

# VETERINARY AND BIOMEDICAL SCIENCES (VBMS)

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## **VBMS 250 Breeds, Signalment, and Vitals of Domestic Animals**

**Crosslisted with:** PVET 250

**Description:** Fundamentals of signalment assessment including identification of domestic animal breeds, description of coat, color and markings, terms used when describing species, age, gender, reproductive status, and collections of animals, and introduction to species-specific life history and vital signs.

**Credit Hours:** 2

**Max credits per semester:** 2

**Max credits per degree:** 2

**Grading Option:** Graded

## **VBMS 291 Special Topics in Veterinary Science**

**Notes:** Six (6) hours maximum special topics hours total. May be repeated up to three times so long as the topics are different.

**Description:** Special topics in veterinary medicine and biomedical sciences. Topics vary each term.

**Credit Hours:** 1-3

**Min credits per semester:** 1

**Max credits per semester:** 3

**Max credits per degree:** 6

**Grading Option:** Graded with Option

## **VBMS 303 Principles and Prevention of Livestock Diseases**

**Prerequisites:** Juniors and seniors; ASCI 240 or ASCI 340 or BIOS 213 and BIOS 213L.

**Notes:** BIOS 300 or BIOS 312 recommended.

**Description:** Management techniques in the control of metabolic, infectious, and parasitic diseases of domestic animals and understanding of basic concepts of the important diseases of livestock.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

## **VBMS 391 Advanced Special Topics in Veterinary Science**

**Prerequisites:** Junior or Senior standing

**Notes:** Eight (8) hours maximum special topics hours total. May be repeated up to three times so long as the topics are different.

**Description:** Advanced topics in veterinary medicine and biomedical sciences. Topics vary each term.

**Credit Hours:** 1-4

**Min credits per semester:** 1

**Max credits per semester:** 4

**Max credits per degree:** 8

**Grading Option:** Graded with Option

## **VBMS 403 Integrated Principles and Prevention of Livestock Diseases**

**Prerequisites:** ASCI 340 or BIOS 213 and BIOS 213L, BIOS 312, CHEM 251.

**Notes:** Capstone course.

**Description:** Emphasizes integrated management techniques of livestock, and understanding the basic integrated concepts of the important diseases of domestic animals. Biotechnology in animal health and current issues in management practices to control diseases.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Graded with Option

**ACE:** ACE 10 Integrated Product

## **VBMS 406 Introduction to the Principles of Biosecurity and Disease Transmission**

**Crosslisted with:** VMED 506, VBMS 806

**Prerequisites:** VBMS 406: Open to juniors or seniors who have completed LIFE 120 & LIFE 121. VBMS 806: Open to graduate students enrolled in the UNL Graduate College. VMED 506: Open to veterinary professional students.

**Description:** An introduction into biosecurity and the principles of disease transmission. Covering the concepts of infectious disease transmission with practical applications for control and prevention.

**Credit Hours:** 2

**Max credits per semester:** 2

**Max credits per degree:** 2

**Grading Option:** Graded with Option

**Offered:** SPRING

## **VBMS 407 Introduction to Veterinary Anatomy**

**Prerequisites:** LIFE 120 & LIFE 120L and LIFE 121 & LIFE 121L or equivalent.

**Description:** Gross anatomy of the mammalian body, using domestic dog as the model. Macroscopic anatomy of organs and organ systems emphasizing structural and functional relationships, and their contribution to homeostasis of domestic animals. Incorporates detailed study of prosected cadavers and skeletal preparations.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Graded with Option

**Offered:** SPRING

**Course and Laboratory Fee:** \$60

## **VBMS 408 Functional Histology**

**Crosslisted with:** BIOS 408, BIOS 808, VBMS 808

**Prerequisites:** BIOS 101 and 101L or LIFE 120 and 120L; BIOS 213 or ASCI 240 or ASCI 340.

**Description:** Microscopic anatomy of the tissues and organs of major vertebrate species, including humans. Normal cellular arrangements of tissues and organs as related to their macroscopic anatomy and function, with reference to sub-cellular characteristics and biochemical processes. Functional relationships among cells, tissues, organs and organ systems, contributory to organismal well being. General introduction to pathological processes and principles underlying some diseases.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Graded with Option

**Course and Laboratory Fee:** \$15

**VBMS 410 General Pharmacology and Toxicology**

**Prerequisites:** BIOS 213, ASCI 240, or ASCI 340; BIOC 401 or BIOC/BIOS/CHEM 431/831; or equivalent.

**Notes:** Recommended: CHEM 252 and 254; BIOC/BIOS/CHEM 432/832 and CHEM 433/833.

**Description:** Basic principles and sciences of drug action (as therapeutic agents) and of adverse (toxic) effects of harmful chemical substances. Discussion of these concepts as they relate to animal production and care, regulatory concerns, legal and ethical decisions, human and animal health hazards, food safety, and environmental contamination.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** FALL

**VBMS 424 Basic Molecular Infectious Diseases**

**Crosslisted with:** VBMS 824

**Prerequisites:** BIOS 312.

**Notes:** Offered spring semester of odd-numbered calendar years.

**Description:** Introduction to the molecular, genetic and cellular aspects of microbial pathogenesis in humans and animals. Critical reviews of original scientific literature and development of manuscript and proposal writing.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** SPRING

**VBMS 425 Wildlife Health**

**Crosslisted with:** NRES 425

**Prerequisites:** LIFE 120 and LIFE 121; Junior standing and above

**Description:** Introduction to ecological, social, and institutional issues. Engage in discussions of important zoonotic diseases, diseases of conservation concern, non-infectious threats, and strategies for assessing and managing wildlife health.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

**Offered:** SPRING

**VBMS 440 Microbial Physiology**

**Crosslisted with:** BIOS 440, BIOS 840, VBMS 840, MBIO 440

**Prerequisites:** BIOS 312; BIOS 313 or BIOS 314.

**Description:** Molecular approaches to the study of prokaryotic cell structure and physiology, including growth, cell division, metabolism, and alternative microbial life styles.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Course and Laboratory Fee:** \$20

**VBMS 441 Pathogenic Microbiology**

**Crosslisted with:** BIOS 441, BIOS 841, VBMS 841

**Prerequisites:** BIOS 312

**Description:** Fundamental principles involved in host-microorganism interrelationships. Identification of pathogens, isolation, propagation, mode of transmission, pathogenicity, symptoms, treatment, prevention of disease, epidemiology, and methods of control.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** SPRING

**Prerequisite for:** VBMS 805; VBMS 949

**Course and Laboratory Fee:** \$25

**VBMS 443 Immunology**

**Crosslisted with:** BIOS 443, BIOS 843, VBMS 843, MBIO 443

**Prerequisites:** BIOS 201; CHEM 251 or CHEM 261.

**Description:** Fundamental consideration of cellular and humoral mechanisms of immunity, the structure and function of immunoglobulins, antigen-antibody interactions; hypersensitivity; transplantation and tumor immunity; immune and autoimmune disorders.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Prerequisite for:** VBMS 908; VBMS 910; VBMS 948; VBMS 949

**VBMS 496 Independent Study in Veterinary Science**

**Prerequisites:** 12 hrs veterinary science or closely related areas and permission.

**Description:** Individual or group projects in research, literature review, or extension of course work under supervision and evaluation of a departmental faculty member.

**Credit Hours:** 1-5

**Min credits per semester:** 1

**Max credits per semester:** 5

**Max credits per degree:** 12

**Grading Option:** Graded with Option

**VBMS 499H Honors Thesis**

**Prerequisites:** Admission to the University Honors Program and permission.

**Notes:** AGRI 299H recommended.

**Description:** Conduct a scholarly research project and write a University Honors Program or undergraduate thesis.

**Credit Hours:** 3-6

**Min credits per semester:** 3

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded