

Tompkins Cortland Community College
Master Course Syllabus

Course Discipline and Number: BIOL 112
Course Title: Essentials of Medical Microbiology

Year: 2023-2024
Credit Hours: 3

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

Course Description

Provides a general overview of medical microbiology, including morphology, physiology, genetics and structure, and function of microorganisms. Epidemiology, host/microbe interaction and control, and infectious diseases are emphasized. Emerging infectious diseases and bioterrorism are addressed. Microbiology laboratory experiences are integrated throughout the course. Substantial outside preparation for lectures and laboratories is required. BIOL 112 fulfills the SUNY General Education Natural Sciences requirement. Prerequisites: Recent (within the last 5 years) high school Regents biology and chemistry with a C or better grade, or completion of BIOL 104, or BIOL 101 and CHEM 101; ENGL 100, MATH 095 or MATH 098 and RDNG 116 if required by placement testing. 3 Cr. (2 Lec., 2 Lab.) Spring semester.

Course Context/Audience

This is a required course for the Nursing A.A.S. degree. It is appropriate for students majoring in the Allied Health field, but is not a general microbiology course.

Basic Skills/Entry Level Expectations

Writing: WC College level writing skills are required. See course co-requisites or pre-requisites.

Math: M3 MATH 095 or MATH 098 if required by placement testing.

Reading: R3 Course may be taken concurrently with RDNG 116.

Other: The text contains a significant amount of technical vocabulary and materials. Students must be able to understand and manipulate fractions, decimals, percents, and numbers written in scientific notation, and solve simple algebraic problems to succeed in this course.

Course Goals

Upon satisfactory completion of this course, the student will be able to:

- 1) Discuss the discovery of microorganisms and their recognition as important agents of disease.
- 2) Differentiate the basic physiology, structure, genetics and ecology between prokaryotic and eukaryotic microorganisms and viruses, and other infectious particles.
- 3) Describe the role of microorganisms in human health and immune responses.
- 4) Identify the interactions of molecules, cells, and organs of the immune system, as well as the genetic components of this system.
- 5) Discuss mechanisms leading to drug resistance of microorganisms.
- 6) Discuss various infectious diseases and implications/effects on the health of human populations.
- 7) Cultivate appropriate and safe laboratory techniques useful in the health profession.

8) Stimulate professional growth by keeping abreast of new developments in the study of microorganisms through journals and other pertinent resources.

Course Objectives/Topics

Objective/Topic	# Hours
Introduction to Modern Microbiology and a Historical Perspective	1 Hour
Classification/structure and function of microorganisms	4 Hours
Genetics, reproduction, and physiology of microorganisms	4 Hours
Epidemiology of disease	7 Hours
Microbial growth/control of growth of microorganisms	8 Hours
Factors that determine health and disease	3 Hours
Immunology	8 Hours
Infectious Disease - Portals of Entry	12 Hours
Trends: emerging infectious diseases and bioterrorism	5 Hours
Tools and techniques of microbiology/ lab safety	8 Hours
Required Labs:* Lab Safety, Microscopy Staining Methods, Cultivation of bacteria, Epidemiology, Control of microbial growth, microbiology and the human environment *additional lab exercises will be added as appropriate	

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<p>Students will be able to</p> <ul style="list-style-type: none"> ➤ develop meaningful questions to address problems or issues. ➤ gather, interpret, and evaluate relevant sources of information. ➤ reach informed conclusions and solutions. ➤ consider analytically the viewpoints of self and others. 	

SOCIAL/GLOBAL AWARENESS OUTCOMES	HOW DOES THE COURSE ADDRESS THE OUTCOMES (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<ul style="list-style-type: none"> ➤ Students will begin to understand how their lives are shaped by the complex world in which they live. ➤ Students will understand that their actions have social, economic and environmental consequences. 	

Instructional Methods

Instructional methods may include, but are not limited to: Individual and group laboratory exercises, Lecture, Case studies, Group discussions, Journal discussions, Group presentations, and Online searches.

Methods of Assessment/Evaluation

Method	% Course Grade
Group presentation	8%
Two hourly unit exams (each worth 20 percent of final grade)	40%
Final exam	20%
Lab worksheets/lab reports	16%
Lab quizzes	16%

Text(s)

Bibliography

Not available at this time

Other Learning Resources

Audiovisual Not available at this time
Electronic Not available at this time
Other Not available at this time