

- 401. General Microbiology**
Fall. 5(5-0) B S 212; BCH 401 or concurrently.
Comparative biology of microorganisms: viruses, rickettsiae, bacteria, fungi, algae, and protozoa.
- 402. General Microbiology Laboratory**
Fall. 2(0-6) 401 concurrently.
Laboratory based on the subject matter of 401.
- 413. General Virology**
(463.) Winter. 4(3-4) 427 or concurrently.
Physical, chemical, and biological properties of viruses; laboratory procedures employed for cultivation and identification of viruses.
- 416. General Parasitology**
(406.) Winter. Summer at W. K. Kellogg Biological Station. 3(2-4) B S 212.
Biology of parasitic animals.
- 421. Microbial Physiology**
(331.) Winter. 4(3-4) 401, 402.
Cell structure and function, growth and death, and metabolism of microorganisms.
- 423. Microbial Genetics**
(431.) Spring. 4(2-6) BCH 401; ZOL 441 recommended.
Fundamental genetic concepts as exemplified in microorganisms.
- 425. Microbial Ecology**
Summer. 6(3-9) 402, approval of department. Given at W. K. Kellogg Biological Station.
Interrelationships of individual microbial cells or of microbial populations with their macro- or microenvironment. Dispersal and activity of microorganisms. Methodology of assessment of microbial substance and activity. Analysis of the habitat.
- 427. Immunobiology**
(460.) Winter. 4(3-4) B S 212; BCH 200 or BCH 401.
Biological and biochemical mechanisms of the immune response; immunological tolerance, antibody production, antigen-antibody reactions, immunological diseases.
- 429. Microbiology of Infectious Diseases**
(461.) Spring. 5(2-8) 402, 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.
- 440. Food Microbiology**
(371.) Spring. 4(2-6) 200 or 401, or approval of department. Interdepartmental with and administered by the Food Science Department.
Major groups of microorganisms of importance to the food industry are studied with emphasis on ecological, physiological, and public health aspects.
- 442. Soil Microbiology**
(481.) Spring. 3(2-4) 200 or 401.
Interdepartmental with the Soil Science Department.
Major groups of microorganisms of importance in soils are studied with emphasis on ecological, biochemical, and physical aspects.
- 444. Environmental Microbiology**
(351.) Spring. 3(2-4) 200 or 401.
Flora, methods of testing, and purification of environmental air and water. Treatment and disposal of sewage.

- 531. Medical Immunology and Microbiology**
(566.) Fall, Spring. 5(5-0) or 8(5-11)
Professional medical students or approval of department.
General immunology; comparative biology of microorganisms that have medical significance.
- 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**
(501.) 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**
(502.) Fall, Spring. 4(2-6) 536 or approval of department.
Continuation of 536.
- 800. Seminar**
(830.) Fall, Winter, Spring, Summer. 1(1-0).
816. Parasitic Metazoa
(802.) Spring of odd-numbered years. 4(3-4) 416 or ZOL 481 or approval of department.
Comparative biology, physiology, and host-parasite relationships of parasitic helminths and arthropods.
- 817. Parasitic Protozoa**
(803.) Spring of even-numbered years. 3(2-4) 416 or ZOL 482 or approval of department.
Comparative biology, physiology, and host-parasite relationships of parasitic protozoa.
- 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 or approval of department; CEM 383 recommended.
Structure and reactivity of antigens and antibodies; synthesis of immunoglobulins. Emphasis is on current advances and research concepts.
- 828. Immunochemistry Laboratory**
Summer. 3(0-9) May re-enroll for a maximum of 6 credits if different project is studied. 827 and approval of department.
Research-oriented laboratory, based on current advances in immunochemistry.
- 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 sub-science 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.

MILITARY SCIENCE M S

All University

- 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.
- 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.
Civilian and military law as they pertain to individuals and organizations associated with the Department of Defense.
- 427. Seminar**
Spring. 1(1-0) Approval of department.
Precommissioning orientation stressing current military policies, procedures, customs and trends.
- 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 Music 117, 118, 318.