BIO 250 Fundamentals of Microbiology

Summer 2024

Course Credits: 4
Contact Hours: 56 hours
Instructor: TBA
Email: TBA

COURSE OBJECTIVES

This course is an introductory course in microbiology which provides an overview of microbial genetics, cell structure and function, methods of cultivation, genetics, phylogeny and taxonomy. Microbes not only fascinate life forms, but also determine our health status and have enormous economic impact. Students will explore how microbes cause disease, how they can be controlled and diagnosed, and how they are used in research and industry in this course.

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

1. Explain how microbial substructures and metabolic pathways support microbial growth.

2. Identify the structures and processes of microbial genome replication and gene expression.

3. Explain how mutation and gene transfer occurs and the impact of these genomic changes.

4. Explain the role of microbes in forming and adapting to the Earth's environment and microbial ecology of Earth.

PREREQUISITES

BIO 100 Introduction to Biology

GRADING

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

ITEM	POINTS
Quizzes	30 Points
Assignments	20 Points
Midterm	20 Points
Final Exam	30 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 ≥ 90 > B ≥ 80 > C ≥ 70 > D ≥ 60 > F.

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

COURSE MATERIALS

Required Texts:

Wessner, Dupont, Charles, Neufeld, ***Microbiology***, 2nd Edition, John Wiley & Sons Canada, Ltd, 2017.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	**Topics:** Topic 1: Course Introduction Topic 2: The Microbial World Topic 3: Bacteria Topic 4: The Bacteria Cell Surface **Assessments:** Quiz#1
Module 2	**Topics:** Topic 5: Archaea Topic 6: Diversity of Archaea Topic 7: Eukaryotes Topic 8: The Origin of Eukaryal Cells **Assessments:**

	Quiz#2 Assignment#1
Module 3	**Topics:** Topic 9: Viruses Topic 10: Diversity of Viruses Topic 11: Virology Today Topic 12: Virology Today (Cont.) **Assessments:** Midterm
Module 4	**Topics:** Topic 13: Cultivating Microorganisms Topic 14: Cultivating Microorganisms (Cont.) Topic 15: Bacterial MVPs Topic 16: Bacterial MVPs (Cont.) **Assessments:** Quiz#3 Assignment#2
Module 5	**Topics:** Topic 17: Regulation Topic 18: Microbial Genomics Topic 19: Microbial Genomics (Cont.) Topic 20: Final Exam Review **Assessments:** Final Exam

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).

ACEDEMIC 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.