

## BIOS 3451 Syllabus

Cell and Molecular Biology lab  
Fall 2026

### General Course Information

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#### Description

In this course, you will use current methods in cell and molecular biology to explore fundamental aspects of cell biology with the mouse macrophage cell line, J774, as a model system. We will perform a series of experiments to examine changes in cell morphology, viability, and gene expression in these cells in response to treatment with an immunomodulatory compound.

#### Course Learning Outcomes

By the end of this course, you should be able to:

- Perform specific modern cell and molecular biological techniques
- Differentiate between scientific hypotheses and predictions
- Recognize and apply elements of experimental design
- Graphically and statistically analyze and represent data to support or reject a hypothesis
- Convincingly and accurately communicate your hypothesis, experimental tests of that hypothesis, and analysis and interpretations of results

#### Required Course Materials

This course requires a lab coat and safety glasses. Students must provide their own lab coats and safety glasses, which can be purchased from the GT Bookstore. All other materials will be provided.

#### Grading Policy:

Attendance and participation and in-class assignments	10%
Lab notebooks (approximately 5% each; see #1 below)	15%
Pre-lab assignments (equally weighted)	5%
Methods writeups (equally weighted)	5%
Project updates (approximately 10% each; see #2 below)	30%
Annotated bibliography and Literature Review	15%
Final Research Paper	20%

- Lab notebooks will be weighted at 3%, 5%, 7%; where your lowest lab notebook score will count 3% and your highest lab notebook score will count 7% of your final grade
- Project updates will be weighted at 8%, 10%, 12%; where your lowest project update score will count 8% and your highest project update score will count 12% of your final grade

Final letter grades will be assigned according to the following scale:

A:  $\geq 90.0\%$

B:  $\geq 80.0\%$  and  $< 90.0\%$

C:  $\geq 70.0\%$  and  $< 80.0\%$

D:  $\geq 60.0\%$  and  $< 70.0\%$

F:  $< 60.0\%$

### Course Policies

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#### Attendance and/or Participation

This course meets in person and has required attendance; 100% attendance is expected for each lab for the entire lab period. Participation in each laboratory session is worth 3 points per lab, and full credit will

be assigned to students who arrive on time and are fully prepared for class and to actively participate in bench-work and class/group discussions. Arriving late and/or failing to fully participate in class may result in a participation point penalty.

**Absences:** Absences from lab may be considered excused or unexcused as outlined below. You should notify the instructor and your section TAs as soon as you are aware of any potential absence, and preferably before the missed lab. If you miss a lab, you are still responsible for completing any associated assignments.

**Excused absences:** Excused absence requests will be evaluated on a case-by-case basis and require appropriate documentation supporting the absence request. Please note that any medical documentation should be submitted to the Dean of Students (<https://studentlife.gatech.edu/request-assistance>) and not to your course instructors. Examples of potential excused absences include illness, illness or death in your immediate family, and participation in official university activities. For excused absences, missed assignments and makeup lab assignments will typically be due within one week of the original due date.

**Unexcused absences:** There are no make-up opportunities for unexcused absences. Vacation, work commitments, social events are not considered acceptable reasons to miss lab. Each unexcused absence will lower your final grade by half a letter grade.

### **Academic Integrity**

Academic dishonesty in any form will not be tolerated. Be aware of your obligations and expectations associated with the Georgia Tech Academic Honor Code (<https://catalog.gatech.edu/policies/honor-code/>) and Student Code of Conduct (<https://catalog.gatech.edu/rules/18/>). Academic dishonesty includes cheating, lying about course matters, plagiarism, submitting someone else's work as your own, stealing classroom materials, or helping others commit a violation of the Honor Code. Consistent with the), refusal to comply with any safety requirements, including wearing safety glasses, will be considered a violation of the Non-Academic Misconduct Policy. Plagiarism includes representing the words or ideas of others as your own. Written assignments in this class will be reviewed by Turnitin. Sharing and discussing information is permitted and encouraged (this is how science is really done!), but submission of someone else's WORK or IDEAS as your own is not permitted. This includes any form of student work. When in doubt, ask your instructors for help.

### **Accommodations for Students with Disabilities**

We will make classroom accommodations for students with documented accommodation needs per the Office of Disability Services. These accommodations should be arranged in advance and in accordance with the Office of Disability Services (<http://www.disabilityservices.gatech.edu>).

### **Student-Faculty Expectations Agreement**

The Georgia Tech Student-Faculty expectations may be viewed here: <https://catalog.gatech.edu/rules/22/>