

Instructors:

Dr. Emily Weigel

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CULC 474E, 404-385-1713

Tu 12:00, sec A: Stephanie and Ben

Tu 3:00, sec B: Ben and Drake

Th 12:00, sec C: Drake and Stephanie

TA contacts and Office Hours:

Stephanie Bilodeau sbilodeau6@gatech.edu Wednesdays 11am-12pm in the lab (KBISD 180)

Ben Shipley bshipley6@gatech.edu Tuesdays 10am-11am Cherry Emerson 313

Drake Lee-Patterson, drakeleep@gatech.edu Office hours Mondays 2-3pm in ES&T1126

Course Description: This skills-building course addresses **populations** (natural selection, population growth), **communities** (how individuals compete for resources, how populations are tied together by exploitative interactions), and **ecosystems** (why does soil, air, and water quality matter; how do ecologists study landscapes; how do humans interact with the global ecosystem). We will practice the scientific method and its application to ecological principles and hone your skills in both data analysis and communication with scientific and lay audiences.

Additionally, this course is part of Georgia Tech's Serve-Learn-Sustain (SLS) initiative, which provides students with opportunities to combine their academic and career interests with their desire to make worthwhile contributions to the world and build sustainable communities where people and nature thrive in Georgia, the United States, and around the globe. More information about SLS can be found at www.serve-learn-sustain.gatech.edu. Visit the website to sign up for the [SLS Email List](#), view the full list of [affiliated courses and projects](#), get [SLS advising](#), [browse upcoming SLS events](#) and workshops, and find links to their social media presence.

Pre/Co-requisites: BIOL1510/11 grade of D and (Pre-) Enrollment in BIOS 2300. ***Note that this lab may be taken alongside BIOS 2300, but your grade in each course is independently earned.***

Course Goals: By the end of this course, you will be able to:

- (1) Apply the process of science to identify and interpret basic ecological concepts through observation, experimentation, and modeled simulation
 - (2) Find, read, interpret, and cite appropriate scientific literature
 - (3) Design experiments and use basic statistics to analyze and interpret data
 - (4) Write lab reports and present work in the style accepted by Ecological scientific journals and societies
 - (5) Identify relationships among ecological, social, and economic systems*
 - (6) Demonstrate skills needed to work and communicate effectively in different types of communities*
 - (7) Evaluate how decisions impact the sustainability of communities*
 - (8) Describe how you can use Ecology to make communities more sustainable*
- *Indicates specific goals of SLS achieved by students in this course

Required Materials:

-Lab Manual: Weekly lab exercises will be made available on CANVAS prior to each lab. These lab exercises must be printed on full-size sheets and are required to participate in lab each week. *Note that we will indicate what must be printed vs. what you may digitally refer to during lab.*

BIOL 2301: General Ecology Laboratory, KBISD 180

-Lab Binder: Your labs, although covering different aspects of ecology, will build your skills as scientists over time. It is important that you keep a binder of these past labs and data for your own reference, particularly for your end-of-semester projects and weekly tree measurements.

-Additional recommended materials: Appropriate outdoor clothing (good gripping, close-toe shoes, breathable long pants/sleeves for fieldwork)

Attendance: 100% attendance is expected. Given that you are working with others to perform experiments and collect data, making up a lab is very difficult. **If you must miss a laboratory, you need to contact Dr. Weigel and your lab instructors as soon as possible.** If possible, we will arrange for you to attend a different section. There will be no make-up laboratories. Vacation, work commitments, and social events are not acceptable reasons to miss lab. Examples of legitimate reasons to miss a lab include serious illness, illness or death in your immediate family, and participation in official university activities. You will be required to provide [official institute documentation](#) for excused absences. You will not be permitted to make up work for unexcused absences. Persistent tardiness will result in loss of points from your participation grade, and on days when we leave campus, may cause you to miss lab entirely.

Evaluation: Your grade will be calculated out of **300** points using the following scale:

A = 90-100% B = 80-89.9% C = 70-79.9% D = 60-69.9% F = 0-59.9%

Points will be based on the following:

10 Pre-lab Assessments (5 pts each)	50
1 Plagiarism Exercise	10
5 Writing Subsections (15 pts each)	75
1 Full Lab Report	50
1 Presentation	30
Campus Tree Project	25
Weekly Participation (includes in-class activities)	60

Pre-labs: Pre-lab assessments ('Pre-labs') will be given either as an assignment due before lab or a quiz at the beginning of lab concentrating on the current day's material. Pre-labs are due at the very start of the lab. *Late arrivals to lab will not be allowed to submit pre-lab work, nor take the quiz. If you miss a quiz due to an unexcused absence from lab, you will receive a zero for that quiz.*

Presentations, Writing Subsections, and Reports: In the **writing subsections**, you will write one section of a lab report for a given lab. There are several assignments, each one increasing in length and difficulty compared to the previous, in order to facilitate your development as a scientific writer across the semester. Your final **full lab report** will therefore be an opportunity to write all of the sections for a single experiment. At the end of the semester, each group will give a 15-minute PowerPoint **presentation** to further hone your scientific communication skills. More details on group membership and presentation content will be given later in the semester.

BIOL 2301: General Ecology Laboratory, KBISD 180

Campus Tree Project: Many ecological studies span time and space much larger than that of a standard university course. For this project, you will be responsible for the weekly monitoring the health and growth of our campus arboretum across the semester. More details on the larger dataset to which you're contributing, as well as how to do the measurements, will be given in lab.

Participation, Acceptable Behavior, and Technology Usage: You are expected to be engaged and respectful of others. When on campus or not, you represent Georgia Tech, and the guest speakers and access we have to resources can be cut off due to misbehavior. While we encourage you to bring your laptops, smartphones, tablets, etc. to class to take advantage of online research tools during class time, we ask you to be mindful of your energy usage and attention. You can receive a 0 for the day for all assignments for any "technology infractions" which indicate poor management of technology for learning. These infractions include, but are not limited to, audible cell phone rings/alerts, online shopping, texting, Facebook, non-essential e-mail checking, and other activities unrelated to this class. No verbal warnings. No exceptions. This is for your learning AND safety.

Late assignments: **Lab reports and writing subsections are the only assignments which will be accepted late**, as we want to give you practice and feedback on written reports. Each assignment will be reduced one letter grade (10%) for each 24hr period it is late; note that this includes weekend days (i.e., assignments due Thursday and submitted Monday will lose 40%). All assignments, including lab reports and writing subsections, will be due ***at the start of lab*** and may be submitted electronically via CANVAS dropboxes (***not email***) to your TAs. We will still evaluate and give you feedback on your work so that you may improve, however the grade will reflect the work's tardiness.

Regrades thru Revise and Resubmit: You will have one (1) opportunity to revise and resubmit one (1) writing subsection for reevaluation. You may use the feedback from your TAs and reflection on your own work to rewrite one writing subsection (not a full lab report). You have one week from the return of the assignment to resubmit the subsection, and similar to professional manuscript submissions to a journal, you *must also include* a detailed cover letter enumerating the changes you have made to improve your writing and/or rationale as to why you chose not to change an element. The second grading, whether higher or lower, replaces the original score. No other regrades will be considered, so please choose wisely for what you submit.

Accommodations for Students with Disabilities: If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

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. For information on Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>. Any student suspected of cheating or plagiarizing 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.

While students will collaborate in performing the experiments and collecting the data, **each student is expected to create their own figures and figure legends, compose their own code, and write their**

own lab reports and data analysis assignments. Plagiarism includes reprinting the words of others without both the use of quotation marks *and* citation. As direct quotes are seldom used in scientific writing, *you are expected to rephrase the words of others, without quotation marks, and provide the citation.* If this is unclear, please ask your TA for help before turning in your assignment.

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. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of me and that we have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, we encourage you to remain committed to the ideals of Georgia Tech while in this class.

Statement of Intent for Inclusivity: As members of the Georgia Tech community, we are committed to creating a learning environment in which all students feel safe and included. Because we are individuals with varying needs, we are reliant on your feedback to achieve this goal. To that end, we invite you to enter into dialogue with us about the things we can stop, start, and continue doing to make our classroom an environment in which every student feels valued and can engage actively in our learning community.

Amendments: Your instructors reserve the right to make changes as severe weather and other factors necessitate. Any changes will be accompanied by advanced notice from the instructors.

Lab Rules and Safety Precautions

Note that violations of the below rules can result in a negative impact on your grade or dismissal from lab.

1. **You are required to wear high coverage (ideally closed-toe), full-heel shoes at all times.** While indoor labs require your legs be completely covered, outdoor labs may be quite hot; for this reason, we recommend bringing a change of clothes if you intend to wear shorts. We advise shoes with good grip always, but particularly when conducting outdoor labs. **If you do not wear the appropriate garments, you will be sent home to change.** *This is for your safety.*
2. Please contact Dr. Weigel to confidentially inform her of any health issues which may impact your engagement in lab or at field sites. These include any severe allergies (such as to bees or grass) or other major health concerns. You may also choose to inform your TA.
3. Eating and drinking **ARE NOT** permitted in the lab. If you carry a water bottle, you must keep it tucked away in your bag at the front of the room.
4. Walkways and safety equipment must be free of obstructions. Please place backpacks and other belongings beneath the tables or in the cubbies provided.
5. You are responsible for cleaning up your work area and returning all materials to their proper place before leaving.
6. Please ask if you do not know how to operate lab equipment. You can break equipment and hurt yourself if you do not know what you are doing. When in doubt, always ask!
7. Notify your TAs immediately if you are injured or lab equipment has been damaged.
8. Always be prepared for inclement weather when we have an outdoor lab scheduled – bring rain gear, hat, layers, etc. as necessary. **When raining, you will be expected to do activities that involve your hands – merely bringing an umbrella will make it difficult to conduct the lab and stay dry!** Invest in or borrow a rain jacket for the semester.
9. We recommend you bring a water bottle, use sunscreen, wear a hat, and wash your hands after handling organisms. You may also choose to wear bug repellent or spray sunscreen, but please do not apply it before getting to the field site. Watch for poison ivy and check for ticks after outdoor activities, particularly field trips.
10. Please note that handguns are not permitted in state vehicles, in accordance with the [Georgia Fleet Management Manual](#). The right for permit holders to carry a concealed handgun extends only to USG-owned or leased property. It does not extend to locations of field trips or other outings. Please note the laboratory schedule and plan appropriately.

Tentative Lab Schedule

Prior to each week's lab, you should read the lab exercise and complete any prelab exercises (and tree measurements).

Week	Dates	Pre-lab Activity	Tree Project Measurement	Lab Exercise	Assignment
1	Jan 7/9	Read Syllabus; Procure required materials	None	Introductions, Lab Safety, Food Web Activity, Plagiarism Exercise	Plagiarism Exercise (in class)
2	Jan 14/16	Print Lab; Read Sections 1&2 from 'A Guide to Using R for Ecology'; Download R and RStudio	None	Scientific Tools and Communication	
3	Jan 21/23	Print Lab; Complete Prelab	None	Forensic Ecology and Scripts	Introduction Due Jan 28/30
4	Jan 28/30	Print Lab; Complete Prelab	<i>Measurement #1 (done and uploaded in class)</i>	Campus Ecology: Tree Project ☼	
5	Feb 4/6	Print Lab; Complete Prelab	<i>#2 (due by class)</i>	Campus Ecology: Living Building ☼	
6	Feb 11/13	Print Lab; Complete Prelab	<i>#3 (due by class)</i>	Population Ecology	Methods Due Feb 18/20
7	Feb 18/20	Print Lab; Complete Prelab	<i>#4 (due by class)</i>	Population Structure	Results Due Feb 25/27
8	Feb 25/27	Print Lab; Complete Prelab	<i>#5 (due by class)</i>	Organismal Interactions I	Stats & Experimental Design Due Mar 3/5
9	Mar 3/5	Print Lab; Complete Prelab	<i>#6 (due by class)</i>	Optimal Foraging ☼	Discussion Due Mar 10/12
10	Mar 10/12	Print Lab; Complete Prelab Activity	<i>#7 (due by class)</i>	Ecosystem Health I ☼	<i>(Keep working on your full lab report)</i>
11	Mar 17/19	---	<i>Extra Credit Measurement (due by normal class time)</i>	No lab – Spring Break	<i>(Keep working on your full lab report)</i>
12	Mar 24/26	Print Lab; Complete Prelab Reflection	<i>#8 (due by class)</i>	Ecosystem Health II ☼	<i>(Keep working on your full lab report; make project groups)</i>
13	Mar 31/ Apr 2	Print Lab; Bring notes from Part I	<i>#9 (due by class)</i>	Organismal Interactions II (Data analysis)	Full Lab Report Due April 7/9
14	Apr 7/9	Print Lab; Complete Prelab	<i>#10 (due by class)</i>	Island Biogeography ☼	Presentations Due Apr 14/16
15	Apr 14/16	Upload ppt to CANVAS by 9:00 AM	<i>#11 and Tree Reflection (due by class)</i>	Presentations & Final Class Day	

☼ denotes an outdoor lab