

BIOS 3451 Syllabus

Cell and Molecular Biology Lab, RBT, 1 credit hours

Summer 2026

Instructor Information

Instructor: Alison Onstine

Email: alison.onstine@biosci.gatech.edu

Instructor: Jennifer Leavey

Email: jennifer.leavey@biosci.gatech.edu

General Course Information

Description

You will use current methods in cell and molecular biology to explore fundamental aspects of cell biology using silkworms as a model system. We will perform a series of experiments to observe cell morphology, quantify immune response, and measure gene expression under different conditions.

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

Lab safety: Safety policies are mandated by federal, state, and institutional rules. For every wet (experimental) lab, *you must arrive at lab with long pants, close-toed shoes, and long hair tied back*. Safety policies are mandated by Georgia Tech institutional rules to keep everyone safe.

You will lose all of your participation points for that lab if you violate any safety policies. The following safety policies are non-negotiable:

- You must wear shoes that cover your feet entirely (i.e., no flip flops, ballet slippers, or sandals) and long pants to the ankle. You will not be allowed to enter the lab without appropriate footwear.
- A lab coat, safety glasses, and disposable nitrile gloves will be provided. Note that regular eyeglasses do not provide adequate side splash protection and safety glasses must be worn over regular prescription glasses.
- Food and drinks, including water bottles, must be stored securely in a backpack or bag at all times.
- No cell phone use (phones must be silenced and off the lab bench) unless directed by your instructor.
- Clean up your lab station at the end of class.
- Properly dispose of trash, glassware, and biohazard waste. Other people's safety may be compromised by negligence.
- Follow additional safety procedures for specific lab activities as indicated by your TA.
- **Report all injuries or accidents to your instructor immediately.**

Failure to bring appropriate attire to lab (long pants and close toed shoes) or refusal to comply with proper PPE usage or any direct safety instructions from the instructor or TA will result in an unexcused absence and grade penalty.

Required Course Materials

All needed materials will be posted on Canvas.

Grading Policy:

Grading:

- | | |
|---|-----|
| • Attendance and participation and in-class assignments | 10% |
| • Pre-lab assignments & protocol quizzes (equally weighted) | 10% |
| • Lab notebooks (equally weighted) | 20% |
| • Project updates | 40% |
| • Final Research Presentation | 20% |

Final scores will be rounded to the nearest whole number, and grades will be assigned according to the following scale: 90.0-100% A; 80.0-89% B; 70.0-79% C; 60.0-69% D; <60% F

Description of Graded Components

In-class and prelab assignments are submitted through Canvas. Protocol quizzes are taken in class. Lab notebooks are recorded digitally and submitted through canvas.

Project updates are similar to lab reports and submitted online. Final research presentations are given orally as a group.

Course Policies

Attendance and/or Participation

Attendance and participation in class are essential to learning in the accelerated schedule of this program. Both are assessed through in-class activities. If you miss class due to illness or an excused absence, you can make up the work within a week of returning to class.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail instructors as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Collaboration, Group Work, and Use of Generative AI

Approved use of generative AI and collaborative work will be specified on each assignment.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

In case of illness or extenuating circumstances, please contact the instructors.

Campus Resources for Students

Undergraduate Student Academic Success Resources:

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A [comprehensive list](#) of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being ([student-resource-guide \(gatech.edu\)](#))