



蘇州大學
Soochow University

BIO 275 General Microbiology

Summer 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email: TBA

COURSE OBJECTIVES

This course provides an introduction to the fundamental principles of microbiology, exploring the structure, function, and significance of microorganisms in various environments. Topics include the structure of prokaryotic and eukaryotic microorganisms, host-microbe interactions, immunity, and the role of microorganisms in causing human infectious diseases. Laboratory sessions complement the lectures by focusing on practical skills such as pure culture techniques, staining methods, and the identification of microorganisms through colonial and biochemical characteristics.

Upon Completion of this Course, students will be able to:

1. Understand the fundamental principles of microbiology and its significance in various contexts;
2. Describe and differentiate among the broad classes of microorganisms, including bacteria, protozoa, fungi, helminthes, and viruses;
3. Explain the interactions between microorganisms and their hosts, including mechanisms of immunity;
4. Recognize how the underlying principles of epidemiology of disease and pathogenicity of specific microbes affect human health;
5. Demonstrate proficiency in laboratory techniques including pure culture methods, staining, and microbial identification.

PREREQUISITES

BIO 100 Introduction to Biology



GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
6 Labs and Lab Reports	36 Points
4 Quizzes	24 Points
Midterm Exam	15 Points
Final Exam	25 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$.

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

Madigan MT, Bender KS, Buckley DH, Sattley WM, Stahl DA. 2020. *Brock Biology of Microorganisms*. 16th edition. Pearson, New York, NY.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	<p>Topics:</p> <p>Topic 1: Microbial Cell Structure and Function</p> <p>Topic 2: Microbial Metabolism</p> <p>Topic 3: Microbial Growth and Its Control</p> <p>Topic 4: Viruses and Their Multiplication</p> <p>Assessments:</p> <p>Lab #1</p> <p>Lab Report #1</p> <p>Quiz #1</p>



Module 2	<p>Topics: Topic 5: Microbial Information Flow and Protein Processing Topic 6: Microbial Regulatory Systems Topic 7: Molecular Aspects of Microbial Growth Topic 8: Genetics of Bacteria and Archaea</p> <p>Assessments: Lab #2 Lab Report #2 Quiz #2</p>
Module 3	<p>Topics: Topic 9: Microbial Genomics and Other Omics Topic 10: Viral Genomics and Diversity Topic 11: Biotechnology and Synthetic Biology Topic 12: Microbial Evolution and Genome Dynamics</p> <p>Assessments: Lab #3 Lab Report #3 Midterm Exam</p>
Module 4	<p>Topics: Topic 13: Metabolic Diversity of Microorganisms Topic 14: Ecological Diversity of Bacteria Topic 15: Phylogenetic Diversity of Bacteria and Archaea Topic 16: Diversity of Microbial Eukarya</p> <p>Assessments: Lab #4 Lab Report #4 Quiz #3</p>
Module 5	<p>Topics: Topic 17: Microbial Ecosystems Topic 18: Nutrient Cycles Topic 19: Microbiology of the Built Environment Topic 20: Microbial Symbioses with Microbes, Plants, and Animals</p> <p>Assessments: Lab #5 Lab Report #5 Quiz #4</p>



Module 6	<p>Topics: Topic 21: Human Interactions Topic 22: The Immune System Topic 23: Infectious Diseases Topic 24: Epidemiology and Public Health</p> <p>Assessments: Lab #6 Lab Report #6 Final Exam</p>
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ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.



TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.