



蘇州大學
Soochow University

BIO 340 Fundamentals of Immunology

Winter 2024

Course Credits: 4

Contact Hours: 56 hours

Instructor: TBA

Email: TBA

COURSE OBJECTIVES

This course introduces students to concepts related to immunology and the functions of the innate immune system. The content includes a detailed explanation of immunology, covering topics such as the immune system, innate immunity, the complement system, antigen presentation, T-cell development, B-cell development, cell- and antibody-mediated immunity, mucosal immunity, the immune response, autoimmunity, and experimental methods. Additionally, the course provides an overview of how the immune system can negatively impact the body, as seen in autoimmune diseases and allergies.

Upon completion of this course, students will be able to:

1. Have a good understanding of the basis for the diversity of the adaptive immune system.
2. Distinguish between innate and adaptive immune responses and analyze their roles in effectively responding to distinct threats.
3. Conduct experiments using laboratory techniques and methods to apply concepts presented in lectures.
4. Develop the ability to analyze, present, and critically discuss the results of their experiments, both in individual and teamwork activities.
5. Predict how a defect in an aspect of immunity or evasion of the immune system by a pathogen will impact components of the immune response and affect the resolution of an infection.

PREREQUISITES



BIO 101 Introduction to Biology I
BIO 102 Introduction to Biology II

GRADING

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

ITEM	POINTS
Quizzes	10 Points
Lab Assignments	30 Points
Midterm 1	15 Points
Midterm 2	15 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:

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

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

COURSE MATERIALS

Required Texts:

Jenni Punt, Sharon Stranford, Patricia Jones, Judith A Owen, *Kuby Immunology*, 8th Edition, W. H. Freeman, 2019.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	Topics: Topic 1: Introduction and Overview of the Immune System Topic 2: Cells, Organs, and Microenvironments of the Immune System Topic 3: Receptors and Signaling: B and T Cell Receptors



	<p>Topic 4: Receptors and Signaling: Cytokines and Chemokines</p> <p>Assessments:</p> <p>Quiz#1</p> <p>Lab Assignment#1</p>
Module 2	<p>Topics:</p> <p>Topic 5: Innate Immunity</p> <p>Topic 6: The Complement System</p> <p>Topic 7: The Organization and Expression of Lymphocyte Receptor Genes</p> <p>Topic 8: The Major Histocompatibility Complex and Antigen Presentation</p> <p>Assessments:</p> <p>Quiz#2</p> <p>Lab Assignment#2</p>
Module 3	<p>Topics:</p> <p>Topic 9: T-Cell Development, B-Cell Development</p> <p>Topic 10: T-Cell Activation, Differentiation, and Memory</p> <p>Topic 11: B-Cell Activation, Differentiation, and Memory</p> <p>Topic 12: Effector Responses: Cell- and Antibody-Mediated Immunity</p> <p>Assessments:</p> <p>Midterm#1</p> <p>Lab Assignment#3</p>
Module 4	<p>Topics:</p> <p>Topic 13: Mucosal Immunity and the Microbiome</p> <p>Topic 14: The Immune Response in Time and Space</p> <p>Topic 15: Allergy, Hypersensitivities, and Chronic Inflammation</p> <p>Topic 16: Tolerance, Autoimmunity, and Transplantation</p> <p>Assessments:</p> <p>Midterm#2</p> <p>Lab Assignment#4</p>
Module 5	<p>Topics:</p> <p>Topic 17: Infectious Diseases and Vaccines</p> <p>Topic 18: Immunodeficiency Disorders</p> <p>Topic 19: Cancer and the Immune System</p> <p>Topic 20: Final Exam Reviews</p> <p>Assessments:</p> <p>Final Exam</p>

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 (e.g., 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



蘇州大學
Soochow 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.