

# SURGICAL SCIENCES (SURG SCI)

## **SURG SCI 501 – RADIOGRAPHIC ANATOMY OF THE DOG AND CAT** 1 credit.

Normal radiographic anatomy of the dog and cat. This will include soft tissue structures as well as the skeletal system. Clinical case material to emphasize the need for a thorough knowledge of normal radiographic anatomy.

**Requisites:** Declared in Doctor of Veterinary Medicine with first year standing

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Fall 2023

**Learning Outcomes:** 1. Recognize normal anatomic structures of the dog, cat and bird on radiographs Audience: Undergraduate

2. By comparing to normal, name the site of a radiographic abnormality Audience: Undergraduate

3. Identify locations of ossification centers and physes Audience: Undergraduate

4. Recall basic principles of radiography Audience: Undergraduate

## **SURG SCI 542 – VETERINARY OPHTHALMOLOGY**

2 credits.

Provides basic instruction in the application of ophthalmic diagnostics and therapeutics to small and large domestic animals. Acquire skills and knowledge to accurately diagnose, treat, prognose or refer domestic animals with common ophthalmic disorders.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Identify common ophthalmic diseases and abnormalities in veterinary patients. Audience: Undergraduate

2. Interpret ophthalmic examination findings from descriptions and/or pictures. Audience: Undergraduate

3. Interpret results of basic ophthalmic tests routine performed in general practice. Audience: Undergraduate

4. Formulate differential diagnoses for ophthalmic examination findings. Audience: Undergraduate

5. Devise a treatment plan for common ophthalmic diseases. Audience: Undergraduate

## **SURG SCI 543 – FUNDAMENTALS OF ANESTHESIOLOGY I**

1 credit.

Covers basic principles of sedation, pain physiology, anesthetic drugs, anesthetic monitoring, and the practical considerations in performing anesthesia on healthy veterinary species. Case-based and interactive where appropriate.

**Requisites:** Declared in Doctor of Veterinary Medicine with second year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Understand and remember the pharmacodynamics and pharmacokinetics of anesthetic drugs Audience: Graduate

2. Identify the components of the anesthesia machine and describe their function. Audience: Graduate

3. Identify anesthetic monitors and techniques and describe their function and data collected. Audience: Graduate

4. Design effective monitoring and supportive care plans for patients. Audience: Graduate

5. Identify pain in animals and select appropriate treatment. Audience: Graduate

**SURG SCI 544 – SURGERY FUNDAMENTALS**

2 credits.

Introductory material on the scientific foundations of surgery. Preparation for clinical work in veterinary surgery and medicine.

**Requisites:** Declared in Doctor of Veterinary Medicine with second year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Identify and describe intended use of common surgical instruments in veterinary surgical procedures Audience: Undergraduate

2. Describe the differences between the various methods of sterilization and disinfection Audience: Undergraduate

3. Perform simple suture patterns and secure knot tying techniques Audience: Undergraduate

4. Describe basic properties of suture material and needles Audience: Undergraduate

5. Apply sterile technique to patient preparation for surgery Audience: Undergraduate

6. Describe how various tissues respond to injury Audience: Undergraduate

7. Describe the steps necessary to complete a preoperative assessment of a surgical patient Audience: Undergraduate

8. Describe the basic concepts of postoperative care of a surgical patient Audience: Undergraduate

**SURG SCI 545 – FUNDAMENTALS OF ANESTHESIOLOGY II**

1 credit.

Focus on anesthetic management of common veterinary species with concurrent medical disease. Covers advanced pain management principles and techniques, anesthesia for exotic animal species, and breed considerations in anesthesia. Case-based and interactive where appropriate.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Implement the pharmacodynamics and pharmacokinetics of anesthetic drugs. Audience: Undergraduate

2. Design individualized anesthetic plans for patients with co-existing disease. Audience: Undergraduate

3. Identify abnormalities in anesthetized patients and demonstrate effective ways to remedy the abnormalities. Audience: Undergraduate

4. Design effective monitoring and supportive care plans for patients. Audience: Undergraduate

5. Identify pain in animals and select appropriate treatment. Audience: Undergraduate

6. Demonstrate knowledge associated with euthanasia. Audience: Undergraduate

7. Demonstrate knowledge of CPR. Audience: Undergraduate

**SURG SCI/F&W ECOL 548 – DISEASES OF WILDLIFE**

3 credits.

Provides an overview of the issues involved across a wide range of wildlife diseases, presented within the context of ecosystem health or "one health". Content will be on the biological, epidemiological, clinical, public health and, in some cases, sociopolitical ramifications of wildlife diseases. Covers a wide variety of wildlife diseases caused by bacteria, viruses, parasites, prions, and environmental contaminants. Consequences associated with environmental changes on the manifestation of wildlife diseases will also be discussed. This range of diseases will be presented in order to familiarize the many facets involved in disease management, from animal and human health issues, to ecological and environmental considerations, to the role of society in contributing to, and managing, these diseases.

**Requisites:** BOTANY/BIOLOGY 130, (ZOOLOGY/BIOLOGY 101 102), BIOLOGY/BOTANY/ZOOLOGY 151, BIOCORE 381, or graduate/professional standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** No

**Last Taught:** Fall 2023

**Learning Outcomes:** 1. Explain how an infection differs from disease. Audience: Undergraduate

2. Recognize different groups of infectious microorganisms: viruses, bacteria, fungi, parasites, prions, etc. Audience: Undergraduate

3. Define and describe ecosystem health or one health. Audience: Undergraduate

4. Define the terms zoonosis, zoonoses, and zoonotic. Audience: Undergraduate

5. Evaluate how anthropogenic influences exacerbate transmission of zoonotic diseases. Audience: Undergraduate

6. Describe and explain the epidemiological concepts related to each wildlife disease presented in this course. Audience: Undergraduate

7. Recognize diseases that are specific to animal groups or humans, or are nonspecific, having the potential to infect many different species. Audience: Undergraduate

**SURG SCI 630 – SMALL ANIMAL SURGERY**

4 credits.

The pathophysiology and diagnosis of common general, orthopedic, and neurologic surgical diseases of small animals are presented. The operative management and postoperative care of small animal surgical patients are discussed in detail.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Fall 2023

**Learning Outcomes:** 1. Describe the problems that may benefit from surgical intervention that are typically encountered in a given organ system, how these diseases or problems present, and what surgical interventions are typically implemented to improve the problem. Audience: Undergraduate

10. List the common congenital, developmental and acquired locomotor system diseases of the dog and cat, and describe how these alter locomotor system function. Audience: Undergraduate

11. Describe the etiology and pathogenesis of common locomotor diseases in the dog and cat and recognize pathological lesions associated with these diseases. Audience: Undergraduate

12. Describe the alterations that take place in bone, cartilage, tendon and ligament in response to disease. Audience: Undergraduate

13. Describe the various types of disease that can affect joints and lead to the clinical syndrome of osteoarthritis. Audience: Undergraduate

2. Explain the surgical techniques employed for treatment of disease/problems in a given organ system and the complications that may arise related to surgery. Audience: Undergraduate

3. Compare both short- and long-term prognoses for diseases or clinical problems in a given organ system with and without surgical treatment to facilitate assessment of the benefits of surgery versus other courses of action such as conservative management. Audience: Undergraduate

4. Summarize the principles that guide the evaluation of a lame dog or cat. Audience: Undergraduate

5. Describe the principles of physical examination of a lame dog or cat. Audience: Undergraduate

6. Take a history of a lame dog or cat and list likely differential diagnoses for the patient. Audience: Undergraduate

7. Select appropriate diagnostic tests for evaluation of patients with locomotor system disease and interpret abnormal results and their significance. Audience: Undergraduate

8. Choose appropriate medical or surgical therapy to enable effective management of animals with locomotor system disease. Audience: Undergraduate

9. Offer appropriate advice on prognosis and complications for clients owning animals with locomotor system disease. Audience: Undergraduate

**SURG SCI 631 – LARGE ANIMAL SURGERY: ORTHOPEDIC AND SOFT TISSUE**

3 credits.

Examination techniques, diagnostic aids and surgical procedures relevant to the gastrointestinal, integumentary, musculoskeletal, respiratory and genitourinary systems of the equine and food animal species.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Recognize key concepts in large animal surgery, including but not limited to common signalments, relevant history, risk factors, diagnostic methods, and pathophysiology for commonly encountered diseases in upper airway surgery, urogenital surgery, orthopedic surgery, gastrointestinal surgery, wounds and laceration care. Audience: Undergraduate

2. Describe the basic elements of lameness evaluation, localization, and diagnosis in the horse. Audience: Undergraduate

3. Explain specific treatment options, both surgical and non-surgical, for common diseases including potential benefits and complications associated with prescribed therapeutics. Audience: Undergraduate

4. Describe factors that contribute to outcomes and prognosis for specific large animal patients and surgical procedures. Audience: Undergraduate

5. Apply concepts of anatomy, diagnostic imaging, clinical pathology and other relevant areas, to the evaluation, treatment, and prognosis of large animals with surgical conditions. Audience: Undergraduate

**SURG SCI 632 – SMALL ANIMAL SURGERY LABORATORY**

2 credits.

Basic skills necessary for participation in the surgical management of small animals in the Veterinary Medical Teaching Hospital.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Identify and describe the function of common surgical instruments Audience: Undergraduate

2. Identify and describe the important properties of common suture materials and understand the indications for their use Audience: Undergraduate

3. Perform a comprehensive physical examination of a small animal patient and determine pertinent differential diagnoses, if any based on that physical exam Audience: Undergraduate

4. Perform a complete surgical station set-up, including selection and knowledge of appropriate intra- operative patient monitoring equipment and thermoregulatory units Audience: Undergraduate

5. Demonstrate proper aseptic surgical technique including open and closed gloving, re-gloving, gowning, draping, rough and sterile patient surgical preparation Audience: Undergraduate

6. Demonstrate proficiency with various surgical techniques, including but not limited to the creation and closing of an incision, proper tissue handling techniques, and instrument handling and appropriate suture patterns and knot tying Audience: Undergraduate

7. Perform post-operative incision care and recognize and differentiate post-operative complications Audience: Undergraduate

8. Maintain proper medical records for a routine surgical case Audience: Undergraduate

**SURG SCI 634 – SMALL ANIMAL ANESTHESIA LABORATORY**

1 credit.

Apply principles and techniques of veterinary anesthesiology to common companion animals.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Identify and summarize the important properties of common pharmaceuticals administered pre, intra and post-operatively for sedation, analgesia, induction, and maintenance of anesthesia Audience: Undergraduate

2. Identify and summarize the important properties of common patient monitoring equipment, including but not limited to: pulse oximeter (heart rate SpO<sub>2</sub>), Doppler (blood pressure heart rate), temperature probes, capnometers/capnographs (EtCO<sub>2</sub> respiration) Audience: Undergraduate

3. Perform a comprehensive physical examination of a small animal patient, determine pertinent differential diagnoses based on that physical exam, prioritize and perform relevant diagnostic tests and therapeutics to resolve any health problems as part of a pre-anesthetic work-up Audience: Undergraduate

4. Perform complete anesthetic station set-up, including selection and knowledge of appropriate intra- operative patient monitoring equipment and thermoregulatory units Audience: Undergraduate

5. Demonstrate proper anesthetic technique for the following- intravenous catheterization, intramuscular, subcutaneous and intravenous injections, anesthetic induction, intubation, patient positioning and maintenance and recovery of general anesthesia in a small animal patient Audience: Undergraduate

6. Calculate proper intravenous fluid amounts, set up a proper fluid administration set for each patient, and deliver prescribed amounts of fluids both subcutaneously and intravenously peri-operative Audience: Undergraduate

7. Show proficiency with various anesthetic breathing systems (Modified Mapleson D systems) and rebreathing systems (F Y circle systems) and machines (Drager's Versa II's), including set-up, pressure checking, and checking/filling inhalant levels Audience: Undergraduate

8. Recognize, differentiate and mitigate peri-operative anesthetic complications and pain Audience: Undergraduate

9. Complete pre- anesthetic SOAP work-up and intra-operative anesthetic record keeping Audience: Undergraduate

**SURG SCI 638 – VETERINARY DIAGNOSTIC IMAGING**

2 credits.

Veterinary radiology principles, physical background and diagnostic techniques will be taught and emphasized in laboratory exercises.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Fall 2023

**Learning Outcomes:** 1. Learn principals of Image formation in Radiography, CT, MRI, Ultrasound and Nuclear Medicine Audience: Undergraduate

10. Develop skills in clear and logical client-directed and peer communication of: Prioritized basic plan for additional clinical tests and treatment Audience: Undergraduate

2. Learn principles of Image interpretation in the 5 modalities Audience: Undergraduate

3. Learn principles of Contrast media used in Radiography, CT, MRI and Ultrasound Audience: Undergraduate

4. Learn principles of Biological effects, operator hazards and protective measures in the 5 modalities Audience: Undergraduate

5. Develop a technique to "read" radiographs and learn to recognize lesions - laboratories on Wednesday afternoons are where students can hone their interpretation skills Audience: Undergraduate

6. Learn imaging features of common diseases of: Small and large animal musculoskeletal diseases and Small animal neurological, thoracic and abdominal diseases Audience: Undergraduate

7. Learn advantages and limitations of each of the 5 imaging modalities in examining various organ systems Audience: Undergraduate

8. Develop skills in clear and logical client-directed and peer communication of: Pertinent radiographic signs Audience: Undergraduate

9. Develop skills in clear and logical client-directed and peer communication of: Prioritized differential diagnoses for each Roentgen sign Audience: Undergraduate

**SURG SCI 642 – LARGE ANIMAL SURGERY: CLINICAL ROTATION**

2 credits.

Learn the admission, examination, preoperative management, surgical procedures and postoperative management of large animals presented to the Veterinary Medical Teaching Hospital. Hands-on experience in the Large Animal Surgery Service.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Effectively communicate patient signalment and pertinent case information to colleagues to develop a differential diagnosis Audience: Undergraduate

2. Select, perform, and interpret pre- and post-operative diagnostic tests Audience: Undergraduate

3. Integrate findings from patient history, physical exam, and tests and imaging to formulate comprehensive diagnostic and treatment plans for surgical patients Audience: Undergraduate

4. Describe basic surgical principles in large animal surgery such as wound management and common surgical procedures Audience: Undergraduate

5. Recognize situational limitations or indications for patient referral to a specialist Audience: Undergraduate

6. Describe introductory level of knowledge in equine lameness including the basic elements of lameness evaluation, nerve blocks, etc. Audience: Undergraduate

7. Document procedures and treatments in medical records, treatment sheets, and surgical reports Audience: Undergraduate

8. Create patient discharge instructions using appropriate language for client communication, understanding, and compliance Audience: Undergraduate

**SURG SCI 644 – CLINICS-SMALL ANIMAL ORTHOPEDIC SURGERY**

2 credits.

Rotation through orthopedic and neurosurgical clinics and surgery.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Obtain a complete history and understand and complete the steps to a physical exam and orthopedic assessment Audience: Undergraduate

2. Prioritize a differential diagnosis and refined problem list based on patient history and physical exam Audience: Undergraduate

3. Design appropriate diagnostic and therapeutic plans for patients Audience: Undergraduate

4. Effectively communicate patient signalment, history, and diagnostic and therapeutic plan to colleagues Audience: Undergraduate

5. Describe and identify indications for patient referral Audience: Undergraduate

6. Describe common orthopedic surgical procedures and post-operative care Audience: Undergraduate

7. Report procedures and treatments in medical records, treatment sheets, and surgical reports Audience: Undergraduate

**SURG SCI 645 – SENIOR ROTATION IN SMALL ANIMAL GENERAL SURGERY**

2 credits.

Hands-on diagnosis and treatment of general surgical diseases of small animal species.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Develop prioritized differential diagnoses based on patient history, comprehensive physical exam, and refined problem list Audience: Undergraduate

2. Effectively communicate patient signalment and pertinent case information to colleagues Audience: Undergraduate

3. Select, perform, and interpret pre- and post-operative diagnostic tests Audience: Undergraduate

4. Describe indications for patient referral to a surgical specialist Audience: Undergraduate

5. Adapt client communication style for gaining client trust and understanding Audience: Undergraduate

6. Describe surgical principles of wound management and common surgical procedures Audience: Undergraduate

7. Report procedures and treatments in medical records, treatment sheets, and surgical reports Audience: Undergraduate

8. Create patient discharge instructions using appropriate language for client communication understanding, and compliance Audience: Undergraduate

**SURG SCI 646 – VETERINARY ANESTHESIOLOGY-CLINICAL ROTATION**

2 credits.

Clinical anesthesia and pain management techniques including pre-anesthetic evaluation, induction procedures, intraoperative anesthetic and analgesic care and recovery management of small, large and exotic animal species. Critical patient care, novel anesthetic and analgesic techniques and cardiopulmonary resuscitation.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Obtain an oral history and perform a complete physical examination to identify clinical problems and abnormalities Audience: Undergraduate

2. Apply foundational anesthetic principles and management and patient history to create an anesthetic work-up plan Audience: Undergraduate

3. Evaluate and administer appropriate drugs (type/dose/volumes) and monitors based on work-up plan Audience: Undergraduate

4. Monitor anesthetic depth during procedures and adapt treatment plan according to physical parameters Audience: Undergraduate

5. Describe and apply appropriate drug administration and CPR techniques for emergent patients Audience: Undergraduate

6. Report procedures and treatments in medical records, treatment sheets, and surgical reports Audience: Undergraduate

### **SURG SCI 647 – RADIOLOGY CLINICS**

2 credits.

Clinical clerkship in the Veterinary Medical Teaching Hospital. Provides exercises in technical and interpretive diagnostic radiology.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Model low-stress handling and humane restraint of live animals Audience: Undergraduate

2. Demonstrate appropriate radiographic techniques and radiation safety to obtain quality diagnostic images Audience: Undergraduate

3. Label images appropriately and interpret abnormal imaging findings using Roentgen sign approach Audience: Undergraduate

4. Prioritize a list of differential diagnoses based on available information and classify diseases associated with radiographic findings Audience: Undergraduate

5. Develop a diagnostic plan and describe indications for additional tests or referrals Audience: Undergraduate

### **SURG SCI 675 – SPECIAL TOPICS**

1-5 credits.

Topics vary.

**Requisites:** Declared in Doctor of Veterinary Medicine

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Develop competence and professional skills in veterinary medicine Audience: Undergraduate

2. Explore current topics and trends in veterinary medicine Audience: Undergraduate

3. Developing breadths of experiences related to veterinary medicine Audience: Undergraduate

### **SURG SCI 676 – SPECIAL SPECIES HEALTH**

2 credits.

Basic principles of the clinical management of exotic pet species, with an emphasis on small mammals (rabbits, rodents, etc), birds and reptiles commonly kept as companion animals.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Provide the correct husbandry recommendations for small mammals, birds and reptiles maintained as pets Audience: Undergraduate

2. Identify common disorders in small mammals, birds and reptiles maintained as pets Audience: Undergraduate

3. Demonstrate a basic understanding anatomy and physiology of small mammals, birds, and reptiles Audience: Undergraduate

### **SURG SCI 677 – VETERINARY DENTISTRY ELECTIVE**

1 credit.

Introduction to veterinary dentistry principles and practice.

**Requisites:** Declared in Doctor of Veterinary Medicine with third year standing

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Describe indications and techniques for the safe administration of regional oral anesthesia Audience: Undergraduate

2. Safely perform single and multi-rooted dental extractions with surgical flaps and tension free closure Audience: Undergraduate

3. Compare and contrast various oral pathologic conditions and describe various treatment options associated with each Audience: Undergraduate

4. Recognize clinical signs and symptoms associated with periodontal and/or endodontic disease and list appropriate treatment options Audience: Undergraduate

5. Describe various oral trauma symptoms, imaging modalities and treatment options Audience: Undergraduate

6. List and describe conditions unique to feline oral disease and their treatment Audience: Undergraduate



**SURG SCI 699 – DIRECTED STUDY**

1-5 credits.

Projects in the laboratory and/or through library work in specific subject area under the direct guidance of a faculty member.

**Requisites:** Consent of instructor

**Course Designation:** Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Apply foundational veterinary knowledge and critical thinking to identify problems in veterinary medicine Audience: Undergraduate

2. Develop professional veterinary medicine skills of interest by performing select techniques and procedures Audience: Undergraduate

3. Communicate in written and/or verbal reports to veterinary colleagues and supervisors Audience: Undergraduate

**SURG SCI 710 – SPECIAL SPECIES CLINICAL ROTATION**

2 credits.

Develop clinical proficiency in the basic veterinary care of common exotic pet species routinely seen in general veterinary practice. Learn how to obtain comprehensive medical histories, how to safely restrain, obtain samples and administer drugs in a variety of common exotic pet species. Develop a solid understanding on how to manage common disorders seen in small exotic mammals, pet birds and pet reptiles.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, for 1 number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Safely restrain and handle a variety of common exotic pet species Audience: Graduate

2. Perform complete physical examinations in a variety of common exotic pet species Audience: Graduate

3. Suggest effective and safe sedation protocols for a variety of common exotic pet species Audience: Graduate

4. Become proficient in the in the intramuscular and subcutaneous drug administration in various exotic pet species Audience: Graduate

5. Formulate a problem list, diagnostic plan, prognosis and make therapeutic suggestions for a variety of common disorders seen in exotic pets Audience: Graduate

**SURG SCI 711 – WILDLIFE REHABILITATION MEDICINE ROTATION**

2 credits.

Rotation is a partnership between the UW Vet School, Dane County Humane Society's Wildlife Center and the Wisconsin Humane Societies' (WHS) Wildlife Center in Milwaukee. Develop clinical proficiency in wildlife rehabilitation. Work closely with licensed wildlife rehabilitators at wildlife centers to learn more about native wildlife in rehabilitation settings. Participate in veterinary patient rounds, which are led by UW veterinarians at wildlife centers. Cadaver laboratories, topic presentations and radiograph and blood smear reviews will complement the patient-based learning.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, for 1 number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Safely restrain and handle a variety of common native wildlife species Audience: Graduate

2. Perform complete physical examinations in a variety of common native wildlife species Audience: Graduate

3. Suggest effective and safe sedation protocols for a variety of native wildlife species Audience: Graduate

4. Become proficient in the in the intramuscular and subcutaneous drug administration in a variety of native wildlife species Audience: Graduate

5. Formulate a problem list, diagnostic plan, prognosis and make therapeutic suggestions for a variety of common disorders seen in native wildlife species Audience: Graduate

### **SURG SCI 712 – ZOOLOGICAL MEDICINE CLINICAL ROTATION**

2 credits.

Practice medical management of zoological species kept in small- to medium-sized zoological facilities and wildlife rehabilitation cases, in collaboration with local facilities, such as Henry Vilas Zoo, Ochsner Park Zoo, and the Dane County Humane Society's Wildlife Center. Prepare for clinical cases, provide on-site medical evaluations, and complete medical records.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, for 2 number of completions

**Last Taught:** Spring 2023

**Learning Outcomes:** 1. Conduct visual and physical health assessments on a variety of zoological species Audience: Graduate

2. Create a preventive health plan (including routine vaccine recommendations) for a variety of zoological species Audience: Graduate

3. Suggest effective and safe sedation or anesthesia protocols, including methods of drug administration, for a variety of zoological species Audience: Graduate

4. Apply knowledge of domestic animal medicine, clinical pathology, and radiographic anatomy to a variety of zoological species Audience: Graduate

5. Formulate a problem list, diagnostic plan, differential diagnosis list, prognosis, and therapeutic plan for a variety of common disorders seen in zoological species Audience: Graduate

### **SURG SCI 714 – SMALL ANIMAL RADIATION ONCOLOGY ROTATION**

1-2 credits.

Apply clinical veterinary medicine in a small animal oncology setting that focuses on radiotherapy. Work alongside veterinarians and veterinary technicians with expertise in veterinary oncology. Participate in case management and client communication. Expand general knowledge about cancer in dogs and cats, including diagnosis and treatment. Learn about the role of radiotherapy in the treatment of cancer. Understand the patient experience during cancer treatment, specifically related to radiation. Learn about alternative treatment options when radiotherapy is not feasible. Practice clinical skills including physical examination, venipuncture, fine needle aspiration, tissue biopsy, image interpretation, and record keeping.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, for 1 number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Become familiar with tumor types treated with radiotherapy and their biologic behavior. Audience: Graduate

10. Practice communication skills involved in getting a history from a pet-owner/client, client education, and clinical team collaboration. Audience: Graduate

2. Understand when and why radiotherapy is used and how it works. Audience: Graduate

3. Learn about radiation side effects and how to manage them. Audience: Graduate

4. Become familiar with the animal's and pet-owner's experience during radiotherapy including with daily anesthesia. Audience: Graduate

5. Understand the benefits of conformal radiation delivery techniques. Audience: Graduate

6. Understand the history of tomotherapy at the University of WI-Madison. Audience: Graduate

7. Be familiar with alternative treatment options when radiotherapy is not feasible. Audience: Graduate

8. Interpret radiographs and CT scans used in the diagnosis of tumors and in the planning of radiation. Audience: Graduate

9. Practice the following clinical skills: performing physical examinations, creating and implementing diagnostic and treatment plans, performing tissue sampling including fine needle aspiration and biopsy, venipuncture, and record keeping. Audience: Graduate

**SURG SCI 741 – CLINICAL OPHTHALMOLOGY ROTATION**

2 credits.

Provides experience in ocular examination, problem solving skills, and formulation of diagnostic and therapeutic plans for animals presenting with eye disease. Ocular examination as part of the complete physical examination and ocular manifestations of systemic diseases are emphasized.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Perform a complete ophthalmic examination using appropriate instrumentation to identify common ophthalmic diseases and abnormalities in veterinary patients Audience: Graduate

2. Execute and interpret the results of basic ophthalmic tests Audience: Graduate
3. Formulate differential diagnoses for ophthalmic examination and diagnostic findings Audience: Graduate
4. Integrate history, ophthalmic/physical examination findings, and diagnostic test results to make an accurate clinical diagnosis(es) Audience: Graduate
5. Devise a treatment plan for the most common ophthalmic diseases in animals Audience: Graduate

**SURG SCI 743 – ADVANCED ANESTHESIOLOGY/CRITICAL CARE MEDICINE**

2 credits.

Provides advanced, in-depth training in the areas of small, large and exotic animal anesthesia and pain management.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Recognize describe indicators of medical instability in critical patients Audience: Graduate

2. Apply appropriate basic procedural skills on patients in critical care Audience: Graduate
3. Demonstrate effective collaboration with critical care team to implement treatment plans Audience: Graduate
4. Demonstrate effective oral and/or written communication with critical care team and clients Audience: Graduate

**SURG SCI 744 – RESTRAINT AND ANESTHESIA OF EXOTIC ANIMALS**

2 credits.

Provides advanced, directed anesthetic and restraint techniques for multiple exotic animal species such as rodents, rabbits, amphibians, reptiles, primates, fish and birds. The unique pharmacology and physiology of each species will be emphasized.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Summer 2023

**Learning Outcomes:** 1. Apply the variations in anatomy and physiology of non-domestic species to provide tailored anesthetic care to a variety of species Audience: Graduate

2. Solve challenges associated with the presentation of a novel species by integrating the skills and knowledge learned in this course with self-guided research of the differences in anatomy, physiology, and pharmacology of the novel species Audience: Graduate
3. Construct and implement a complete perianesthetic plan for non-domestic classes and families of animals including birds, rabbits, rodents, fish, frogs, and reptiles Audience: Graduate
4. Apply and interpret the information obtained by anesthetic monitors and realize their individual strengths and limitations in a variety of species. Audience: Graduate

### **SURG SCI 746 – FOOD ANIMAL SURGERY**

2 credits.

Provides didactic and surgical experience in the major, common surgical diseases of cattle and pigs.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Effectively communicate patient signalment and pertinent case information to colleagues to develop a differential diagnosis Audience: Graduate

2. Select, perform, and interpret pre- and post-operative diagnostic tests Audience: Graduate

3. Integrate findings from patient history, physical exam, and tests and imaging to formulate comprehensive diagnostic and treatment plans for surgical patients Audience: Graduate

4. Describe basic surgical principles in food animal surgery such as wound management and common surgical procedures Audience: Graduate

5. Document procedures and treatments in medical records, treatment sheets, and surgical reports Audience: Graduate

### **SURG SCI 748 – DENTISTRY AND ORAL SURGERY ROTATION**

1-3 credits.

Dentistry, oral medicine and surgery as well as comprehensive patient care through the use of progressive methods, hospital resources and interdisciplinary specialists.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Understand and complete the steps to a complete oral health assessment Audience: Graduate

2. Use appropriate techniques to acquire dental radiographs and interpret image findings Audience: Graduate

3. Safely administer appropriate dental nerve blocks for general dental procedures Audience: Graduate

4. Properly extract maxillary canine, mandibular canine, maxillary fourth premolar tooth and mandibular molar tooth in cadaveric lab exercises Audience: Graduate

5. Integrate findings from patient history, oral exam, and dental radiograph to formulate a comprehensive oral health treatment plan Audience: Graduate

### **SURG SCI 750 – SMALL ANIMAL ULTRASOUND ELECTIVE**

1 credit.

Introduction to hands-on ultrasound imaging and expand on selected portions of ultrasound physics, literature and problem-based case studies.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2024

**Learning Outcomes:** 1. Model low-stress handling and humane restraint of small animal patients Audience: Graduate

2. Apply basic ultrasound techniques to identify organs, recognize imaging artifacts, and obtain diagnostic quality images Audience: Graduate

3. Interpret abnormal imaging findings and prioritize a list of differential diagnoses based on available information Audience: Graduate

4. Design appropriate diagnostic and therapeutic plans for small animal patients based on ultrasound results and clinical information Audience: Graduate

### **SURG SCI 775 – EXTERNSHIP**

1-24 credits.

Offers opportunities for faculty coordinated experience in the veterinary medical profession outside School of Veterinary Medicine.

**Requisites:** Declared in Doctor of Veterinary Medicine with fourth year standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2023

**Learning Outcomes:** 1. Understand real-world applications of foundational veterinary medical knowledge and skills Audience: Graduate

2. Apply foundational veterinary knowledge and critical thinking to solve real-world problems Audience: Graduate

3. Perform select techniques and procedures to develop various skills professional in veterinary medicine Audience: Graduate

**SURG SCI 812 – RESEARCH ETHICS AND CAREER DEVELOPMENT**

2 credits.

Provides instruction in principles and concepts of research ethics through presentations and discussion of case studies. Topics pertinent to development of a successful career in research are also included.

**Requisites:** Graduate/professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Fall 2023

**Learning Outcomes:** 1. Make decisions that are consistent with the general understanding of best practices in responsible conduct of research

Audience: Graduate

2. Communicate own science with skill Audience: Graduate

3. Know where to obtain guidance to continue to improve in research ethics Audience: Graduate