

Elective Course Descriptions

- APC 284 *Ruminant Nutrition and Physiology* (3.0 units), III; First Year. Michael Bruss, Course Leader. Basic and applied aspects of ruminant nutrition and physiology, nutritional and metabolic disorders of ruminants.
- APC 410 *Equine Locomotor Anatomy* (1.8 units), III; Second Year. Susan M. Stover, Course Leader. Normal anatomy of the equine fore and hind limb bones, joints, muscles, ligaments, tendons, nerves and vessels with emphasis on clinically applicable structures.
- APC 458 *Behavior Therapy in Companion Animals* (2.0 units), III; Second, Third Year. Benjamin Hart/Melissa Bain, Course Leader. Clinical application of behavior modification procedures, management and drug therapy to resolve common behavioral problems of companion animals including dogs, cats, horses and birds.
- PHR 212 *Epidemiology of the Zoonoses* (4.0 units), II; Third Year. Bruno Chomel, Course Leader. Epidemiological, biological and ecological features of some major infections shared by humans and other animals. Wildlife and domestic animals zoonoses of major health and economic significance are presented to illustrate how knowledge of zoonoses epidemiology is essential for implementing control measures.
- PHR 220 *Avian Medicine* (3.0 units), III; Second Year. Patricia Wakenell, Course Leader. Instruction on the methods of prevention of the major diseases of domestic poultry.
- PHR 222 *Avian Immunology* (3.0 units), III; Second, Third Year. Patricia Wakenell, Course Leader. Normal structure of the avian immune system, a quick review of basic immunology, comparison between mammalian and avian immune systems and generation of immune responses, immunodiagnostics and vaccination.
- PHR 225 *Preventive Avian Medical Practice* (3.0 units), II; First, Second, Third Year. Patricia Wakenell, Course Leader. Economic structure of broiler, commercial egg and turkey industries, delivery of preventive veterinary medical services within these industries. Specific prevention, eradication programs pertaining to diseases of economic importance are covered. Environmental, OSHA, regulatory and agroterrorism.
- PHR 250 *Foodborne Infections and Intoxications* (4.0 units), III; Second, Third Year. Dean Cliver, Course Leader. Prevalence and characteristics of those diseases of humans which are derived from food or food sources; access of disease agents to and distribution in food and food sources; exposure of people to these agents; prevention of foodborne diseases.
- PHR 406 *Human-Animal Interactions in Veterinary Science* (1.0 units), II; First, Second, Third Year. Lynette Hart, Course Leader. Human relationships with companion animals, and, secondarily, on food, laboratory, and wild animals from the perspectives of veterinarians and their clients' needs. Emphasis on the benefits of companion animals for human mental and physical well-being, the role of animals in the human life cycle, societal traditions in keeping animals, and types of specialized and more typical relationships with animals.
- PHR 408 *Behavior and Biology of Mice As Domestic Animals* (1.0 units), II; First, Second, Third Year. Lynette

Hart, Course Leader. Laboratory mouse biology and welfare, including the development and purposes of specialized strains of mice, constraints for their care and environmental enrichment, legislation and regulation, and the human benefits of their use.

- PHR 420 » *Zoonoses of Non-Human Primates* (2.0 units), II; Second, Third Year. Bruno Chomel, Course Leader. Epidemiological, clinical, and biological features of zoonoses of non-human primates. Emphasis given to major zoonoses which are threatening to human health and their treatment and prevention. Focus also on management of non-human primates in research, zoological gardens and in the wild.
- PHR 429D ¶+ *Dairy Herd Health Management* (4.0 units), III; Third Year. Dale Moore, Course Leader. Practical systems for delivering veterinary services to dairy farms with emphasis on disease prevention and improved herd performance.
- PHR 429DL ¶ *Dairy Herd Health Management Laboratory* (0.6 units), III; Third Year. Dale Moore, Course Leader. Practical systems for delivering veterinary services to dairy farms with emphasis on disease prevention and improved herd performance. Field trips and computer laboratories to practice skills in animal observations, facilities observations and use of the computer for nutrition services and dairy records analysis.
- PHR 429E ¶+ *Dairy Goat Herd Health* (1.0 units), III; Third Year. Joan Rowe, Course Leader. The application of problem-solving and epidemiologic methods to dairy goat diseases and their control.
- PHR 432 *Reproductive Technology in Mammals and Birds* (.8 units), III; First Year. Robert BonDurant, Course Leader. Introductory course in the application of technology to the reproductive process in mammals and birds. Emphasis on domestic animals, but birds and non-domestic mammals discussed to a limited extent. A goal is to expose students to some of the "sexier" aspects of population/reproduction management.
- PHR 432L *Reproductive Technology in Mammals and Birds, Laboratory* (0.2 units), III; First Year. Robert BonDurant, Course Leader. Laboratory demonstrations and exercises in gamete freezing, thawing, and handling; artificial insemination of cattle; artificial insemination and other applications of reproductive technology in small ruminants.
- PHR 440 *Ruminant Clinical Nutrition* (1.9 units), III; Second, Third Year. Jose Eduardo Santos, Course Leader. Nutritional related disorders in ruminants with a herd basis approach. Nutritionally related disorders that affect modern cattle production. Emphasis on understanding the problem and preventing it through nutritional management.
- PHR 442 *Equine Theriogenology* (2.0 units), I; Third Year. Barry Ball, Course Leader. Discussions of abnormal conditions and physiologic function in equine reproduction with emphasis on methods of diagnosis and interpretation of clinical and laboratory findings associated with the abnormalities.
- PHR 442L *Equine Theriogenology Laboratory* (1.0 units), I; Third Year. Barry Ball, Course Leader. Hands-on diagnosis and implementation of techniques related to reproductive examination of horses. Routine and current procedures performed on the farm. Designed to maximize the opportunity for assessment of the normal reproductive anatomy, the diagnosis and interpretations of physiologic conditions and for becoming comfortable in performing the various routine procedures.

- PHR 445 *Food Animal Theriogenology and Reproductive Performance* (2.0 units), II; Third Year. Robert BonDurant, Course Leader. Physiological, pathophysiological, and management factors affecting the reproductive health and performance of food animals, with emphasis on dairy, beef cattle, and sheep. Minor emphasis on swine and goats. Assessment of, and intervention strategies for, herd reproductive performance.
- PHR 445L *Food Animal Theriogenology Laboratory* (1.0 units), II; Third Year. Robert BonDurant, Course Leader. Obstetrical and gynecological diagnosis and treatment for food animals; breeding soundness examination of males; analysis and on-farm use of computerized reproductive records; embryo technology.
- PHR 446A ³ *Food Animal Reproduction* (1.0 units), III; Second Year. Joan Rowe, Course Leader. Conditions affecting the reproductive system in the cow, sow, ewe and goat with emphasis on symptomatology, pathophysiology, treatment, control, prevention and herd health applications.
- PHR 446B *Equine Reproduction* (1.0 units), III; Second Year. Barry Ball, Course Leader. Introduction to clinical equine reproduction with emphasis on methods of diagnosis and the interpretation of clinical and laboratory findings.
- PHR 446C ³ *Non-Domestic Reproduction* (1.0 units), III; Third Year. Bill Lasley, Course Leader. Follows PHR 446A and provides information relating to reproduction in non-domestic mammals, birds, and reptile species. Concepts relating to the evaluation of reproductive status, diagnosis of infertility, assisted reproduction and contraception will be presented.
- PHR 450 *HACCP & Risk Assessment in Pre and Postharvest Food Safety* (3.0 units), II; First, Second, Third Year. Dean Cliver/Maha Hajmeer, Course Leader. Application of the Hazard Analysis–Critical Control Point (HACCP) system in the food industry, for regulatory agencies; and in the preharvest area of food production. Development of HACCP plans.
- PHR 457 *Veterinary Business Management* (2.0 units), III; First, Second, Third, Fourth Year. Donald J. Klingborg, Course Leader. Information essential to the successful management of a veterinary practice. Topics include basic accounting, medical recordkeeping, money management, business and personal insurance, client relations and tax law.
- PHR 483 *Pet Loss Support Hotline and End of Life Issues* (2.0 units), I, II, III, IV; First, Second, Third Year. Lynette Hart, Course Leader. Training and experience in addressing end-of-life issues for companion animals, including hospice, decision-making and pet loss support. Responding to pet loss hotline callers who are anticipating or experiencing the end of a relationship with a beloved companion animal. Communication skills, especially supportive listening, and in referral to community resources.
- PMI 280A *The Mouse as an Experimental Model for Human & Animal Diseases – I* (3.0 units), III; First, Second, Third Year. Nicole Baumgarth, Course Leader. Mice as models in biomedical research. Basic mouse biology, including reproduction and development, embryology, functional anatomy, ecology and genetics.
- PMI 287 »

Comparative Pathology of Laboratory Animals (3.0 units), III; Second,Third,Fourth Year. Linda Lowenstine,Course Leader. Recognition of lesions and understanding of pathogenesis of diseases of animals commonly kept in laboratory settings. Species covered include rodents, lagomorphs, amphibians, nonhuman primates, genetically manipulated animals and novel animal models.

- PMI 418 «# ***Health and Disease in Terrestrial Wildlife*** (2.0 units), II; First,Second,Third Year. Michael Ziccardi,Course Leader. Ecology and epidemiology of disease in free-ranging terrestrial wildlife.
- PMI 419 1# ***Field Techniques for Assessment of Wildlife and Ecosystem Health*** (2.0 units), III; First,Second,Third Year. Michael Ziccardi,Course Leader. Introduction to the concepts and technical skills necessary to conduct field studies pertaining to wildlife/ecosystem health. Emphasis will be on Southern California ecosystem.
- PMI 475 ***Diagnostic Medicine of Domestic Animals*** (2.0 units), III; Second Year. Dennis W. Wilson/Joseph G. Zinkl,Course Leader. An integrated problem-oriented approach to diagnosis of animal infectious disease through the disciplines of microbiology, clinical pathology and anatomic pathology. Participants organize assigned cases for presentation to the class in a grand rounds format with presentations by small groups composed of individuals who act as either a moderator, microbiologist, clinical pathologist or pathologist.
- VMB 485 ***Advanced Clinical Nutrition*** (2.0 units), I; Third Year. Andrea J. Fascetti,Course Leader. Advanced training in the principles and application of small animal clinical nutrition.
- VME 294B ***Conservation Biology and Veterinary Medicine*** (1.0 units), II; First,Second,Third Year. Jonna Mazet,Course Leader. Current topics in conservation biology as they relate to veterinary medicine, wildlife population management and ecosystem health.
- VME 410 ***Husbandry, Feeding and Management of Captive Animals*** (2.0 units), III; First Year. Lisa Tell,Course Leader. Introduction of management and husbandry dynamics as a prerequisite for preventive health programs in zoos, aquaria, vivaria, and other environments for exotic pets and wild animals.
- VME 412 # ***Laboratory Animal Medicine*** (2.0 units), II; Third Year. Lon Kendall,Course Leader. The role of an institutional laboratory animal veterinarian. Emphasis on the role of the attending veterinarian, mouse genetics, vivarium management, health monitoring programs, experimental design and animal models.
- VME 413 ***Medical Primatology*** (2.0 units), III; Second,Third Year. Nicholas Lerche,Course Leader. Major diseases, medical management and husbandry of captive non-human primates.
- VME 415 ***Management and Diseases of Captive Wildlife*** (2.0 units), I; Second,Third Year. Ray Wack,Course Leader. Introduction to the roles of a zoological veterinarian and the most common topics encountered. Emphasis on taxonomy, husbandry, preventive medicine and the most common diseases seen in common captive wildlife species.
- VME 416 ***Diseases of Fish*** (2.1 units), III; Second,Third Year. Ronald Hedrick,Course Leader. Etiology, pathology, diagnosis, treatment and prevention of diseases of fish. Preventive management of diseases in aquaculture and aquaria.

- VME 417 *Companion Avian Medicine* (2.0 units), II; Third Year. Lisa Tell, Course Leader. Diseases, diagnostics, medical management and surgery of psittacine species. Avian nutrition, husbandry, and management.
- VME 419 *Companion Exotic Small Animal Medicine and Surgery* (3.4 units), I; Third Year. Michelle Hawkins, Course Leader. The etiology, clinical presentation, diagnostic evaluation, treatment, prevention, and control of medical diseases of companion small exotic mammals, amphibians and reptiles.
- VME 424 *Shelter Medicine* (1.0 units), III; First, Second, Third Year. Kate Hurley, Course Leader. Shelter medicine is a newly emerging specialty in veterinary medicine building on the clever solutions and experience of hundreds of shelter veterinarians, managers, technicians, rescue and foster homes, and others, who have learned their skill in the trenches.
- VME 427 *Introduction to Food Animal Herd Health Medicine* (1.9 units), I; Third Year. Bruce R. Hoar, Course Leader. Introduction to current problem solving concepts, approaches, and issues addressed in subsequent food animal medicine courses; contexts for developing problem solving skills through on-site, field investigation of herd and flock health problems.
- VME 428 *Food Animal Surgery* (1.6 units), III; Third Year. Bradford Smith, Course Leader. Selected topics in surgical diseases of food animals.
- VME 428L *Food Animal Surgery Laboratory* (.8 units), III; Third Year. Bradford P. Smith, Course Leader. Representative surgeries of food animals performed by groups of students.
- VME 429A ¶+ *Sheep Herd Health* (1.0 units), II; Third Year. Michael Lane, Course Leader. The application of problem-solving and epidemiologic methods to sheep diseases and their control.
- VME 429B ¶+ *Beef Herd Health* (1.0 units), II; Third Year. Bruce R. Hoar, Course Leader. The application of problem-solving methods to diseases of grazing beef cattle and their control.
- VME 429C ¶+ *Swine Herd Health* (1.0 units), II; Third Year. Ian A. Gardner, Course Leader. The application of problem-solving and epidemiologic methods to swine diseases and their control.
- VME 430 *Raptor Medicine and Rehabilitation* (2.0 units), III; First, Second, Third Year. Lisa Tell, Course Leader. Biology, behavior, parasites, diseases, toxins, iatrogenic conditions, diagnostics, treatments, nursing, housing, nutrition, rehabilitation and release techniques for eggs, orphans and adult native California raptors.
- VME 432 *Medical & Husbandry Procedures for Raptors* (1.0 units), I, II, III; First, Second, Third Year. Lisa A. Tell, Course Leader. Serves as student treatment crew for the Raptor Center providing hands-on experience with handling, restraint and treatment for ill and injured birds of prey with the goal of rehabilitation and release back into their native habitat.
- VME 446 ³ *Small Animal Reproduction* (1.0 units), III; Second Year. Edward Feldman, Course Leader. Provides a complete description (history, physical examination, laboratory abnormalities, etc.) of the common

abnormalities associated with the genital tract of male and female dogs and cats.

- VME 450 *Small Animal Clinical Immunology* (1.7 units), III; Second,Third Year. Jane Sykes,Course Leader. Review of the basic mechanisms of immunologic diseases in small companion animals and a description of common immunologic diseases organized by body system, including clinical presentation, diagnosis and treatment.
- VME 454 ^{1a} *International Veterinary Medicine Baja California Fieldwork* (2.0 units), III; First,Second,Third,Fourth Year. David W. Hird,Course Leader. Some of the livestock diseases responsible for limiting trade across the US/Mexico border, how knowledge is extended to ranchers, and how veterinarians are educated in Mexico. Offered during Spring break.
- VME 455 *Beginning Veterinary Spanish* (2.0 units), II; First,Second,Third Year. David Hird,Course Leader. Preparation to converse with clients (e.g. companion animal owners) and livestock managers in Spanish in clinical settings.
- VME 456 *Intermediate Veterinary Spanish* (1.0 units), III; First,Second,Third Year. David Hird,Course Leader. Presentations on veterinary–related topics in Spanish by native speakers and others will be followed by discussion to prepare students to converse with clients (e.g. companion animal owners and livestock managers) in Spanish.
- VME 461A * *Small Animal Medicine – Level I* (3.6 units), III; Second Year. Lynelle Johnson,Course Leader. Fundamental principles, clinical manifestations, diagnostic methods and therapeutic approaches to the medical diseases of dogs and cats. Course is a core option for the professional veterinary curriculum and preparatory for advanced courses in small medical diagnoses and therapeutics.
- VME 461B * *Small Animal Medicine – Level I* (3.3 units), I; Third Year. Stanley Marks,Course Leader. Continuation of fundamental principles, clinical manifestations, diagnostic methods, and therapeutic approaches to the medical diseases of dogs and cats.
- VME 461C * *Small Animal Medicine – Level I* (3.7 units), II; Third Year. Stephen White,Course Leader. Continuation of fundamental principles, clinical manifestations, diagnostic methods and therapeutic approaches to the medical diseases of dogs and cats.
- VME 462 ¶ *Small Animal Medicine, Level II* (2.0 units), III; Third Year. Peter J. Ihrke,Course Leader. Emphasis on differential diagnosis covering diseases of the skin, cardiovascular, respiratory, gastrointestinal and urinary systems, plus infectious diseases affecting various organ systems. The course is a bridge between didactic teaching and the use of that knowledge in a clinical setting.
- VME 463A * *Food Animal Medicine, Level I* (3.6 units), III; Second Year. Bradford Smith,Course Leader. Fundamentals of food animal medicine presented in a lecture format with integrated case discussion to illustrate the context and application of material presented and to promote development of problem–solving skills.
- VME 463B * *Food Animal Medicine, Level I* (3.4 units), I; Third Year. Lisle George,Course Leader. Fundamentals of food animal medicine with integrated case discussions to illustrate the context and application of material presented and to promote development of problem–solving skills.

- VME 463C * *Food Animal Medicine, Level I* (3.3 units), II; Third Year. Lisle George, Course Leader. Continuation of the fundamentals of food animal medicine with integrated case discussions to illustrate the context and application of material presented and to promote development of problem-solving skills.
- VME 464A * *Equine Medicine, Level I* (3.2 units), III; Second Year. W. David Wilson, Course Leader. The etiology, pathophysiology, epidemiology, clinical presentation, diagnostic evaluation, treatment, presentation, and control of important infectious and non-infectious diseases of horses. Emphasis on problem-based approach to differential diagnosis.
- VME 464B * *Equine Medicine, Level I* (3.7 units), I; Third Year. Sharon Spier, Course Leader. Continuation in instruction in the etiology, pathophysiology, epidemiology, clinical presentation, diagnostic evaluation, treatment, prevention, and control of important infectious and non-infectious diseases of horses. A problem-based approach to differential diagnosis is emphasized.
- VME 464C *Equine Medicine, Level I* (3.4 units), II; Third Year. Nicola Pusterla, Course Leader. Continuation in instruction in the etiology, pathophysiology, epidemiology, clinical presentation, diagnostic evaluation, treatment, prevention and control of important infectious and non-infectious diseases of horses. A problem-based approach to differential diagnosis emphasized.
- VME 465 ¶ *Advanced Equine Medicine, Level II* (3.6 units), III; Third Year. Johanna Watson, Course Leader. An approach to commonly encountered problems of horses held as individuals and farm settings. Development of problem-solving skills related to the medical management of horses and their problems.
- VME 465L *Advanced Equine Medicine Level II Laboratory* (.8 units), III; Third Year. Johanna Watson, Course Leader. Clinical presentation and instruction in treatment of the medical aspects of equine practice.
- VME 466 *Equine Critical Care* (2.0 units), III; Third Year. K. Gary Magdesian, Course Leader. Focus on common equine emergencies and their initial life-support management strategies. Rational approach to diagnosis and management of emergency and critically ill equine patients in clinical practice. Pathophysiology of Systemic Inflammatory Response Syndrome (SIRS), Multiple Organ Dysfunction Syndrome (MODS), and critical illness.
- VME 468 *Advanced Feline Medicine* (2.0 units), III; Third Year. Jodi Westropp, Course Leader. Fundamental principles, clinical manifestations, diagnostic methods, and therapeutic approaches to medical diseases of cats. Diseases unique to cats and diseases whose clinical presentations and diagnostic evaluations are fundamentally different in cats versus dogs.
- VME 481 *Clinic Rounds* (1.0 units), I,II; First, Second Year. Bradford Smith, Course Leader. Discussion of selected small and large animal cases from the Veterinary Medical Teaching Hospital.
- VME 486 *Equine Clinical Neonatology* (1.0 units), III; First Year. K. Gary Magdesian, Course Leader. Discussion of methods of equine neonatal intensive care and disease pathophysiology in a case format.

- VME 487 *Comparative Bio–Medical: Form and Function* (2.0 units), II; First,Second,Third Year. R. Scott Larsen,Course Leader. Comparative biology approach and concepts for non–traditional animal species; alternative pets, zoos, rehabilitation centers, wildlife, aquaculture, laboratory animals, and non–human primates.
- VME 494 *International Programs Seminar* (1.0 units), II; First,Second,Third Year. David Hird,Course Leader. Discussion by veterinarians around the world of aspects of veterinary medicine in their countries and regions, ranging from livestock to wildlife medicine to companion animal practice.
- VSR 400 ✕ *Equine Radiographic Anatomy* (1.0 units), I,II,III,IV; First,Second,Third Year. Erik Wisner,Course Leader. Self–study of the radiographic anatomy displayed on the standard radiographic projections of the musculoskeletal system of the horse.
- VSR 401 *Small Animal Radiology Case Discussions* (1.0 units), I,II,III; First,Second,Third Year. Erik Wisner,Course Leader. The role of diagnostic radiology in the clinical setting and student interpretation of radiographs.
- VSR 402 *Large Animal Radiology Case Discussions* (1.0 units), I,II,III; First,Second,Third Year. Erik Wisner,Course Leader. The role of diagnostic radiology in the clinical setting and student interpretation of radiographs.
- VSR 404A 2 *Small Animal Radiology* (2.9 units), II,III; Second Year. Rachel Pollard,Course Leader. Introduction to radiographic interpretation as it relates to musculoskeletal, thoracic, and abdominal disorders of small animals. Assignment of unknown cases as practice in interpreting radiographic patterns described in lecture.
- VSR 404B 2 *Large Animal Radiology* (1.6 units), II; Second Year. Sarah Puchalski,Course Leader. Radiographic manifestations of common equine orthopedic, upper airway and thoracic diseases. Common radiographic abnormalities in non–equine large animal patients. Equine and other large animal radiographic pattern recognition and differential diagnosis generation based on the identified pattern.
- VSR 405 *Advanced Small Animal Abdominal Ultrasound* (2.1 units), II; Third Year. Rachel Pollard,Course Leader. The use of ultrasound for the diagnosis of common clinical diseases in both the abdomen and thorax. Examination techniques of the thorax and the abdomen covered in the laboratory sessions and examples of the abnormal presented in discussion.
- VSR 406 *Small Animal Diagnostic Ultrasound* (1.1 units), I; Second Year. Eric Herrgesell,Course Leader. Ultrasound imaging physics, artifacts, machine controls, techniques of abdominal scanning and basic ultrasound anatomy. Lab sessions reinforce topics covered in lecture and provide hands–on ultrasound experience.
- VSR 413 *Small Animal Dentistry* (2.4 units), II; Third Year. Frank Verstraete,Course Leader. Introduction to the principles of oral examination, pathophysiology and treatment of periodontitis, exodontics, basic oral soft tissue surgery dental emergencies, orthodontics, developmental and regressive dental conditions, endodontics, prosthodontics, advanced periodontal therapy, oral medicine and advanced oral surgery.
- VSR 413L

Small Animal Dentistry Lab (0.3 units), II,III; Third Year. Frank J.M. Verstraete,Course Leader. Principles of oral examination, oral radiography, routine periodontal treatment and dental extraction techniques.

- VSR 415 *Lameness in Dogs* (1.4 units), III; Third Year. Amy Kapatkin,Course Leader. Discussion of lameness examination and detailed descriptions of common congenital and acquired disorders that cause lameness in dogs. Discussion of methods to diagnose and treat.
- VSR 415 *Lameness in Dogs* (1.4 units), III; Third Year. Amy Kapatkin,Course Leader. Discussion of lameness examination and detailed descriptions of common congenital and acquired disorders that cause lameness in dogs. Discussion of methods to diagnose and treat.
- VSR 416 *Equine Ultrasonology* (1.0 units), III; Third Year. Mary Beth Whitcomb,Course Leader. Familiarize students with ultrasonographic diagnostic methodology and with ultrasonologic features of common diseases of the major equine organ systems.
- VSR 416L *Equine Ultrasonology Lab* (.4 units), III; Third Year. Mary Beth Whitcomb,Course Leader. Familiarize students with ultrasonographic diagnostic methodology and with ultrasonologic features of common diseases of the major equine organ systems.
- VSR 423 *Diagnostic Ophthalmology* (1.5 units), II; Third Year. David Maggs,Course Leader. The pathogenesis and diagnosis of commonly encountered eye diseases of common domestic animals.
- VSR 424 *Clinical Veterinary Oncology* (1.0 units), I; Second Year. Alain Theon,Course Leader. The internal medicine subspecialty of oncology. Clinical considerations and basic tenets of tumor biology.
- VSR 460 *Emergency and Critical Patient Care* (2.0 units), III; Third Year. Steve Haskins,Course Leader. Introduction to the essential and practical concepts of care for emergency and critically ill patients.
- VSR 461 *Small Animal Orthopedic Surgery* (1.6 units), II; Third Year. Kei Hayashi,Course Leader. Introduction to principles of small animal orthopedic surgery including: orthopedic anatomy and examination, orthopedic instrumentation, fracture management, traumatic joint disease and traumatic muscle and tendon disease.
- VSR 461L *Small Animal Orthopedic Surgery Laboratory* (0.3 units), II; Third Year. Kei Hayashi,Course Leader. Hands-on experience in application of external coaptation and basic principles of application of different types of fixation for fractures.
- VSR 462 *Radiographic Diagnosis: Small Animal* (1.0 units), III; Third Year. Erik Wisner,Course Leader. Small animal radiographic case studies. Presentation and discussion of assigned cases before knowing the actual diagnosis.
- VSR 463 *Surgical and Anesthetic Considerations in Small Animal Soft Tissue Surgery* (2.2 units), III; Third Year. Clare Gregory,Course Leader. Pathophysiology and surgical treatment of selected soft tissue diseases.
- VSR 466

Large Animal Applied Anesthesiology (1.5 units), II; Third Year. Susan V. Hildebrand, Course Leader. Applied clinical anesthesiology. Special techniques and consideration for anesthetizing a variety of species including horses, swine, ruminants, camelids, and large non-domestic species.

VSR 467 ***Small Animal Anesthesiology*** (2.0 units), II; Third Year. Jan Ilkiw, Course Leader. The safe clinical administration of anesthetic drugs to small animals. Clinical applications, indications and contraindications, methods of use of common anesthetic drugs and techniques will be discussed.

VSR 468 ***Equine Lameness and Radiology*** (4.0 units), III; Third Year. Melinda MacDonald, Course Leader. Principles for the clinical evaluation and radiographic interpretation of lameness disorders of the fore- and hindlimbs of horses. Methods used in large-animal radiography and the latest techniques for managing and treating equine lameness. Anatomy and pathology of some areas of the musculoskeletal system.

VSR 468L ***Equine Lameness and Radiology Lab*** (1.1 units), III; Third Year. Larry Galuppo, Course Leader. Focus on clinical gait evaluation, and various diagnostic strategies for localizing lameness disorders in the fore- and hindlimbs of horses. Radiographs from clinical cases. Clinical evaluation and treatment of various disorders of the foot. Equine chiropractic and acupuncture therapy.

VSR 469 ***Equine Surgery*** (3.0 units), II; Third Year. Jack Snyder, Course Leader. Appropriate methods of diagnosis for surgical diseases, an understanding of different treatment options, and development of a framework for establishing a prognosis for the disease considering particular uses of horses.

VSR 469L ***Equine Surgery Laboratory*** (1.4 units), II; Third Year. Jack Snyder, Course Leader. Common equine surgical procedures and other techniques useful in equine practice.

Legend

- « Course offered in odd years.
- » Course offered in even years.
- ^a Course not offered this academic year.
- ¹ Course actually takes place during Spring Break.
- ² Students are required to choose either Small Animal Radiology (required for students who will rotate through the Small Animal Radiology Service in the fourth year) OR Large Animal Radiology as CORE; the other may be taken as an elective.
- ³ Students are required to choose one of the four reproduction courses as CORE; the others may be taken as electives.
- * Students are required to choose one of the medicine courses as CORE; the other may be taken as electives.
- ☒ On-line tutorial course – not scheduled.
- § Course currently under review.
- ¶ Level II medicine.
- + Students must select 4 units.
- # Zoological Track students must select 12 units.

VMD: Core Course for DVM

APC: Anatomy, Physiology and Cell Biology

PHR: Population Health and Reproduction

VME: Medicine and Epidemiology

VSR: Surgical and Radiological Sciences

VMB: Molecular Biosciences

PMI: Pathology, Microbiology and Immunology

ANS: Animal Sciences