440. Food Microbiology
Fall, Spring. 3(3-0) MPH 200 or MPH 301 or approval of department. Interdepartmental with and administered by Food Science.
Major groups of microorganisms of importance to the food industry are studied with emphasis on ecological, physiological, and public health aspects.

442. Soil Microbiology
Spring, 3(3-0) MPH 200 or MPH 301. Interdepartmental with the Department of Crop and Soil Sciences.
Major groups of microorganisms of importance in soil are studied with emphasis on ecological, biochemical, and physical aspects.

444. Environmental Microbiology
Spring, 3(3-4) MPH 200 or MPH 301. Flora, methods of testing, and purification of environmental air and water. Treatment and disposal of sewage.

1DC. Biological Membranes
For course descriptions, see Interdisciplinary Courses.

490. Special Problems in Microbiology
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. Approval of department.
Tutorial instruction in laboratory or library research for advanced undergraduates.

511. Medical Microbiology and Immunology
Spring, 1 to 6 credits. May reenroll for a maximum of 6 credits. A biochemistry course. Enrollment in College of Human Medicine or approval of department.
Basic principles of microbiology (bacteriology, virology, mycology and parasitology) and immunology. Selected type-infections relate these principles to disease in man.

512. Infectious Diseases
Fall, 4(3-3) MPH 511, or approval of department. Interdepartmental with the Department of Medicine.
Infections diseases of man, including biology of the causative microorganism, epidemiology, pathogenesis, host-parasite relationships, clinical and laboratory diagnosis, and clinical management.

521. Medical Microbiology and Immunology
Winter. Variable credit. May reenroll for a maximum of 6 credits. A biochemistry course. Enrollment in College of Osteopathic Medicine or approval of department.
Basic principles of microbiology (bacteriology, virology, mycology, and parasitology) and immunology. Selected type-infections relate these principles to disease in man.

531C. Medical Microbiology: Virology
Fall, 3(2-2). Fourth-term Veterinary Medicine students or approval of department. General properties of animal viruses; pathogenesis, immune response and immunopathology in viral diseases; principles of clinical virology.

531D. Medical Microbiology: Parasitology
Winter, 4(3-3). Fifth-term Veterinary Medicine students or approval of department. Basic principles of parasitology (protozoology, helminthology, and entomology) and their relation to disease in animals.

618. Infectious Disease Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. H M 602 and MED 608 or H D 609, Interdepartmental with and administered by the Department of Medicine.
The clerkship emphasizes acquisition in depth of knowledge and skill essential in solution of clinical problems in infectious and immunologic diseases. Integrated basic science input is afforded through relevant seminars.

800. Seminar
Fall, Winter, Spring, Summer. 1(1-0). May reenroll for a maximum of 9 credits. Approval of department.

810. Topics in Microbiology
Fall, Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 10 credits if different topic is taken. Approval of department.
Topics will be selected from taxonomic subspecies such as bacteriology, virology, protozoolo­gy, mycology, and helminthology; from trans­ecting disciplines such as microbial genetics, immunology, physiology, and ecology.

813. Molecular Virology
Fall, 4(4-0). Background in biochemistry, and approval of department. Molecular nature and biochemistry of replication of bacterial and animal viruses. Emphasis is on current advances, research concepts, and the role of viruses in molecular biology research.

821. Advanced Microbial Physiology and Genetics
Fall, 4(4-0) MPH 421. Mechanism and regulation of physiologic and metabolic activities unique to procaryotes: fermentation, photosynthesis, respiration, autoregulation, micro- and macro-molecular synthesis; cell division; membrane processes; gene transfer, recombination, and DNA repair.

826. Ecology of Animal Parasites
Summer. 3 credits. MPH 416, approval of department. Given at W. K. Kellogg Biological Station.
Interaction of parasitic animals (protozoa, helminths, and arthropods) with their natural environ­ment, including host, biotic and physical aspects.

827. Immunology
Spring, 3(3-0) MPH 427; BCH 452, or ZOL 441, and CEM 383 recommended.
Structure and reactivity of antigens and antibodies; synthesis of immunoglobulins. Emphasis is on current advances and research concepts.

828. Immunchemistry Laboratory
Spring, 2(0-6) MPH 427, MPH 527 or concurrently.
Laboratory based partially on subject matter of MPH 827. Experimental techniques used in immunological assays and immune systems.

829. Host-Parasite Relationships
Fall, 3(3-0) MPH 427, MPH 429 or approval of department.
Pathogenesis and host responses to selected bacterial, parasitic, and fungal pathogens. Emphasis is on current research models which exemplify a variety of host-parasite relationships.

842. Advanced Soil Microbiology
Spring, 3(3-0) MPH 425 or approval of department. Interdepartmental with the Department of Crop and Soil Sciences.
Biochemistry, biology, and community ecology of microorganisms indigenous to soil. Emphasis on current research problems.

843. Soil Microbiology Laboratory
Spring, 2(0-6) MPH 542 concurrently or approval of department. Interdepartmental with the Department of Crop and Soil Sciences.
Fundamental techniques of dealing with microorganisms indigenous to soil. Metabolic activity of microorganisms. Interaction between microorganisms and plants.

890. Special Problems in Microbiology
Fall, Winter, Spring, Summer. 2 to 6 credits. May reenroll for a maximum of 12 credits. Approval of department.

899. Master's Thesis Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

900. Topics in Microbiology
Fall, Winter, Spring. 2(2-0). May reenroll if different topic is taken. Approval of department.
Topics will be selected from taxonomic subspecies such as bacteriology, virology, protozool­ogy, mycology, algaeology, and helminthol­ogy, and from transecting disciplines such as micro­bial genetics, immunology, physiology, and ecology.

901. Experimental Microbiology
Fall, Winter, Spring, Summer. 3(0-9). May reenroll for a maximum of 9 credits. Approval of department.
Experiments, demonstrations, and discussions of current research programs in various areas of microbiology.

999. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

Military Science – Descriptions of Courses

804. General Military Science
Application of leadership techniques, the decision making process and staff planning. Military customs and traditions. Students will concurrently enroll in a selected non-Military Science course to fulfill military professional requirements.
A. Approval of department.
B. Approval of department.
C. Approval of department.
D. Approval of department.
E. Approval of department.

121. Approval of department.

122. Approval of department.

221. Approval of department.

222. Approval of department.

324. Approval of department.

325. Approval of department.

426. Approval of department.

427. Approval of department.

499. Approval of department.

MUSIC

College of Arts and Letters

100. Theory Review

112. Chamber Music

118. Band

A. Marching Band

B. Spartan Brass

C. Concert Band

D. Symphonic Band

E. Wind Ensemble

F. Repertory Band

135. Music in Elementary Education

141. Class Instruments and Voice

142. Class Instruments and Voice

143. Class Instruments and Voice

144. Music Foundations I

145. Music Foundations I

147. Elementary Piano

148. Elementary Piano

150. Keyboard Instruments and Harp

151. Voice

A-146