Principles of Biology II Lab

Last Updated: Wed, 12/17/2025

Course prefix: BIOS

Course number: 1108L

Section: HP/EX

CRN (you may add up to five):
31705 31704

Instructor First Name: Colin

Instructor Last Name: Harrison

Semester: Spring

Academic year: 2026

Course description:

The scientific method, as a way of acquiring knowledge has been one of the most significant factors in the improvement of the humans' quality of life. Biological research has given us major advancements in health and understanding of our environment. In this course you will learn and practice the scientific method by doing original biological research. This course is designed as a research service-learning lab, which means you will be immersed in a research experience from day one. Service-learning is a way of integrating relevant community service with academic coursework in order to enhance learning, teach civic responsibility, and strengthen communities. The lab class is partnering with the Georgia Tech researchers to conduct research that will benefit our learning in biology and the greater Atlanta and scientific community. You will work in teams with the support of the entire class to brainstorm and critique ideas to design a semester-long research project to explore the effects of leaf litter and other variables on the soil microbiome of the Eco Commons here on campus. GT and the research team involved in studying ecosystem health on campus will use our data to help promote healthy sustainability practices. You will participate in all steps of the scientific process performing research on microbiomes and their effects with our research partners here at GT. You will do background research, learning to read and evaluate primary literature to identify areas of potential research. You will design an original hypothesis and a series of experiments to test the hypothesis. You will learn scientific techniques as well as basic statistical analysis of data. You will communicate your findings in both written and spoken presentations.

Course learning outcomes:

After participating in Biology 1208 Lab, we expect that you will be able to do the following:

1. Interpret and summarize primary biological literature.
2. Create a testable scientific hypotheses regarding real world scientific issues.
3. Work in groups to design experiments and gather background data to inform future experimental directions.
4. Learn how to utilize and understand the science behind common molecular biology techniques.
5. Apply qualitative and quantitative methods including basic statistics and visualizations to their data to evaluate your hypotheses.
6. Communicate their research findings in both written, short presentation, and poster formats.

Required course materials:

There is no required lab manual. You will need a lab coat and safety goggles which are also available via the University Bookstore.

Grading policy:

- Group project components are worth 35% of your lab grade:
    - Annotated bibliographies (two, each worth 5%) are worth 10%.
    - Research Proposal 10%
    - Presentation Draft 5%
    - Final Presentation 10%
- Class individual participation components are worth 65% of your lab grade:
    - Weekly reflection statements are worth 10%.
    - Lab Notebook 5%
    - Lab Report Draft Sections (Abstract, Intro, Background Data/Discussion, Research Approach) 5%
    - Final Lab Report is worth 25%
    - Lab participation is worth 20%. Participation includes attendance and active participation in synchronous sessions, lab notebook checks (2), and group evaluations (2). Tardiness to lab without excuse will result in a deduction of 1% for each 10 minutes.

Attendance policy:

If you have to miss class for any other reason please contact Dr. Harrison AND your TAs via email as soon as possible (all on the same email). Students will be allowed one excused absence for the semester and be required to make-up missed work/assignments. There are no make-up labs for unexcused absences. An unexcused lab results in a 10% reduction of your lab grade and loss of participation points for that lab. Note: if you miss a lab you are still responsible for completing assignments and getting data from group members.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.

Core IMPACTS statement(s) (if applicable):

This is a Core IMPACTS course that is part of the STEM area.
Core IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help students master course content, and support students' broad academic and career goals.
This course should direct students toward a broad Orienting Question
• How do I ask scientific questions or use data, mathematics, or technology to understand the universe?
Completion of this course should enable students to meet the following Learning Outcome
• Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems, and explain natural phenomena.
Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:
• Inquiry and Analysis
• Problem-Solving
• Teamwork