to all food animal species; exposes students to common house and production systems, approaches to treatment, and management of common diseases, as well as field anesthesia and surgery

CVM 6964 Food and Fiber II: Production Medicine 4.5

Detailed understanding of general principles of swine and ruminant health and production, analytical skills applied to production records and economics, and therapeutic and preventative decision-making for prevalent clinical diseases and syndromes in US swine and ruminant herds

CVM 6966 Applied Small Ruminant and Camelid 1.5

Builds upon previously taught core material focusing on diagnosing, treating, and preventing common problems seen in routine veterinary practice with sheep, goats, and camelids

CVM 6975 Mixed Animal Problems 2

Problem-oriented approach to small animal, large animal, and laboratory animal cases

CVM 6800 Bovine Palpation Lab .5

Practice in diagnostic evaluation of bovine reproductive tract.

Electives, years 1-3

CVM 6001 Global and Intercultural Opportunities (Every fall, Years 1-3):

Focuses on the mechanics and logistics of learning where to find, how to evaluate, how to fund, and how to plan for a global and/or intercultural opportunity relevant for veterinary professionals

CVM 6005 Better Together: Preparing for Collaborative Practice (Year 1):

Offers students an opportunity to engage with peers, as well as health professionals and experts, to learn how interprofessional collaboration impacts real world health outcomes

CVM 6007 Global Perspectives and Intercultural Development (Every spring, Years 1-3):

This two-course series supports the goal of many students to travel abroad during veterinary school from logistical, personal, and cultural perspectives by focusing on personal intercultural development while exploring the cultural and global perspectives of animals and veterinary medicine

CVM 6009 Introduction to Teaching Skills (Year 2-3): Odd years only:

Online and face-to-face course sessions and experiential learning; introduces best practices to enhance efficacy as an instructor in a veterinary curriculum; covers learning theory, building a course session, teaching presentations, and individual student assessment

CVM 6222 Advanced Clinical Epidemiology (Year 2):

Apply epidemiologic principles to control of infectious diseases in animal populations, review scientific literature, discuss the global impacts of infectious diseases, and learn about diagnostic tests, disease outbreak investigation, and the economics of disease control and surveillance

CVM 6493 Medical Terminology (Year 1):

Online System approach to the study of Medical Terminology. Essential word parts and terms will be presented in the context of basic anatomy, physiology, and disease conditions.

CVM 6497 Avian/Exotic Medicine and Surgery (Year 3):

Bacterial, viral, fungal, and parasitic diseases of companion birds, including caged birds, raptors, racing pigeons, and waterfowl; behavioral components of common problems; capture and restraint, radiology, and anesthesia; and overview of problems managed surgically

CVM 6512 Zoo and Wildlife Rounds (Years 1-3):

Zoo, wildlife, and exotic pet conservation

CVM 6520 Adv Small Animal Therio and Pediatrics (Year 3):

Online course consisting of individualized study and directed review of advanced topics in small animal theriogenology.

CVM 6560 Public Health Issues and Veterinary Medicine Opportunities (Years 1 and 2):

Introduction to public health practice and veterinary medicine; day-to-day work of public health professionals; public health principles in context; veterinary medicine related to public health research/practice; and interaction with advocacy groups, media, lobbyists, legislators, regulatory officials, industry leaders, and public health professionals

CVM 6721 Neonatology (Year 1):

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 6727 Equine Palpation Lab (Year 3):

Hands-on clinical experiences in equine reproductive status and disorders

CVM 6800 Bovine Palpation Lab (Year 3):

Hands-on clinical experiences in bovine reproductive status and disorders

CVM 6865 Introduction to Swine Production Medicine (Year 1):

Contemporary approaches to swine practice, including swine production, disease diagnosis, control, treatment, and eradication

CVM 6932 Intro to government, Industry and Wildlife Veterinary Careers (1 Year):

Introductory course for first year veterinary students. Overview of veterinary career opportunities and activities related to non-domestic species including zoo, rehabilitation, wildlife and conservation medicine as well as careers in government and private industry.

CVM 6984 Introduction to Lab Animal Medicine (Year 3):

Introduces varying ethical perspectives on the use, role, and mechanism of regulatory oversight of animal research; introduces basic concepts related to the care and husbandry of laboratory animal species and the understanding of the unique anatomic, behavioral, and physiological aspects of common laboratory animal species; and identifies common clinical diseases of laboratory animals, including pathogenesis, diagnosis, and treatment

CVM 6996 Journey to the DVM (Years 1-4):

Review course, available to all students to help them continually re-test themselves as a way to help increase retention and prepare them for boards. It is set up as a game. Students start as "Backpackers" and work their way up through the ranks by completing ethics case write ups, completing on-line clinical decision-making cases, answering NAVLE-type questions, and writing illness scripts for common disorders in all species

CVM 6966 Applied Small Ruminant and Camelid:

Builds upon previously taught core material focusing on diagnosing, treating, and preventing common problems seen in routine veterinary practice with sheep, goats, and camelids

CVM 6612 Teaching Puppy Class (Years 2 & 3)

Concepts in puppy socialization, management and training as well as teaching key concepts about teaching and interacting with puppy owners in the setting of the UMN puppy classes. Students have the opportunity to practice and improve teaching skills, practice puppy-handling skills, and participate in teaching puppy classes

Fourth year overview

Students select one of five tracks:



• **Small animal:** companion animals (mostly cats and dogs); students interested in laboratory animals



• **Food animal:** bovine (dairy and beef), swine, small ruminants, poultry, camelids, etc.



• **Research**



• **Equine**



• **Mixed:** a combination of small animal, food animal, and equine courses and rotations; students with interests in exotic and zoo medicine and pathology

Clinical rotations:

All students are required to successfully complete 27 clinical rotations, which are completed in 2-week blocks. The rotations include:

- 22 weeks of required core clinical courses in medicine, surgery, public health, necropsy, clinical labs, anesthesiology, and radiology
- 3-5 two-week externships or rotations at off-campus institutions
- 4-7 rotations based on track requirements (not required for research track)
- 8-10 elective rotations depending on track selection (or 16 electives for research track)

Students may choose from the following rotations to create their schedules:

• Comparative services

Advanced public health, comparative anesthesiology, advanced anesthesia, exotic animal necropsy, laboratory animal medicine, clinical pathology rotation, necropsy, ophthalmology, public health, comparative radiology, small comparative radiology, and mixed, avian & exotic medicine, intro to imaging

• Equine

Equine dentistry and nutrition, lameness and podiatry, sports medicine, theriogenology, and ambulatory

• Large animal

Large animal medicine, surgery, and lameness

• Food animal

Biosecurity containment for food animals; bovine surgery; cow-calf herd production; camelids; bovine reproduction and health; dairy on-farm clinical; advanced dairy production medicine I and II; bovine theriogenology and lameness overview; bovine theriogenology and lameness advanced; fresh doe and goat kid management; food animal disease and diagnostics; food animal surgery and anesthesia; feedlot herd health; miracle of birth; overview of dairy production medicine, poultry medicine clerkship, therapeutics, and prevention; small ruminant health and production; advanced swine health and production; introduction to swine health production; and swine disease diagnostics

• Small animal

Advanced small animal theriogenology and pediatrics, Banfield, cardiology, dermatology, emergency critical care, neurology, nutrition, oncology, primary care, raptor, small animal dentistry, small animal medicine, small animal rehabilitation, small animal surgery, small animal ultrasound, and University of Minnesota (U of M) spay neuter

• Other

Directed studies for diagnostic medicine, large animal, pathobiology, and small animal; externship; and rotation at other institutions

Fourth year clinical rotations

CVM 6010 Urgent Care (UC): Students will learn how to take patient histories, develop problem lists with differential diagnoses, prioritize diagnostic and therapeutic treatment steps, and write readable discharge summaries for the client. Also practice skills such as physical exam, sample collection, radiograph interpretation, lab work analysis, and may perform minor surgeries

CVM 6729 Community-based External Elective Rotation – Mission Animal Hospital: Provide the veterinary student with experience, instruction and supervision managing a general, clinical caseload and engaging in client education in a unique non-profit, community-based setting with a focus on client communication and spectrum of care case management

CVM 6137 Small Animal Clinical Nutrition (Nutr): Participate in clinical nutrition service of VMC, manage nutritional needs of patients, perform nutritional assessments of ICU patients, perform internal and referring nutritional consults, and see outpatient appointments

CVM 6308 Laboratory Animal Medicine (LabAnM): Introduces laboratory animal medicine and provides a strong foundation in the discipline; uses a mix of didactic and hands-on training methods to foster proficiency in the veterinary care of lab animals and apply skills and knowledge gained in previous courses in the veterinary curriculum

CVM 6312 Small Animal Dental Rotation (SDen): Participate in the dental service, managing routine as well as complex dental problems; diagnose dental problems and formulate treatment plans; gain hands-on training in basic periodontal procedures, single/multi-rooted extractions, dental radiographic techniques, instrument/equipment care, and dental charting

CVM 6500 Animal, Public, and Ecosystem Health (PubH): Emphasizes interactions with public health, policy, and regulatory partners to provide a basic understanding of the essential roles veterinarians play in public health, disease control, food safety, and ecosystem health; covers zoonotic diseases, pre- and post-harvest food safety, carcass disposal, disease reporting, therapy-animal use, epidemiologic investigations, infection control, antimicrobial stewardship, animal transportation/movement, and animal welfare; USDA accreditation will be completed

CVM 6501 Advanced Veterinary Public Health (AdvVPH): Food Systems: Systems used to raise livestock and poultry, deliver through markets to slaughter or processing facilities, and deliver to consumers; methods to assess and mitigate risks; emphasizes public health/food safety issues; includes field trips, problem solving, and assignments

CVM 6502 Necropsy (Necr): Perform necropsies, collect tissues for lab analysis, interpret clinicopathologic findings, prepare reports on animals submitted to Veterinary Diagnostic **Laboratory, and apply basic and clinical science to diseases for animals and populations of animals; may participate in history taking;** discuss case findings daily; present case reports at weekly departmental seminar

CVM 6503 Exotic Animal Necropsy (ExAnN): Pathophysiology and clinical manifestations of disease in non-domestic animals

CVM 6515 Externship: Spend two weeks per rotation in a practice or other professional setting

CVM 6516 Externship in Public Health Practice: Directed field experience or clinical rotation/practicum in selected community or public health agencies/institutions

CVM 6520 Small Animal Theriogenology and Pediatrics: Online course consisting of individualized study and directed review of advanced topics in small animal theriogenology and pediatrics

CVM 6521 Avian & Exotic Medicine (AEM): Develop the knowledge and technical skills needed to manage common medical and surgical issues of popular avian and exotic species

CVM 6955 Community Medicine at Animal Humane Society-University Ave (CVB): Students manage their own small animal cases using a community medicine approach. History taking, physical examination, development of creative diagnostic and treatment plans using evidence-based incremental care approaches with the specific household in mind, case management, culturally humble client communications, culturally relevant client education. Students may have an opportunity to observe high volume spay/neuter techniques and primary care surgeries.

CVM 6457 Practice Ready Skills Senior Rotation (PRSR): This rotation is designed to give you hands on practice with various clinical skills using models and Cadavers. We will go over various topics including writing a good go home care discharge, what are the indications for a given procedure, how to prepare for a procedure etc

CVM 6793 Professional Development in Clinical Training (PDCT): This is a 2-week rotation designed to give clinical-year students flexibility in some extra-curricular aspect of their training, with approval from the course coordinator and evidence of completion of an appropriate number of hours of work to meet the credit requirement. This may include advanced training or certification (e.g. in Beef Quality Assurance or Fear Free restraint), completion of a Summer Scholars or other research project, or preparation for the NAVLE.

CVM 6523 Shelter Medicine Rotation at Other Institution: Shelter medicine rotation at another accredited veterinary college

CVM 6525 Rotation at Other Institution: Spend one to six weeks in an organized program at another degree-granting institution, in an area either not offered at the U of M or in one that complements experience in a clinical rotation at the U of M

CVM 6526 Dermatology Rotation at Other Institution: Dermatology core rotation taken at another accredited veterinary college

CVM 6527 Anesthesiology Rotation at Other Institution: Anesthesiology core rotation taken at another accredited veterinary college

CVM 6528 Radiology Rotation at Other Institution: Radiology core rotation taken at another accredited veterinary college

CVM 6529 Equine Medicine Rotation at Other Institution: Equine medicine core rotation taken at another accredited veterinary college

CVM 6531 Biosecurity/Containment for Food Animal (BioSecFA): Understanding biocontainment and biosecurity measures and strategies used in the food animal industry to prevent and contain the spread of disease

CVM 6532 Clinical Pathology Rotation: Intensive rotation in veterinary clinical lab medicine, sample submission, lab test methodology, didactic teaching, small group discussion, case-based/guided self-instruction, and microscopy

CVM 6562 Advanced Anesthesiology and Pain Medicine Clinical Rotation: Provide additional experience in veterinary anesthesiology allowing safe and confident sedation and anesthesia of clinical cases (ASA 1-3) beyond spays and neuters. The primary emphasis will be small companion animal anesthesia/analgesia; other species will be included when possible (schedule and case-load dependent)

CVM 6601 Small Animal Medicine (SAM A): Primary case responsibility for wide range of clinical diseases; history-taking, physical examination, problem definition, and diagnostic/therapeutic plans on assigned cases; cases typically relate to gastroenterology, urology/nephrology, oncology, neurology, immunology, and cardiology; daily rounds

CVM 6602 Small Animal Medicine (SAM B): Problem-solving, clinical, and communication skills; record-keeping and ethical issues in referral cases; methods of knowledge acquisition, including computerized searches and diagnostic programs

CVM 6605 Banfield Clinical Rotation (Banf): Instruction and supervision managing general clinical caseload in a non-referral, non-academic setting

CVM 6606 Emergency Critical Care (ECC): Assist staff clinicians and interns in diagnosis and case management; triage, history-taking, physical exams, clinical problem-solving, and patient management

CVM 6632 Dermatology (Derm): Routine dermatologic problems in companion animal practice; history-taking, clinical diagnosis, patient management, client education; participate in all phases of diagnosis and management of cases; small-group discussions

CVM 6634 Comparative Ophthalmology (Ophth): Entry-level ophthalmology, diagnosis and treatment

CVM 6636 Cardiology (Card): Clinical problem-solving for cases of cardiopulmonary disease, including canine and feline congenital heart disease, acquired valvular/myocardial disease, dirofilariasis, arrhythmias, pulmonary disorders; hands-on experience in conducting physical exams, recording electrocardiograms and echocardiograms, and reading thoracic radiographs

CVM 6644 Primary Care A (PriCareA): manage cases, including developing diagnostic, treatment, and preventive health maintenance plans for each patient, performing routine medical and surgical procedures, and conducting client communication and education.

CVM 6648 Advanced Clinical Oncology (Onc): Case management, self-directed research; receive oncology referrals, work with emergency cases and special procedures, assist in treatment decisions and therapeutic options for new cases, and manage ongoing chemotherapy/radiation therapy patients; emphasizes principles of oncology and patient care

CVM 6649 Primary Care B (PriCareB): Gain further clinical experience in small animal primary care, including primary case responsibility and experience in surgery and dentistry

CVM 6661 Neurology (Neur): Medical and surgical neurology; providing complete neurological service for clients, patients, and hospital

CVM 6662 Comparative Anesthesiology (Anes): Sedating and anesthetizing routine clinical cases; previously taught laboratory protocols and techniques are used in healthy, normal clinical cases and adapted for high-risk cases; emphasizes problem-solving in formulation of anesthetic plans, management of patients under anesthesia, teamwork, and pain management

CVM 6663 Small Animal Surgery (SAS): Diagnostic and therapeutic management of surgical patients; history-taking, physical examination, communication, problem-solving, and surgical techniques; economic issues; work as part of a surgical service team with faculty member, resident, and intern

CVM 6664 University of Minnesota Spay and Neuter (UMSN): Elective surgeries such as ovariohysterectomies, castrations, and declaws for small animals; pre-surgical evaluation, anesthesia induction, and maintenance; surgical procedure and postoperative care of animals

CVM 6665 Small Animal Physical Rehabilitation (SAREhab): Evaluate patients to determine a rehabilitation problem list; establish treatment goals; and apply basic physical modalities, proper passive range of motion, and beginning therapeutic exercises

CVM 6691 Veterinary Acupuncture (AcPunct): Basic veterinary acupuncture theory, point combination, treatment, diagnosis of diseases, and hands-on veterinary acupuncture technique

CVM 6711 Large Animal Medicine (LAM): Medical diseases of horses, cattle, small ruminants, South American camelids, and potbellied pigs; history-taking, clinical diagnosis, patient management; assessment of treatment responses; clinic case material; opportunities to practice common procedures; small group discussions on clinical diagnosis, treatment, and prevention of common medical disorders

CVM 6712 Equine Ambulatory Rotation (EqAmb): Perform farm calls, call-backs, x-ray development, and restocking the van; discuss cases with practitioner as calls are made

CVM 6714 Large Animal Surgery (LAS): General surgery and lameness cases; emphasizes horses; some cattle, small ruminants, and camelids; diagnostic and therapeutic management in hospital setting; cases, rounds, and exercises; work as part of surgical team in cases ranging from routine to those requiring intensive management or advanced diagnostic and therapeutic techniques available in a referral setting

Fourth year clinical rotations continued

CVM 6715 Large Animal Surgery and Lameness (LASxL): General surgery and lameness cases; emphasizes horses; some cattle, small ruminants, and camelids; diagnostic and therapeutic management in hospital setting; cases, rounds, exercises; work as part of surgical management or advanced diagnostic and therapeutic techniques available in a referral setting

CVM 6991 Small Animal Clinical Rotation (SAC)

This rotation is designed to support the students in the Longitudinal Integrated Clinics program by providing a progressive, tailored program that allows individuals to gain competency in small animal clinics through mentoring, feedback and progressive entrustment.

CVM 6733 Equine Dentistry and Nutrition (EdenN): In-depth training and practice in the principles of equine dentistry, participate in the emergency duty rotation for the Large Animal Hospital and Piper Clinic

CVM 6736 Equine Lameness and Podiatry (ELamp): Diagnosis and treatment of equine lameness and hoof disorders; clinical cases, presentations, case studies, labs

CVM 6737 Equine Sports Medicine (ESM): Develop lameness and evaluation skills; diagnostic principles for identifying lameness; medical, surgical, and rehabilitation therapies available to treat lameness; didactic material, labs, and clinical cases

CVM 6747 Equine Theriogenology Introduction (ETHI): Techniques in equine reproduction; handling stallions and mares; testing for estrus; rectal palpation, ultrasound exam of reproductive tract, breeding management, hormone treatments, vaginal examination, uterine culture, cytology and biopsy, semen collection and evaluation, intrauterine therapy, and artificial insemination

CVM 6789 Fresh Dairy Doe and Newborn Goat Kid Management (Doe/Kid): Rotation at goat dairy during fresh doe and goat kid season; recognize, diagnose, and treat kid illnesses; health strategies to control Johne's disease, caprine arthritis encephalitis virus, coccidiosis, neonatal diarrhea, mastitis, parasitism, and nutritional deficiencies

CVM 6792 Small Ruminant Health and Production Rotation (SmRu): Goat, llama, farmed- deer production, medicine, and health; nutrition and health management, new stock, facility maintenance, husbandry, diagnosis, record-keeping, zoonoses, necropsy, reproductive management, breeding soundness, body condition, vasectomy, ultrasound, castration, tail docking, disbudding, dehorning, vaccination, parasites, restraint and handling, venipuncture, foot-trimming, and tuberculin-testing

CVM 6794 Camelid Medicine, Surgery, Reproduction, and Health Management (Camelid): Evaluation of alpacas and llamas, physical exam, venipuncture, ultrasound; field surgeries, such as castration, dental work, foot-trimming, venipuncture, body condition scoring, preventive herd health management, and pharmaceuticals; common medical and reproductive problems; interstate health certificates; and tuberculosis testing and necropsy

CVM 6796 Beef Production Systems Medicine (Feedlot): Beef cattle feedlot production, medicine, and health management; production systems; receiving protocols and economics; livestock selection and evaluation, health management, facility evaluation; preconditioning, pre-immunization, environmental pollution monitoring, transportation/vaccine protocols, nutrition, respiratory diseases, epidemics, and disease; evaluating small and

large feedlot operations; and body condition scoring, castration, dehorning, parasite control, and necropsy

CVM 6797 Cow-Calf Herd Health and Production (CCHP): Cow-calf production, medicine, and health management; seasonal health management, purchasing and introducing new stock, facility requirements and design, husbandry, field diagnostics, reproductive management, vaccine protocols, record-keeping, zoonoses, breeding soundness, dystocia management, body condition scoring, ultrasound, castration, dehorning, venipuncture, and parasite control

CVM 6806 Food Animal Disease and Diagnostics (FADD): Food animal necropsies, diagnostic assays

CVM 6807 Food Animal Surgery and Anesthesia (FAS&A): Intensive training in ruminant surgery, in-depth evaluation of food animal surgery and anesthesia principles as well as hands-on laboratory components to solidify understanding

CVM 6811 Bovine Theriogenology and Lameness Overview (BThLO): Focuses on improving clinical skills in the areas of bovine reproductive and foot health

CVM 6813 Miracle of Birth (MOB): Associated with the Minnesota Veterinary Medical Association's reproduction facility (Miracle of Birth Center) at the Minnesota State Fair; participate in delivering calves, lambs, and piglets, and assist in public education about processes related to large animal delivery and veterinary care

CVM 6817 Bovine Theriogenology and Lameness, Advanced (BThLA): Builds on the skills and knowledge introduced in Bovine Theriogenology and Lameness Overview; exposes students to additional palpation and ultrasonography of the reproductive tract, and advanced hoof-trimming techniques

CVM 6821 Dairy on Farm Clinical (DOFC): Assist in all aspects of the day-to-day management of a dairy; fresh cow screening and therapies, calving, and routine animal management; live at New Sweden Dairy during rotation

CVM 6832 Comparative Imaging Clinical Rotation (CICR): Clinical instruction for making diagnostic quality radiographic and sonographic images, applying radiation safety principles, practicing abdominal sonography, and interpreting radiographic and sonographic studies

CVM 6977 Advanced Dairy Production Medicine I (ADPMI): Gives background necessary to provide production medicine related services; concepts introduced in ODPM will be used as a basis to explore topics further; allows participants to assist clients in making decisions that enhance their farms productivity, promote animal, and financial well-being

CVM 6978 Advanced Dairy Production Medicine II (ADPMII): Gives background necessary to provide production medicine related services; concepts introduced in ADPM I will be used as a basis to explore topics further; discusses nutrition, management for milking, transition and replacement animals, transition management, udder health and milk quality, reproductive management, and replacement animal management in depth

CVM 6831 Overview of Dairy Production Medicine (ODPM): Gives background necessary to promote animal welfare, prevent disease, and assist clients in making decisions that enhance their farms productivity and financial well-being

CVM 6842 Swine Disease Diagnostics, Therapeutics, and Prevention

(SDxT): Major diseases and high-health technologies, field trips of high- and low-health farms, abattoir for slaughter check, problem-solving, discussion of on-farm disease cases, and in-clinic diagnostic techniques

CVM 6854 Intro to Swine Health and Production (SwHPI): Overview of swine health and production and introduction to clinical problem solving based on case examples, including first-hand field experiences; farm visits include experience in problem definition and investigation, preceding formal follow up including report writing and oral presentation of recommendations and all components of the pork chain from feed milling, through animal production, to slaughter and processing

CVM 6856 Advanced Swine Health and Production (SwHPAdv):

A combination of didactic lectures, in-class exercises, and field trips; gives knowledge and methods to attack complex field problems; students are

assigned to a team, given an actual field case, and expected to work it up, and/or propose steps for the farm to take to resolve the problem

CVM 6883 Raptor Center (Rap): Participate in all aspects of raptor medicine, surgery, and rehabilitation and gain avian experience

CVM 6884 Poultry Medicine Clerkship (PMC): Broiler, layer, and turkey industries; performance analysis, disease diagnosis, management techniques for prevention/control of disease, food safety problems, and diagnostic pathology in a laboratory setting; and classroom presentations, discussions, and on-farm evaluations

CVM 6931 Diseases of Zoo Animals and Exotic Pets: Diseases of and management procedures for zoo animals and exotic pets and restraint procedures, medication, diagnosis

CURRICULUM CHANGES

Ongoing change is possible over the course of the academic year. Students will always be informed of academic changes. Questions and concerns can be brought to anyone in the office of Academic and Student Affairs.

UNIVERSITY OF MINNESOTA MISSION

The University of Minnesota, founded in the belief that all people are enriched by understanding, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation and the world. The University's mission, carried out on multiple campuses and throughout the state, is threefold: Research and Discovery—Generate and preserve knowledge, understanding and creativity by conducting high-quality research, scholarship and artistic activity that benefit students, scholars and communities across the state, the nation, and the world.

Teaching and Learning—Share that knowledge, understanding and creativity by providing a broad range of educational programs in a strong and diverse community of learners and teachers, and prepare graduate, professional, and undergraduate students, as well as nondegree-seeking students interested in continuing education and lifelong learning, for active roles in a multiracial and multicultural world.

Outreach and Public Service—Extend, apply and exchange knowledge between the University and society by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments, and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.

In all of its activities, the University strives to sustain an open exchange of ideas in an environment that embodies the values of academic freedom, responsibility, integrity, and cooperation; that provides an atmosphere of mutual respect, free from racism, sexism, and other forms of prejudice and intolerance; that assists individuals, institutions, and communities in responding to a continuously changing world; that is conscious of and responsive to the needs of the many communities it is committed to serving; that creates and supports partnerships within the University, with other educational systems and institutions, and with communities to achieve common goals; and that inspires, sets high expectations for, and empowers the individuals within its community.

EQUAL OPPORTUNITY STATEMENT

The University of Minnesota shall provide equal access to and opportunity in its programs, facilities, and employment without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression.

Inquiries regarding compliance may be directed to the Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 274 McNamara Alumni Center, 200 Oak Street S.E., Minneapolis, MN 55455, (612) 624-9547, eoaa@umn.edu. Website at www.eoaa.umn.edu.

This publication/material is available in alternative formats upon request. Please contact Karen Nelson, Academic and Student Affairs, 1964 Fitch Avenue, St. Paul, MN 55108, 612-624-4747.

UMN TITLE IX STATEMENT

As required by Title IX, the University does not discriminate on the basis of sex in any of its education programs or activities, including in admissions and employment. Inquiries about the application of Title IX can be directed to the University's Title IX Coordinators or to the U.S. Department of Education, Office of Civil Rights. Please see the University of Minnesota's Title IX Statement (eoaa.umn.edu/resources) and the University's policy (policy.umn.edu/hr/sexharassassault) for information about: (1) how to contact the Title IX Coordinators on the University's campuses; (2) how to report or file a formal complaint of sexual harassment, gender-based harassment, sexual assault, stalking or relationship violence; and (3) the University's procedures for responding to reports and formal complaints.



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