VETERINARY MEDICINE (VMED)

VMED 501 Veterinary Medicine Terminology
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program
Description: Overview of medical terminology used by veterinarians.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

VMED 511 Foundations of Veterinary Medicine
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program
Description: Basic behavior, animal handling and restraint; medical record keeping; physical examination; and clinical cases.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: VMED 512

VMED 512 Foundations of Veterinary Medicine II
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program, VMED 511.
Description: Animal welfare issues, clinical cases, animal handling and restraint.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC
Prerequisite for: VMED 513

VMED 513 Foundations of Veterinary Medicine III
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program, VMED 512.
Description: Ethical issues in veterinary medicine, clinical cases, animal handling and restraint.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: VMED 514

VMED 514 Foundations of Veterinary Medicine IV
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program, VMED 513.
Description: Ethical issues in veterinary medicine, clinical cases, animal handling and restraint.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

VMED 521 Cattle Production Systems I
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program
Notes: Field trips to the Mead Facility will be made as necessary to complete certain objectives. Some field trips may be required on weekends.
Description: Overview of tools and methods veterinarians use to optimize productivity and improve financial success for beef cattle producers, including how to evaluate and monitor production/management strategies and how to integrate the many factors involved in decision making. Specific topics will include late winter feeding, managing cows for breeding, managing replacement heifers, estrus synchronization, artificial insemination, preparing for calving, handling newborn calves, herd genetics, bull selection, vaccines, parasite control, prebreeding health programs, branding, bull management, and marketing strategies.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC
Prerequisite for: VMED 522

VMED 522 Cattle Production Systems II
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program; Cattle Productions Systems I.
Notes: Field trips to the Mead Facility will be made as necessary to complete certain objectives. Some field trips may be required on weekends.
Description: Overview of tools and methods veterinarians use to optimize productivity and improve financial success for beef cattle producers, including how to evaluate and monitor production/management strategies and how to integrate the many factors involved in decision making. Specific topics will include pre-weaning processing, record analysis, data entry, reproductive management, pregnancy diagnosis, replacement heifer selection, weaning data, pregnancy diagnosis data, replacement heifer data, winter nutrition, and feedlots.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

VMED 531 Introduction to Animal Welfare
Prerequisites: Must be admitted to the UNL-ISU Veterinary Medicine Program
Description: The objective of this course is to develop knowledge of the fundamental principles of animal welfare, in terms of science, ethics and cultural components.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC
VMED 550 Nutritional Biochemistry  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Introduce basic biochemical aspects of metabolism and function of energy, protein, fat, minerals and vitamins in the diet. Determine nutrient requirements of food animals, pets and horses under various physiological states. Understand fate of various nutrients in simple stomached animals, ruminants and cecal fermenters. Discuss clinical nutrition problems specific to each species.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LEC

VMED 583 Principles of Surgery I  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** General principles of surgery for and common surgical problems in animals.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC  
**Prerequisite for:** VMED 589

VMED 584 Veterinary Clinical Pathology  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Integration of hematology, clinical chemistry and cytology in mechanisms of disease.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

VMED 589 Anesthesiology and Small Animal Surgery  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program. VMED 583.  
**Description:** Anesthetic equipment, agents and procedures for domestic animals. General principles of surgery of small/companion animal surgery.  
**Credit Hours:** 5  
**Max credits per semester:** 5  
**Max credits per degree:** 5  
**Format:** LEC

VMED 596 SPECIAL TOPICS  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Credit Hours:** 1-2  
**Min credits per semester:** 1  
**Max credits per semester:** 2  
**Max credits per degree:** 4  
**Format:** LEC

VMED 596A Independent Study: Gross Systematic Pathology Lab  
**Prerequisites:** Second year students in the Professional Program of Veterinary Medicine  
**Description:** Evaluation, description and pathogenesis of gross pathologic images of most vertebrate species.  
**Credit Hours:** 1  
**Max credits per semester:** 1  
**Max credits per degree:** 1  
**Format:** LAB

VMED 630 Veterinary Anatomy I  
**Crosslisted with:** VBMS 831  
**Prerequisites:** First year standing in the Professional Program in Veterinary Medicine  
**Description:** Comparative and topographic anatomy of the dog, cat, and pig.  
**Credit Hours:** 6  
**Max credits per semester:** 6  
**Max credits per degree:** 6  
**Format:** LEC  
**Prerequisite for:** VMED 631, VBMS 831

VMED 631 Anatomy II  
**Crosslisted with:** VBMS 831  
**Prerequisites:** VBMS 830  
**Description:** Gross anatomy of domestic ruminants, horses, and birds. An advanced course in detailed gross anatomy incorporating intensive dissection laboratory sessions and classroom lectures.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

VMED 637 Veterinary Neuroanatomy  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Concepts of nervous system functioning, problem identification, and neurologic diseases.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

VMED 642 Veterinary General, Cellular and Molecular Pathology  
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** General mechanisms of disease and lesion development in animals at the molecular, cellular, and organ levels. Topics include: introduction to pathology; basic terminology; overview of normal cell biology; cellular and tissue responses to injury; vascular disorders and thrombosis; acute inflammation; chronic inflammation and wound healing; diseases of immunity; neoplasia and tumor biology.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

VMED 645 Animal Physiology I  
**Crosslisted with:** ASCI 845, BIOS 813, VBMS 845  
**Prerequisites:** First year standing in and admission to VMED.  
**Notes:** Primarily for students in animal or biological sciences or veterinary medicine.  
**Description:** Mammalian physiology and cellular mechanisms. Physiology of the cell, embryology, and neuro-sensory, neuromuscular, endocrine, and reproductive systems.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC  
**Offered:** FALL
### VMED 646 Animal Physiology II
**Crosslisted with:** ASCI 846, BIOS 814, VBMS 846  
**Prerequisites:** First year standing in and admission to VMED.  
**Notes:** ASCI/VBMS 846/BIOS 814/VMED 646 is designed for students in animal or biological sciences or veterinary medicine.  
**Description:** Mammalian physiology and cellular mechanisms. Physiology of the digestive, cardiovascular, respiratory, and renal systems.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC  
**Offered:** SPRING

### VMED 650 Anatomical Radiology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** The study of normal radiographic anatomy of the dog and cat. Emphasis on patient positioning and proper selection of image modalities based on the anatomic area in question.  
**Credit Hours:** 1  
**Max credits per semester:** 1  
**Max credits per degree:** 1  
**Format:** LEC

### VMED 654 Pharmacology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** General principles; drug disposition; drugs acting on the nervous, cardiovascular, renal, gastrointestinal and endocrine systems.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

### VMED 660 Veterinary Histology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Fundamental eukaryotic cell biology and early development, microscopic structure of basic cell types, tissues and organs of the body, following a system/apparatus approach.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

### VMED 672 Veterinary Systemic Pathology I
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** The course will study the pathological changes that occur in the body and emphasize selected animal and zoonotic diseases or syndromes which occur with each system.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

### VMED 673 Veterinary Systemic Pathology II
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program.  
**Notes:** Continuation of VMED 672.  
**Description:** Emphasis on disease process, immunopathology and pathogenesis and mechanisms of disease in domestic animals and select enzootic disease of wildlife and birds.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LEC

### VMED 676 Veterinary Parasitology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Biology of parasites of major veterinary importance. The understanding required for control of parasitism.  
**Credit Hours:** 4  
**Max credits per semester:** 4  
**Max credits per degree:** 4  
**Format:** LEC

### VMED 677 Veterinary Immunology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Principles and mechanisms underlying the immune system.  
**Credit Hours:** 2  
**Max credits per semester:** 2  
**Max credits per degree:** 2  
**Format:** LEC

### VMED 678 Veterinary Microbiology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Bacteria and fungi of veterinary importance. Mechanisms of disease production and laboratory diagnostic methods.  
**Credit Hours:** 5  
**Max credits per semester:** 5  
**Max credits per degree:** 5  
**Format:** LEC

### VMED 679 Veterinary Virology
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** The unique biological features of viruses in terms of their life cycle and tropism in their hosts.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC

### VMED 680 Veterinary Public Health
**Prerequisites:** Must be admitted to the UNL-ISU Veterinary Medicine Program  
**Description:** Fundamentals of epidemiology, zoonotic diseases, occupational health, food safety, and other public health topics.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Format:** LEC