

COURSE: BIOLOGY 315: Microbiology

DESCRIPTION: Provides in-depth knowledge of the wide spectrum of microorganisms including bacteria, viruses, fungi, and parasites. Emphasis those microorganisms responsible for diseases in humans. Discusses various topics in immunology and the therapeutic agents used in clinical practice against infectious diseases.

RECOMMENDED TEXT: Gerald J. Tortora, Berdell R. Funke, and Christine L. Case, Microbiology, An Introduction, 8th Edition, Benjamin Cummings Publishing, Inc. 2004. ISBN: 0-8053-7614-3

RECOMMENDED LAB MANUAL: Berdell R. Funke, Microbiology Study Guide, 5th Edition, Benjamin Cummings Publishing, Inc

FORMAT: There are 205 items on the exam. Each single question = 1 point. Some short answer questions may be composites of several questions, each being worth 1 point.

Section I - General Microbiology

multiple choice questions

true or false

matching: bacteria with the disease it can cause

short answer

- gram-stain and acid-fast stain
- eucaryotic vs. procaryotic cells
- gram-positive vs. gram-negative cells
- bacterial cell morphology
- exotoxins vs. endotoxins
- genetic recombination

Section II. Immunology and Virology

fill-in-the-blanks

matching: virus with the disease it can cause immunoglobulin subtypes and their functions

short answer:

- role and function of T cells in immune response
- ELISA
- characteristics of viruses
- morphology of viruses
- diagram: antibody molecule

Section III. Medical Microbiology

multiple choice:

bacterial, viral, fungal, protozoan, and parasitic diseases

GRADING: Students must receive a “C” (73-76) in order to receive credit for a course taken as a Challenge Exam.

TOPICS FOR STUDY:

1. History of microbiology and early microbiologists
2. Biological macromolecules/chemical principles
3. Microscopy
4. Gram-stain and Acid-fast stain
5. Prokaryotic and eucaryotic cells
6. Microbial metabolism
7. Classification of microorganisms
8. Bacteria
9. Physical and chemical methods of controlling microbial growth
10. Microbial genetics
11. Disease and epidemiology
12. Mechanisms of pathogenesis
13. Antimicrobial drugs and drug resistance
14. Nonspecific and specific defenses of the host - immunology
15. Practical applications of immunology and ELISA
16. Disorders of the immune system and AIDS
17. Viruses
18. Fungi, algae, protozoans and parasites
19. Human diseases of skin and eyes and nervous, cardiovascular, respiratory, digestive, urinary and reproductive systems.