BIOL 342: Immunology

Spring 2026 | Department of Biology | Emory University

Course Description

This upper-level course introduces students to the cellular and molecular foundations of the immune system. We will examine innate and adaptive immunity, antibody structure and function, T-cell activation, vaccines, immune memory, autoimmunity, and immunotherapy. Students will connect core concepts to current clinical and public health examples through short case analyses and class discussion.

Learning Goals

Explain how innate and adaptive immune responses recognize and respond to pathogens.

Compare the roles of B cells, T cells, antibodies, cytokines, and antigen-presenting cells.

Apply immunology concepts to vaccines, autoimmune disease, allergies, and cancer immunotherapy.

Interpret primary scientific figures and explain findings in clear, evidence-based language.

Assignments and Grading

Weekly Schedule

Course Policies

Participation: Students are expected to arrive prepared, contribute to discussion, and engage respectfully with classmates. Participation is evaluated holistically across the semester.

Late work: Assignments may be submitted up to 48 hours late with a modest penalty unless an extension has been approved in advance.

Academic integrity: Students must follow Emory policies on academic honesty. Collaboration is encouraged for studying, but submitted work must reflect each student’s own understanding.

Accessibility: Students who need accommodations should contact the Office of Accessibility Services and meet with the instructor early in the semester.

Instructor	Dr. Maya Chen, Associate Professor of Biology
Meeting time	Tuesdays and Thursdays, 10:00 to 11:15 a.m.
Office hours	Wednesdays, 2:00 to 4:00 p.m. or by appointment
Course format	Lecture, case discussion, short writing assignments, and applied problem sets

Assignment	Description	Weight
Participation and preparation	Regular attendance, discussion participation, and completion of reading checks.	15%
Case response papers	Three short responses connecting course concepts to clinical or public health cases.	25%
Midterm exam	Conceptual and applied questions covering the first half of the course.	25%
Final project	Small-group presentation analyzing an immune-related disease or intervention.	20%
Final exam	Cumulative exam with emphasis on synthesis and application.	15%

Week	Topic	Student work due
1	Introduction to the immune system; barriers and surveillance	Reading check
2	Innate immunity, inflammation, and complement	Case response 1 assigned
3	Antigen presentation and major histocompatibility complex	Figure interpretation exercise
4	B cells, antibodies, and clonal selection	Case response 1 due
5	T-cell activation and cytokine signaling	Problem set 1 due
6	Vaccines, immune memory, and booster responses	Midterm review questions
7	Midterm exam; immune tolerance	Midterm exam
8	Autoimmunity and allergy	Case response 2 assigned
9	Infectious disease and immune evasion	Case response 2 due
10	Tumor immunology and checkpoint inhibitors	Final project topic due
11	Immunotherapy and monoclonal antibodies	Draft project outline due
12	Transplantation and immune suppression	Peer feedback on project outline
13	Vaccines, immune memory, and booster responses	Final project work session
14	Student presentations and course synthesis	Final project presentations