

# VETERINARY MEDICINE (VMED)

## VMED 7113 Veterinary Physiology II

**Prerequisites:** First-year standing in the College of Veterinary Medicine.

**Description:** Study of molecular, cellular and organ system physiology with emphasis on establishing a base of knowledge and understanding requisite courses within the curriculum of veterinary medicine.

Continuation of VMED 7114. (8 week course) Previously offered as VMED 7120.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## VMED 7114 Veterinary Physiology I

**Prerequisites:** First-year standing in the College of Veterinary Medicine.

**Description:** To introduce students to the relevant concepts of cell physiology and cardiovascular physiology, providing a foundation for Physiology II and III, clinical coursework and clinical rotations. Previously offered as VMED 7110.

**Credit hours:** 4

**Contact hours:** Lecture: 4 Contact: 4

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## VMED 7123 Veterinary Histology

**Prerequisites:** First-year standing in the College of Veterinary Medicine.

**Description:** Organization and structure of cells and tissues of domestic animals. Previously offered as VMED 5123.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Professional

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Dean of Veterinary Med

## VMED 7152 Zootechnology

**Prerequisites:** First-year standing in the College of Veterinary Medicine.

**Description:** Animal breeds and identification, animal production and marketing systems and animal handling and restraint as it applies to production and marketing. Previously offered as VMED 5152.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## VMED 7162 Orientation to the Veterinary Medical Profession

**Prerequisites:** First year standing in College of Veterinary Medicine.

**Description:** Introduction to veterinary jurisprudence, ethics, licensing, government regulations, human-animal bond, and evolving issues in animal law and animal welfare.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## VMED 7235 Veterinary Physiology III

**Prerequisites:** First-year standing in the College of Veterinary Medicine.

**Description:** Molecular, cellular and organ system physiology.

Establishing a base of knowledge and understanding requisite to subsequent courses. Previously offered as VMED 7230.

**Credit hours:** 5

**Contact hours:** Lecture: 5 Contact: 5

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## VMED 7401 Introduction to Beef Production Medicine Elective

**Prerequisites:** Second-year or third-year standing in the College of Veterinary Medicine.

**Description:** This course will provide students with an understanding of the beef production industry in the United States. Students will gain an understanding of the importance of beef production to the US and global food production, the structure and function of the US beef industry, and the role of a veterinarian in beef production medicine. The course will be a combination of lecture and discussion format. If possible, the course will also include field trips to visit examples of the various segments of the beef industry.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

## VMED 7411 Best Practices Business Model for Veterinarians Elective

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Online introduction to personal financial literacy and business management. This is a modular-format, online accessible course constructed by the Beef Cattle Institute at Kansas State University. Students will complete the course at their own pace. Graded on a pass/fail basis. Previously offered as VMED 7410.

**Credit hours:** 1

**Contact hours:** Contact: 1 Other: 1

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

## VMED 7431 Small Animal Nutrition Elective

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Discussion of clinical nutrition for dogs and cats, designing a feeding plan for small animal patients and nutritional management of various disease states. Discussions will include nutritional assessment, how to read a pet food label, how to evaluate unconventional diets, feline nutrition, and nutritional case management. Types of cases that will be covered include canine and feline obesity, gastrointestinal diseases and critical care cases.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7441 Intro to Veterinary Emergency Response and Disaster Management Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** This course will introduce the principles and structure of emergency management including the incident Command System and the hierarchies. Basics of animal disaster management, including hazard recognition, disaster life cycle, development of Emergency Operations Plans, and veterinarian's role in disasters from the state to local level will be presented as well as management and sheltering of small and large animals pre and post disasters. Veterinary business emergency plans will be discussed.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7451 Advanced Veterinary Clinical Parasitology Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Offers an opportunity to explore key topics in veterinary parasitology in greater depth, including perceptions of parasites in society, diagnostic challenges in medicine, the scientific evidence behind parasiticide resistance and toxicity, and the marketing of parasiticides in veterinary medicine. In addition, students are guided through the process of developing and communicating management strategies for specific parasite challenges.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7481 Special Topics in Applied Anatomy: A Case-Based Approach Elective**

**Prerequisites:** First, second or third-year standing in the College of Veterinary Medicine.

**Description:** Students will choose a small or large animal topic where anatomy plays a role in either the cause or treatment of the condition (or both). The IOR/student will contact an appropriate clinical faculty member who will choose a case from the VTH representing the condition of choice, the student will prepare a 20-30 minute presentation discussing the condition relevant anatomy and present case example from vth.

**Credit hours:** 1

**Contact hours:** Contact: 1 Other: 1

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

**VMED 7510 Research Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Participation in faculty-directed projects to enhance career development in veterinary biomedical research. Students participate in a process mimicking investigator-initiated research by developing a research proposal, participating in a competitive peer-review process, and reporting on completed research project. Letter grade to be assigned. Course previously offered as VMED 5510. Offered for variable credit, 1-2 credit hours, maximum of 2 credit hours.

**Credit hours:** 1-2

**Contact hours:** Contact: 1-2 Other: 1-2

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

**VMED 7512 Laboratory Animal Medicine Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Introductory course focusing on the biology and major diseases of commonly used laboratory animals. Course previously offered as VMED 7721.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7513 Veterinary Acupuncture Elective**

**Prerequisites:** Second-year standing in the College of Veterinary Medicine.

**Description:** The Veterinary Acupuncture Elective is an integrative treatment modality that immerses students in a series of hybrid online lectures and in-person laboratory sessions.

**Credit hours:** 3

**Contact hours:** Contact: 3 Other: 3

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

**VMED 7521 Veterinary Practice Management Elective**

**Prerequisites:** Second- or third-year standing in College of Veterinary Medicine.

**Description:** Skills and background for success as an employee in private veterinary practice. Successful practice is defined in terms of the perceived value received in the delivery of veterinary medical services, doctor-client communication skills, and aesthetic quality of the environment in which services are delivered. Business management of private practice, personal finances, and personnel management. Course previously offered as VMED 5521.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7522 Small Animal Medical Diagnosis: Signs and Symptoms Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Introduction to clinical problem solving through application of a problem-oriented approach to clinical diagnosis. Discussion of major problems (clinical signs and symptoms) affecting animals, and the pathophysiology of each clinical sign, its differential diagnosis and symptomatic management. Review of key anatomical, pathological and immunological concepts learned in basic science courses. Course previously offered as VMED 5522.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7533 Toxicology**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.

**Description:** Diagnosis and management of intoxications involving plant, chemical and biological toxins. Course previously offered as VMED 6533.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7541 Introduction to Food Animal Production Systems Elective**

**Prerequisites:** Second-year or third-year standing in the College of Veterinary Medicine.

**Description:** Consists of a week-long field trip of food animal production operations in Oklahoma and Texas providing exposure to beef cattle, swine and dairy production industries. Includes group presentation of the experience.

**Credit hours:** 1

**Contact hours:** Contact: 1 Other: 1

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

**Additional Fees:** VM Course Supply & Mat VMED7541 fee of \$50 applies.

**VMED 7542 Clinical Endocrinology I Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Advanced medical endocrinology addressing diagnostic endocrinology and therapeutic endocrinology. Diagnostic endocrinology shall examine the physiological and medical basis for selecting provocative or non-provocative testing procedures as an adjunct to completing a definitive diagnosis. Therapeutic endocrinology involves the use of diagnostic endocrinology to evaluate the efficacy of medical treatment of endocrinopathies and the medical use of hormonal preparations to control animal physiology or endocrinology and non-endocrine diseases.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7551 Food Animal: Advanced Techniques Elective**

**Prerequisites:** Second-year standing in the College of Veterinary Medicine.

**Description:** This elective is designed to give second year students the opportunity to learn how to perform some of the most commonly performed procedures in food animal medicine in regards to the modalities of treatment, diagnostics, herd health, local anesthesia and Pharmacology. One hour per week will be spent as formal lecture to provide some theory for the procedures and techniques to be performed during the laboratory periods.

**Credit hours:** 1

**Contact hours:** Lab: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lab

**Department/School:** Dean of Veterinary Med

**Additional Fees:** VM Consummable VMED 7551 fee of \$30 applies.

**VMED 7561 Introduction to Shelter Medicine Elective**

**Prerequisites:** Second-year or third-year standing in the College of Veterinary Medicine.

**Description:** Introduction course on topics relevant to shelter medicine. Discusses major subjects and issues important to practicing medicine in the shelter setting.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7562 Avian and Exotic Pet Medicine Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.

**Description:** Clinical diagnosis, management and treatment, prognosis, and prevention of diseases in avian and exotic pets. Introductory material provided to familiarize students with the species discussed and where clinically important; however, student understanding of the basic sciences required and assumed. Course previously offered as VMED 5562.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**Additional Fees:** VM Consummable VMED 7562 fee of \$55 applies.

**VMED 7572 Introduction to Behavioral Medicine Elective**

**Description:** Normal behavior of the dog and cat, basic procedures and methods for diagnosing and treating behavioral problems. Previously offered as VMED 5571 and VMED 7571.

**Credit hours:** 2

**Contact hours:** Lecture: 1 Lab: 2 Contact: 3

**Levels:** Professional

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Dean of Veterinary Med

**VMED 7591 International Veterinary Medicine Elective**

**Prerequisites:** Second-year or third-year standing in the College of Veterinary Medicine.

**Description:** Overview of the importance of veterinarians and the wide range of activities in which they participate around the world including the military, public health agencies, humanitarian relief agencies, wildlife preservation groups and faith-based agencies.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7610 Basic Science Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Problems in the basic sciences taught as lecture or lab. Previously offered as VMED 6610. Graded on a pass-fail basis.

**Credit hours:** 1-4

**Contact hours:** Contact: 1-4 Other: 1-4

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

**VMED 7630 Clinical Science Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Problems in the clinical sciences taught as lecture or lab. Previously offered as VMED 7620. Graded on a pass-fail basis.

**Credit hours:** 1-8

**Contact hours:** Contact: 1-8 Other: 1-8

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med

**VMED 7651 Equine Theriogenology Laboratory Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.

**Description:** Introduction to palpation, ultrasonographic examination and breeding preparation of the mare reproductive tract.

**Credit hours:** 1

**Contact hours:** Lab: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Clinical

**Department/School:** Dean of Veterinary Med

**Additional Fees:** VM Consummable VMED 7651 fee of \$300 applies.

**VMED 7652 Introduction To Clinics II**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.

**Description:** Rotations through instructional and service areas, including the Veterinary Teaching Hospital of the College of Veterinary Medicine. Previously offered as VMED 6652.

**Credit hours:** 2

**Contact hours:** Lab: 4 Contact: 4

**Levels:** Professional

**Schedule types:** Clinical

**Department/School:** Dean of Veterinary Med

**VMED 7661 Infectious and Parasitic Diseases of Wild Animals Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Systematic approach to infectious and parasitic diseases affecting wild animals. Capture, restraint, and disease recognition in wild species, population management implications of disease diagnosis. Previously offered as VMED 5661.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7671 Clinical Endocrinology II Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Advanced medical endocrinology, focusing on endocrine diseases associated with (1) dysfunction of the endocrine pancreas, (2) selected endocrineopathies of the reproductive system, and (3) therapeutic use of hormones to control reproductive activity of animals.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7672 Swine Production and Diseases Elective**

**Prerequisites:** Second or third-year standing in the College of Veterinary Medicine.

**Description:** Problem-based course related to swine diseases and production systems.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7681 Case Studies In Clinical Neurology Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Case based, problem oriented clinical diagnosis, management, treatment and prevention of small animal neurological diseases.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7682 Small Ruminant Production, Management, Medicine and Surgery Elective**

**Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.

**Description:** Production, management, medical and surgical diseases of sheep, goats, and llamas used for production and companion animals. Previously offered as VMED 5682.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7692 Veterinary Dental Education Online and Practical Dentistry Elective****Description:** -**Credit hours:** 2**Contact hours:** Lab: 4 Contact: 4**Levels:** Professional**Schedule types:** Clinical**Department/School:** Dean of Veterinary Med**VMED 7710 Veterinary Study Abroad Elective****Prerequisites:** Second- or third-year standing in the College of Veterinary Medicine.**Description:** Participation in international animal health activities having an educational component, either through didactic instruction, service learning, workshop participation, and others. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.**Credit hours:** 1-3**Contact hours:** Contact: 1-3 Other: 1-3**Levels:** Professional**Schedule types:** Independent Study**Department/School:** Dean of Veterinary Med**VMED 7711 Problem-Based Ophthalmology Elective****Prerequisites:** Third-year standing in the College of Veterinary Medicine. Case-based, problem-oriented discussions of small animal and equine ophthalmology cases.**Description:** Case-based, problem-oriented discussions of small animal and equine ophthalmology cases. Key points in the case history, the significance of signalment in the diagnosis, clinical diagnosis, supportive diagnostic tests, and treatment. General discussion of the specific disease following the case discussion.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Professional**Schedule types:** Lecture**Department/School:** Dean of Veterinary Med**VMED 7712 Systemic Pathology: Case Studies and Mechanisms of Disease Elective****Prerequisites:** Third-year standing in the College of Veterinary Medicine.**Description:** Selected diseases of major organ systems will be approached as an exercise in critical diagnostics thinking. Review of salient pathological responses for each system. Relevant journal articles to emphasize need for continued, self-guided learning.**Credit hours:** 2**Contact hours:** Lecture: 1 Contact: 2 Other: 1**Levels:** Professional**Schedule types:** Discussion, Combined lecture & discussion, Lecture**Department/School:** Dean of Veterinary Med**VMED 7742 Bovine Theriogenology and Regulatory Medicine Elective****Prerequisites:** Third-year standing in the College of Veterinary Medicine.**Description:** Palpation techniques in cows. Previously offered as VMED 7741.**Credit hours:** 2**Contact hours:** Lab: 4 Contact: 4**Levels:** Professional**Schedule types:** Lab**Department/School:** Dean of Veterinary Med**Additional Fees:** VM Consummable VMED 7742 fee of \$250 applies.**VMED 7761 Introduction to Integrative Medicine: An Investigation into Holistic Veterinary Medicine Elective****Prerequisites:** Third-year standing in the College of Veterinary Medicine.**Description:** This course will provide an overview of current modalities being utilized as alternative therapies in Veterinary Medicine. The student will gain an appreciation for the importance of complementary medicine, and the evidence available to support its use. Students will also gain an understanding of critically assessing the research available and determining whether the information is clinically relevant.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Professional**Schedule types:** Lecture**Department/School:** Dean of Veterinary Med**VMED 7771 Essentials in Equine Practice: Medicine Elective****Prerequisites:** Third-year standing in the College of Veterinary Medicine.**Description:** Topics are related to equine medicine, ophthalmology, cardiology, and/or theriogenology that are not covered in detail in core curriculum. Aim is to supplement information and provide exposure to basic clinical techniques commonly performed in equine practice. A clinical perspective will be emphasized and hands-on laboratories used as an adjunct when appropriate.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Professional**Schedule types:** Lecture**Department/School:** Dean of Veterinary Med**Additional Fees:** VM Consummable VMED 7771 fee of \$450 applies.**VMED 7781 Professional Veterinary Medicine****Prerequisites:** Third-year standing in the College of Veterinary Medicine.**Description:** A capstone course preparing third-year veterinary students for clinical training. Topics include: non-technical skills, knowledge, aptitudes, and attitudes; veterinary career opportunities in public practice, and preparation for the North American Veterinary Licensing Examination (NAVLE).**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Professional**Schedule types:** Lecture**Department/School:** Dean of Veterinary Med**VMED 7811 Basic Techniques in Equine Surgery and Sports Medicine Elective****Description:** To provide the equine or mixed animal practice oriented student with in-depth knowledge/techniques concerning topics and procedures important for success in equine practice. Focuses on topics relative to the practice of equine sports medicine and minor surgery (lameness examination, castration, field anesthesia). Material will be applied to hands-on laboratories using models, live horses and/or cadaver specimens when appropriate. Graded on a pass-fail basis.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Professional**Schedule types:** Lecture**Department/School:** Dean of Veterinary Med**Additional Fees:** VM Consummable VMED 7811 fee of \$450 applies.



**VMED 7822 Food Animal Production Medicine Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.  
**Description:** Production animal agriculture and the veterinarian's present and future role in these enterprises. Cattle production is emphasized. Cycles of production, economics and health programs will be discussed. For students intending to enter mixed animal or exclusive food animal practices. Course previously offered as VMED 6622.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7841 Food Animal Surgery Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.  
**Description:** Detailed examination and review of commonly utilized local anesthetic techniques, injectable anesthetic techniques, and surgical procedures in food animal practice. Major topics include digital, mammary, gastrointestinal, and urethral surgery as well as cesarean section. Course previously offered as VMED 6641.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**Additional Fees:** VM Consumable VMED 7841 fee of \$300 applies.

**VMED 7861 Cytology Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.  
**Description:** An introduction to clinical diagnosis using cytology. Topics include sample collection, inflammatory lesions, neoplasia, lymph node cytology, respiratory washes, synovial fluids, and body cavity effusions. The course consists of lectures, multi-head microscope and individual microscope laboratories; cases will be predominantly small animals.

**Credit hours:** 1

**Contact hours:** Lab: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lab

**Department/School:** Dean of Veterinary Med

**VMED 7881 Introduction to Ultrasound Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.  
**Description:** This course will teach the principles of ultrasound imaging, focusing on small animal imaging, but will have general topics as well that apply to all species and applications.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7902 Small Animal Emergency and Critical Care Elective**

**Prerequisites:** Third-year standing in the College of Veterinary Medicine.  
**Description:** Emergency conditions and patients In shock states require rapid assessment, evaluation, Interpretation of the parameters, and Institution of the appropriate treatment to improve the patient's prognosis. This course will provide resources to prepare the student for these very common situations In emergency and critical care medicine. The course is based on lectures, case-based discussions, and two practical activities. In the first practical activity, students will be able to practice thoracocentesis, abdominocentesis, chest tube placement, endotracheal intubation, venous access via cutdown technique, and tracheostomy tube placement. Cadavers will be used for this activity. The second practical activity will involve monitoring techniques such as ECO tracing interpretation, performing a FAST scan, performing blood pressure measurement pulse oximetry placement and evaluation, and basic analysis of a blood gas.

**Credit hours:** 2

**Contact hours:** Lecture: 2 Contact: 2

**Levels:** Professional

**Schedule types:** Lecture

**Department/School:** Dean of Veterinary Med

**VMED 7941 Clinical Skills Outcomes Assessment**

**Prerequisites:** Fourth-year standing in the College of Veterinary Medicine.  
**Description:** Assessment of clinical skills using checklists and/or brief case summaries.

**Credit hours:** 1

**Contact hours:** Contact: 1 Other: 1

**Levels:** Professional

**Schedule types:** Independent Study

**Department/School:** Dean of Veterinary Med