

**MICROBIOLOGY AND  
PUBLIC HEALTH MPH**

College of Human Medicine  
College of Natural Science  
College of Osteopathic Medicine  
College of Veterinary Medicine

**100. Preview of Microbiology**  
Winter. 2(2-0) Freshmen and Sophomores only.

Science and scientists of microbiology, presented in historical perspective and carried to the forefront of current research. A rigorous preview for students seriously curious about microbiology.

**200. Elementary Microbiology**  
Fall, Winter. 4(3-2) Three terms of Natural Science. Primarily for majors outside the College of Natural Science.

Description of bacteria and related forms of microorganisms, their growth and nature, their application in industry, and their control in public health.

**234. Elementary Medical Microbiology**  
Fall. 5(4-4) Three terms of Natural Science. Primarily for Nursing students.

Survey of immunology and microbiology with emphasis on pathogenic microorganisms, antimicrobial agents, and laboratory diagnosis.

**301. Introductory Microbiology**  
Fall, Spring. 3(3-0) B S 212; BCH 200.

Fundamentals of microbiology with emphasis on the comparative nature of the various groups of microorganisms, their distribution and activities.

**302. Introductory Microbiology Laboratory**  
Fall, Spring. 1(0-4) 301 or concurrently.

Laboratory based on the subject matter of 301.

**400. Bacteriology for High School Science**  
Summer. 4(4-4) Bachelor's degree and teaching certificate.

Fundamental concepts, experiments, and projects useful in secondary school science courses.

**400H. Honors Work**  
Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 12 credits. Approval of department.  
Tutored reading and experimentation.

**401. General Microbiology**  
Fall. 5(5-0) BCH 401 or 451 concurrently.

Comparative biology of microorganisms: viruses, rickettsiae, bacteria, fungi, algae, and protozoa.

**402. General Microbiology Laboratory**  
Fall. 3(1-6) 401 or concurrently.

Laboratory based on the subject matter of 401.

**406. Medical Mycology**  
Fall, Spring. 4(2-6) BOT 402 or approval of department. Interdepartmental with and administered by the Botany and Plant Pathology Department.

Characteristics, habits, and laboratory identification of fungus diseases infecting humans. Emphasis on laboratory techniques and morphological characteristics of the various mycoses.

**413. General Virology**  
Winter. 3(3-0) 427 or concurrently.  
Physical, chemical, and biological properties of the viruses.

**414. General Virology Laboratory**  
Winter. 1(0-4) 413 or concurrently.  
Laboratory procedures employed for cultivation and identification of viruses.

**416. General Parasitology**  
Winter. Summer at W. K. Kellogg Biological Station. 3(3-0) B S 212.

Life history, host-parasite relationships (including physiology, immunology, immunopathology and pathology) and epidemiology of selected groups and species of protozoan, trematode, cestode and nematode parasites.

**417. General Parasitology Laboratory**  
Winter. 2(0-4) B S 212.

Identification and life histories of representative species of major groups of animal parasites. Selected concepts of host-parasite associations will be tested experimentally.

**420. Ecology of Animal Parasites**  
(426.) Summer. 6 credits. B S 212 or approval of department. Given at W. K. Kellogg Biological Station. Interdepartmental with the departments of Fisheries and Wildlife, and Zoology.

Parasitism of animals by protozoa, helminths and arthropods with emphasis on the interrelationships of host-parasite associations with the natural environments.

**421. Microbial Physiology**  
Winter. 3(3-0) 401, 402.

Cell structure and function, growth and death, and metabolism of microorganisms.

**422. Microbial Physiology Laboratory**  
Winter. 2(0-6) 421 or concurrently.  
Laboratory work based upon the subject matter in 421.

**423. Microbial Genetics**  
Spring. 3(3-0) BCH 401; ZOL 441 recommended.

Fundamental genetic concepts as exemplified in microorganisms.

**424. Microbial Genetics Laboratory**  
Spring. 2(0-6) 423 or concurrently.

Laboratory work based upon the subject matter in 423.

**425. Microbial Ecology**  
Summer. 6(3-9) A microbiology course or approval of department. Given at W. K. Kellogg Biological Station.

Lecture emphasizes the biological properties and diversity of naturally occurring microorganisms. The laboratory treats the analytical techniques involved in study of their metabolic activity.

**427. Immunobiology**  
Winter. 3(3-0) B S 212; BCH 200 or 401.

Biological and biochemical mechanisms of the immune response. Emphasis is on concepts of immunity.

**428. Immunobiology Laboratory**  
Winter. 2(0-6) 427 or concurrently.  
Basic laboratory techniques in immunobiology.

**429. Microbiology of Infectious Diseases**  
Spring. 5(2-8) 301 or 402 and 427.

Biology, immunology, pathogenicity, and medical aspects of microorganisms associated with infectious diseases of man. Methods of isolation and identification are emphasized in the laboratory.

**436. Introductory Medical Parasitology**  
(309., 336.) Fall. 3(3-0) Primarily for Medical Technology students.

Biology of protozoan, helminth, and arthropod infections of man.

**437. Introductory Medical Parasitology Laboratory**  
Fall. 2(1-4) 436 or concurrently.

Laboratory diagnosis of protozoan, helminth, and arthropod infections of man.

**440. Food Microbiology**  
Fall, Dietetics majors only. Spring. 5(3-4) 200 or 301 or 401 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) 200 or 301 or 401. Interdepartmental with Soil Science.

Major groups of microorganisms of importance in soils are studied with emphasis on ecological, biochemical, and physical aspects.

**444. Environmental Microbiology**  
Spring 3(2-4) 200 or 301 or 401.

Flora, methods of testing, and purification of environmental air and water. Treatment and disposal of sewage.

**IDC. Biological Membranes**  
For course description see Interdisciplinary Courses.

**511. Medical Microbiology and Immunology**  
Spring. 1 to 6 credits. May re-enroll 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) 511, or approval of department. Interdepartmental with the Department of Medicine.

Infectious 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 re-enroll 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.

**Descriptions — Microbiology and Public Health  
of  
Courses**

**531A. Medical Microbiology:  
Immunology**

(531.) Winter. 2(1-2) A course in biochemistry and admission to the veterinary professional program, or approval of department.

Basic principles of immunology (immunobiology and immunochemistry) and their relation to disease in animals.

**531B. Medical Microbiology:  
Bacteriology and Mycology**

Winter. 3(2-4) A course in biochemistry and admission to the veterinary professional program, or approval of department.

Basic principles of bacteriology and mycology and their relation to disease in animals.

**531C. Medical Microbiology: Virology**

Spring. 2(1-2) A course in biochemistry and admission to the veterinary professional program, or approval of department.

Basic principles of virology and their relation to disease in animals.

**531D. Medical Microbiology:  
Parasitology**

Spring. 3(2-4) Admission to the veterinary professional program, or approval of department.

Basic principles of parasitology (protozoology, helminthology, and entomology) and their relation to disease in animals.

**532. Veterinary Microbiology and  
Public Health**

(567.) Winter, Summer. 8(5-11) 531 or approval of department.

Biology, immunology, pathogenicity, and medical aspects of microorganisms associated with infectious diseases of animals. Epidemiology of animal diseases significant to human health.

**536. Veterinary Parasitology I**

Winter, Summer. 4(3-4) Veterinary Medicine students or approval of department.

Distribution, biology, and control of parasitic animals of importance to veterinary medicine.

**537. Veterinary Parasitology II**

Fall, Spring. 4(2-6) 536 or approval of department.

Continuation of 536.

**618. Infectious Disease Clerkship**

Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 34 credits. H M 602 and MED 608 or H D 608. Interdepartmental with and administered by the Department of Medicine.

The clerkship emphasizes acquisition in depth of knowledge and skills 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 re-enroll for a maximum of 9 credits. Approval of department.

**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.

**826. Ecology of Animal Parasites**

Summer. 3 credits. 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. Immunochemistry**

Spring. 3(3-0) 427; 423, 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. Immunochemistry Laboratory**

Spring. 2(0-6) 427; 827 or concurrently.

Laboratory based partially on subject matter of 827. Experimental techniques used in immunological assays and immune systems.

**890. Special Problems in  
Microbiology**

Fall, Winter, Spring, Summer. 2 to 6 credits. May re-enroll for a maximum of 12 credits. Approval of department.

**899. Research**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**900. Topics in Microbiology**

Fall, Winter, Spring Summer. 2(2-0) May re-enroll if different topic is taken. Approval of department.

Topics will be selected from taxonomic subsciences such as bacteriology, virology, protozoology, mycology, algology, 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 re-enroll for a maximum of 9 credits. Approval of department.

Experiments, demonstrations, and discussions of current research programs in various areas of microbiology.

**999. Research**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**121. Preview of Military Science**

Fall, Winter. 1(1-0) Approval of department.

Role of the ROTC officer in the Army. Assists the student in planning a curriculum to satisfy requirements for a commission.

**122. Marksmanship and Hunter Safety**

Fall, Spring. 1(0-2) 121 or approval of department.

Small arms marksmanship and safety. Practical exercises on local firing ranges. Individual basic military marksmanship and the skills necessary to participate in a competitive or recreational shooting program.

**223. Terrain Analysis and Land  
Navigation**

Winter, Spring. 3(3-0) 121 and approval of department.

Military maps, map construction, specifications and uses. Includes both a study of aerial photographs and an introduction to remote energy sensors employed by defense agencies as they relate to tactical operations.

**324. Military Teaching**

Fall, Winter. 4(4-2) Basic course, approval of department.

Methods of teaching manipulative skills to groups with varying educational backgrounds. Emphasis on determination of entry behavior, progress analysis, testing and test construction. Introduction to current teaching aids. Practical experience in simulated field situations is stressed during laboratory.

**325. Military Management**

Spring. 4(3-2) 324 or approval of department.

Task analysis approach to missions. The subject of tactics is used as a teaching vehicle for the managerial approach to the preparation and execution phases of military operations. Emphasis is placed on physical and moral leadership during the laboratory sections.

**426. Military Law**

Winter. 4(4-0) Approval of department.

Jurisdiction and responsibility of the Army commander and junior leader in the application of military justice. Implications of Army operations as related to the rules of land warfare.

**427. Seminar**

Spring. 1(1-0) Approval of department.

Precommissioning orientation stressing current military policies, procedures, customs and trends.

**499. Independent Study in Military  
Science**

Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 6 credits. Approval of department and Juniors. Individual research and study in an area related to military science as approved and directed by the Department of Military Science.

**MILITARY SCIENCE M S**

**All University**

**041. 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. Military Traditions—M S I  
Winter. 0(0-1) Approval of department.

B. Evolution of Military Leadership—  
M S II  
Fall. 0(0-1) Approval of department or M S II standing. HST 235 concurrently.

C. Military Career Preparation—M S II  
Spring. 0(0-1) Approval of department or M S II standing.

D. Advanced Camp Preparation—M S III  
Winter. 0(0-1) Approval of department or M S III standing.

E. Military Staff Organization—M S IV  
Fall. 0(0-1) Approval of department or M S IV standing.

**MUSIC MUS**

**College of Arts and Letters**

**094. Band**

Summer. Zero credit. Membership determined by audition. Attendance at all rehearsals and public concerts obligatory. See 118.