

**Bossier Parish Community College
Master Syllabus**

Course Prefix and Number: BLGY 202

Credit Hours: 3

Lecture Hours per Week: 3

Lab Hours per Week: 0

Course Title: Microbiology for Nursing and Allied Health

Course Prerequisites: None

Required Textbook: Norman-McKay, Lourdes, Microbiology, Basic and Clinical Principles, Pearson, 1st ed. (ISBN 9780135194560)

Course Description:

Principles of microbiology, with emphasis on health and disease. This course covers topics including microbial cell structure and function, control of microbial growth, immunology, and the impact of microbes on human health. [The Louisiana Statewide Common Course Catalog name and number for this course are CBIO 2113: Microbiology for Nursing and Allied Health.]

Learning Outcomes:

At the end of this course, the student will

- A. relate microbial virulence factors to human immune function and the development of disease;
- B. apply the concepts of transmission, control, and treatment of infectious diseases to the clinical setting; and
- C. correlate microbial genetics, metabolism, and biological macromolecules.

To achieve the learning outcomes, the student will

- 1. describe the types of organisms that comprise the microbial world. (B)
- 2. match each major field of microbiology with an example of what is studied in that field. (A,B)
- 3. discuss contributions early and current scientists have made to microbiology. (A,B)
- 4. illustrate Koch's postulates and identify exceptions to these postulates. (B)
- 5. compare and contrast spontaneous generation and the germ theory of disease. (B)
- 6. identify the structure and function of biological macromolecules. (C)
- 7. compare various types of light and electron microscopes and describe techniques used in preparing specimens for light microscopy with an emphasis on staining. (B)

8. compare and contrast prokaryotic and eukaryotic cells with respect to structures and their associated functions, and identify shapes and arrangements of prokaryotic cells. (B)
9. compare and contrast characteristics of gram positive and gram negative cells with emphases on consequences to human health and targets for antibiotic therapy. (B)
10. describe the movement of substances across membranes. (B)
11. list characteristics of enzymes, coenzymes, and cofactors. (C)
12. identify the substrate and end products of glycolysis, fermentation, and aerobic respiration and the number of ATP derived from each. (C)
13. give examples of various types of microbiological media and describe how each is used. (B)
14. draw a bacterial growth curve and summarize what is occurring in each phase. (C)
15. discuss biochemical and physical factors affecting bacterial growth. (B)
16. illustrate the major steps involved in DNA replication, transcription, and translation. (C)
17. describe how DNA carries the factors of heredity. (C)
18. list causes of mutations. (C)
19. describe the nature of gene transfer in bacteria and explain its significance, both in nature and in the laboratory. (C)
20. define genetic engineering and list several applications. (C)
21. compare classification schemes used in taxonomy, and use a dichotomous taxonomic key to identify organisms. (B)
22. list at least four major characteristics for each of the five kingdoms in the current system of taxonomy. (B)
23. differentiate viruses from other microbes. (B)
24. label the structural components of a virus and identify viral shapes. (B)
25. list and describe the different types of culture systems currently used to grow animal viruses, and describe how viruses are detected in each system. (B)
26. define teratogen and list the teratogens that can be identified in the STORCH series. (B)
27. identify viral diseases of humans. (B)
28. characterize fungi, algae, protozoans, and helminthes. (B)
29. identify and characterize human diseases caused by bacteria, fungi, protozoans, and helminthes. (A,B)
30. associate arthropod vectors with the microbes they transmit. (B)
31. discuss ways to prevent microbial growth. (B,D,E)
32. discuss host-microbe relationships and the disease process with an emphasis on virulence factors of microbes. (A)
33. explain how resistant nosocomial infections arise, and describe the problems associated with their treatment and prevention. (A,B)
34. discuss modes of disease transmission, as well as other basic epidemiological principles. (B)
35. discuss innate host defenses. (A)
36. describe the inflammatory response. (A)
37. illustrate the roles of the major types of B and T cells in adaptive immunity. (A)

38. characterize five types of antibodies. (A)
39. compare the four types of hypersensitivities. (A)
40. define immunodeficiencies and autoimmune diseases and give examples of each. (A)
41. collaborate in group projects. (A,B,C)
42. research, read, and summarize science journal articles. (A,B,C)
43. synthesize knowledge of infectious diseases and apply it to solving a minimum of 5 case studies. (A,B,C)
44. use Internet-accessible computer to complete some activities. (A,B,C)
45. participate in an infection control discussion. (B)
46. Complete an immunological case study that requires students to identify main ideas & important concepts, paraphrase and summarize information, comprehend scientific terminology, interpret graphic data, identify patterns, and make logical predictions. (B)

Course Requirements

To earn a grade of “C” or higher the student must earn 70% of the total points for the course and meet all of the following course requirements.

- minimum average of 60% on lecture tests
- minimum average of 70% on all graded assignments

Course Grading Scale:

- A- 90% or more of total possible points and meets all course requirements
- B- 80% or more of total possible points and meets all course requirements
- C- 70% or more of total possible points and meets all course requirements
- D- 60% or more of total possible points and meets all course requirements
- F- less than 60% of total possible points or fails to meet all course requirements

Attendance Policy: The college attendance policy is available at <http://www.bpcc.edu/catalog/current/academicpolicies.html>

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COORDINATOR FOR SECTION 504 AND ADA

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Reviewed by J Coston/March 2019