**Instructors:**

Dr. Emily Weigel Tu 12:00, sec A: Alex and Danny

Email: emily.weigel@biosci.gatech.edu Tu 3:00, sec B: Tim and Jessica

CULC 474E, 404-385-1713 Th 12:00, sec C: Danny and Alex

Th 3:00, sec D: Jessica and Tim

TA contacts:

Alex Draper, [adraper3@gatech.edu](mailto:adraper3@gatech.edu) Office hours Tuesday 10am in CULC 487

Danny Lauer, [lauerd@gatech.edu](mailto:lauerd@gatech.edu) Office hours Mondays 2-3pm CULC 487

Tim O’Sullivan, [tosullivan6@gatech.edu](mailto:tosullivan6@gatech.edu) Office hours Tuesday 11am-12pm in ES&T 2243

Jessica Pruett [jpruett7@gatech.edu](mailto:jpruett7@gatech.edu) Office hours Thursdays 10-11am in CULC 487

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](https://www.contact.gatech.edu/sls/subscribe) List, view the full list of [affiliated courses and projects](http://serve-learn-sustain.gatech.edu/courses-20162017), and find links to their social media presence.

Pre/Co-requisites: BIOS 1107 AND (BIOS 1107L OR BIOS 1207L) OR BIOL 1510 OR BIOL 1511

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. Identify and interpret basic ecological concepts through observation, experimentation, and modeled simulation
2. Design experiments and use basic statistics to analyze data
3. Write lab reports in the style accepted by Ecological scientific journals
4. Identify relationships among ecological, social, and economic systems\*
5. Demonstrate skills needed to work effectively in different types of communities\*
6. Evaluate how decisions impact the sustainability of communities\*
7. 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.

-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.

-Lab Coats: Lab coats are required for any activity conducted within our laboratory classroom.

-Additional recommended materials: Graphing calculator, appropriate clothing for outdoor trips

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](http://studentlife.gatech.edu/content/class-attendance) 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.

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, Reports, and Presentation: 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 work completed outside of class, nor take the quiz. If you miss a quiz due to an unexcused absence from lab, you will receive a zero for that quiz.*

In the **writing subsections**, you will complete the data analysis and write one or more sections of **the lab report**. 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. 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.

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. We also encourage you to bring your laptops, smartphones, tablets, etc. to class to take advantage of on-line research tools during class time. However, abusing this policy will result in receiving a 0 for the day for all assignments for any “technology infractions”. These infractions include, but are not limited to, audible cell phone rings/alerts, on-line 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/](http://www.catalog.gatech.edu/policies/honor-code/%20) 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, 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 and will result in a negative impact on your grade.*

1. **You are required to wear closed-toe, full-heel shoes at all times.** **Lab coats are required for every lab.** However, when we move to outdoor labs, at your instructor’s discretion, lab coats may be removed. While indoor labs require that your legs must also 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. **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](http://doas.ga.gov/assets/Fleet%20Management/Fleet%20Management%20Rules%20Policies%20and%20Compliance/GeorgiaFleetManual.pdf). 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).

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| --- | --- | --- | --- | --- | --- |
| **Week** | **Dates** | **Pre-lab Activity** | **Tree Project Measurement** | **Lab Exercise** | **Assignment** |
| 1 | Aug 21/23 | Read Syllabus; Procure required materials | *None* | Introductions, Lab Safety, Food Web Activity, Plagiarism Exercise | **Plagiarism Exercise (in class)** |
| 2 | Aug 28/30 | Print Lab; Download R and/or RStudio and Read Lab and Ch. 1-2 of ‘Using R for Ecology Students’ as Prelab | *None* | Scientific Tools and Communication |  |
| 3 | Sept 4/6 | Print Lab; Study for Prelab Worksheet | *Measurement #1 (done and uploaded in class)* | Tree Project & Living Building ☼ |  |
| 4 | Sept 11/13 | Print Lab; Complete Prelab Quiz | *#2 (due by class)* | Forensic Ecology | **Introduction Due Sept 18/20** |
| 5 | Sept 18/20 | Print Lab; Study for Prelab Quiz | *#3 (due by class)* | Population Ecology | **Methods Due Sept 25/27** |
| 6 | Sept 25/27 | Print Lab; Study for Prelab Quiz | *#4 (due by class)* | Population Structure | **Results Due Oct 2/4** |
| 7 | Oct 2/4 | Print Lab; Complete Prelab Reading | *#5 (due by class)* | Organismal Interactions I | **Stats & Experimental Design Due Oct 16/18** |
| 8 | Oct 9/11 | --- | *Extra Credit Measurement (due by normal class time)* | *No lab – Fall Break* |  |
| 9 | Oct 16/18 | Print Lab; Study for Prelab Quiz | *#6 (due by class)* | Optimal Foraging ☼ | **Discussion Due Oct 23/25** |
| 10 | Oct 23/25 | Print Lab; Complete Prelab Activity | *#7 (due by class)* | Ecosystem Health I☼ | *(Keep working on your full lab report)* |
| 11 | Oct 30/Nov 1 | Print Lab; Complete Prelab Reflection | *#8 (due by class)* | Ecosystem Health II ☼ | *(Keep working on your full lab report)* |
| 12 | Nov 6/8 | Print Lab; Bring notes from Week 7 | *#9 (due by class)* | Organismal Interactions II (Data analysis) | **Full Lab Report Due Nov 13/15** |
| 13 | Nov 13/15 | Print Lab; Study for Prelab Quiz | *#10 (due by class)* | Island Biogeography ☼ | **Presentations Due Nov 27/29** |
| 14 | Nov 20/22 | --- | *Extra Credit Measurement (due by normal class time)* | *No lab – Thanksgiving Break* |  |
| 15 | Nov 27/29 | Upload ppt to CANVAS **by 9:00 AM** | *#11 and Tree Reflection (due by class)* | Presentations & Final Class Day |  |

☼ denotes an outdoor lab