COURSE ABBREVIATION: BIOL 1913

CREDIT HOURS: 3 Semester Hours

COURSE TITLE: Microbiology

PREREQUISITE: Biol 1612 Lecture and Laboratory with a "C" or better

COREQUISITE: Biol 1913L

COURSE DESCRIPTION:
This is a study of fundamental principles, including basic culture and staining techniques, cellular metabolism, sterilization, disinfection, basic principles of immunology, and etiology of some infectious diseases. This course is designed primarily for students who intend to enter one of the health professions.

EXPECTED LECTURE EDUCATIONAL RESULTS:
After successfully completing this course the student should be able to:

1. identify and discuss some of the major contributions of the early scientists and the historical milestones that laid the groundwork for modern microbiology
2. fundamentals of microscopy
3. compare and contrast the characteristics of procaryotic cells versus eucaryotic cells.
4. have an understanding of microbial metabolism and its use in the identification and classification of organisms.
5. state the requirements for bacterial growth that enable one to cultivate and to isolate microorganisms
6. explain the basic principles of bacterial genetics.
7. describe and explain the diversity and taxonomy of microorganisms including bacteria, viruses, protists, and the multicellular fungi and helminths.
8. explain various techniques of microbial control including sterilization, disinfection, antimicrobial therapy, and stressing aseptic technique.
9. describe with understanding host-microbe interactions including epidemiology, nonspecific defense, and immunity
10. recognize organisms and relate pathogenic organisms to the signs and symptoms of the diseases they cause.
11. explain the concept of emerging infectious diseases (EIDs), and describe specific diseases that have been classified as EIDs
GENERAL EDUCATIONAL OUTCOMES

I. OUTCOME: "The student should be able to recognize and apply scientific inquiry in a variety of settings." The historical development of the repudiation of the Theory of the Spontaneous Generation of Life, the applications of Koch's Postulates, and development of Molecular Biology and Recombinant DNA technology are testimonies to the application of the Scientific Method. These concepts are the major tenets of Microbiology. Any principle that students are asked to employ in Microbiology demands that they have the ability to distinguish between well supported scientific conclusions and poorly supported assumptions and beliefs based on incorrect information.

II. OUTCOME: "The student should be able to communicate effectively through listening, reading, writing and speaking."

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<thead>
<tr>
<th>Skill</th>
<th>Method</th>
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<tbody>
<tr>
<td>A. Listening</td>
<td>Note taking during lectures</td>
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<tr>
<td>B. Reading</td>
<td>Textbook and outside reading assignments</td>
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<tr>
<td>C. Writing</td>
<td>Writing assignments and discussion test questions</td>
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<tr>
<td>D. Speaking</td>
<td>Taking part in lecture discussions</td>
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COURSE CONTENT - The sequence may be changed by each campus or instructor

FUNDAMENTALS OF MICROBIOLOGY
The Microbial World and You
Microscopy
Functional Anatomy of Prokaryotic Cells
Microbial Metabolism
Microbial Growth
Control of Microbial Growth
Microbial Genetics
Antimicrobial Drugs
Recombinant DNA and Biotechnology

A SURVEY OF THE MICROBIAL WORLD
Classification of Microorganisms
   Bacteria
   Fungi, Protozoa, and Multicellular Parasites
   Viruses
INTERACTION BETWEEN MICROBE AND HOST
  Principles of Disease and Epidemiology
  Microbial Mechanisms of Pathology
  Nonspecific Defenses of the Host
  The Immune Response
  Practical Applications of Immunology
  Disorders of the Immune Response

MICROORGANISMS AND HUMAN DISEASE
  Microbial Diseases of the Skin and Eyes
  Microbial Diseases of the Nervous System
  Microbial Diseases of the Cardiovascular and Lymphatic Systems
  Microbial Diseases of the Respiratory System
  Microbial Diseases of the Digestive System
  Microbial Diseases of the Urinary and Reproductive System

ASSESSMENT OF EXPECTED EDUCATIONAL RESULTS
A. COURSE GRADE
  1. The individual student will be evaluated by each instructor as defined by the individual
     instructor's syllabus for that semester. Methods of evaluation may include quizzes, tests,
     internet projects or research papers or homework that are developed by each instructor.
     Each evaluation effort is designed to demonstrate the student's knowledge of the scientific
     method as would be applied to the field of Microbiology. These exercises will also be an
     evaluation of the student's listening, reading, writing and speaking skills.
  2. The final examination should include a comprehensive portion, with the balance of the
     final exam questions covering new material. The final examination will count for at least
     20% of the final course grade.
  3. It is strongly recommended that writing assignments and discussion questions be
     included in the overall evaluation of the student's progress in order to conform to Georgia
     Perimeter College's commitment to Writing Across the Curriculum.

B. DEPARTMENTAL ASSESSMENT
  This course is part of the Nursing, Dental Hygiene, and Physical Education programs and
  will be addressed in their program assessments. Biol 1913 will be assessed by regular
  consultation between instructors and other members of the Microbiology Committee and
  Nursing, Dental Hygiene, and Physical Education faculty.

C. USE OF THE ASSESSMENT FINDINGS
  Instructors will consult the assessment results and each other to determine which educational
  approaches are working well, and which could be improved. They will continue what works
  and explore improved approaches to instruction where that is needed.

EFFECTIVE DATE: November 2000
APPROVED DATE: November 2000
REVIEW DATE: April 2004