687. Veterinary Microbiology and Infectious Diseases
Spring, 3(3-0)
R: Open only to graduate-professional students in College of Veterinary Medicine. Not open to students with credit in VM 584.
Structure, function, and diagnostic characteristics of bacteria and fungi related to pathogenicity, transmission, control, host response, therapy, and management of selected diseases of animals.
SA: MIC 563, MIC 565

689. Veterinary Microbiology and Infectious Diseases II
Fall, 3(3-0)
R: Open only to graduate-professional students in College of Veterinary Medicine. Structure, function, and diagnostic characteristics of viruses, protozoa, and helminths related to pathogenicity, transmission, control, host response, therapy, and management of selected diseases of animals. SA: MPH 501C, MPH 501D, MIC 563, MIC 565

690. Veterinary Clinical Microbiology Clerkship
Fall, Spring, Summer. 3 credits.
P: Completion of semester 5 of the professional veterinary program. R: Open only to graduate-professional students in the College of Veterinary Medicine. Clinical bacteriology with an optional experience in parasitology, virology, or both.

813. Molecular Virology
Spring of even-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Molecular nature and biochemistry of replication of animal viruses. Current advances, research concepts, and the role of viruses in molecular biology research.

821. Microbial Physiology
Spring of odd-numbered years. 3(3-0)
P: MIC 401. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Molecular architecture, assembly of cell parts, metabolism, and general physiology of typical eubacteria.

825. Cell Structure and Function
Spring. 3(3-0) Departmental with Biochemistry and Physiology. Administered by Biochemistry.

827. Diversity of Prokaryotes
Fall of odd-numbered years. 3(3-0)
P: BCH 451; MIC 421 or concurrently. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Morphological and physiological properties of groups of bacteria and archaea. Relationship of those properties to ecological niche and importance.

828. Bacterial Diversity Laboratory
Fall of odd-numbered years. 2 credits.
P: MIC 827 or concurrently. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Isolation and identification of representative groups of bacteria.

829. Advanced Microbial Ecology
Fall of even-numbered years. 3(3-0) Interdepartmental with Crop and Soil Sciences.
Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in natural communities, laboratory experiments, and mathematical models.

833. Microbial Genetics
Fall. 3(3-0)
R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Gene structure and function. Genetic regulation at classical and molecular levels in prokaryotes and lower eukaryotes.

835. Eukaryotic Molecular Genetics
Spring. 3(3-0) Interdepartmental with Genetics.
P: BCH 462, ZOL 341. R: Open only to graduate students in the Colleges of Agriculture and Natural Resources, Engineering, Human Medicine, Natural Science, Osteopathic Medicine, and Veterinary Medicine. Gene structure and function in animals, plants, and fungi. Basic aspects of modern human genetics and the genetic basis for disease. Molecular genetic analyses. Eukaryotic modeling systems.

841. Soil Microbiology
Spring of even-numbered years. 3(3-0) Interdepartmental with Crop and Soil Sciences.
P: MIC 225. Ecology, physiology, and biochemistry of microorganisms indigenous to soil.

851. Immunology
Fall of odd-numbered years. 3(3-0)
R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Functional aspects of immune responses; synthesis, structure, and function of effector molecules; cell-cell interactions; current advances and research techniques.

890. Special Problems in Microbiology
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Approval of department. Individualized laboratory or library research.

892. Seminar
Fall, Spring. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, College of Human Medicine, College of Natural Science, College of Osteopathic Medicine, or College of Veterinary Medicine. Student review and presentation of selected topics in microbiology and public health.

899. Master's Thesis Research
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 24 credits in all enrollments for this course. R: Open only to graduate students in Microbiology and Public Health.

991. Topics in Microbiology
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Topics are selected from traditional subdisciplines such as bacteriology, virology, cell biology, and immunology or from transdisciplines such as microbial genetics, physiology, molecular biology, and ecology.

999. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to graduate students in Microbiology and Public Health.

MILITARY SCIENCE

Department of Military Science
Office of the Provost

101A. Leadership: The Military Profession
Fall. 3(3-0)
R: Not open to students with credit in MS 101B. Technical, ethical, and personal ramifications of office- ship. Introduction to military leadership. Lab introduces military skills.
SA: MS 101

101B. Leadership: The Military Profession
Spring. 3(3-0)
R: Not open to students with credit in MS 101A. Analysis of military profession from several academic perspectives. Technical, ethical, and personal ramifications of office- ship. Introduction to military leadership. Leadership laboratory introduces military skills.
SA: MS 101

102A. Leadership: Wilderness Survival
Fall. 3(3-0)
R: Not open to students with credit in MS 102B. Introduction to wilderness survival including the psych- ology of survival, survival planning, survival kits, knots; shelters; water procurement; fire craft; field expedient; weapons; tools and equipment; desert, tropical, and cold weather survival; basic survival medicine.

102B. Leadership: Wilderness Survival
Spring. 3(3-0)
R: Not open to students with credit in MS 102A. Introduction to wilderness survival including the psych- ology of survival, survival planning, survival kits, knots; shelters; water procurement; fire craft; field expedient; weapons; tools and equipment; desert, tropical, and cold weather survival; basic survival medicine.

201A. Leadership: The Military Leader
Fall. 3(3-0)
R: Not open to students with credit in MS 201B. Individual leadership development using standardized assessment technology. Administration, personal relations, and decision making. Military writing and profes- sional obligations. Lab includes rappelling and marksmanship.
SA: MS 201

201B. Leadership: The Military Leader
Spring. 3(3-0)
R: Not open to students with credit in MS 201A. Individual leadership development using standardized assessment technology. Administration, personal relations, and decision making. Military writing and profes- sional obligations. Lab includes rappelling and marksmanship.
SA: MS 201