

**Lab Director:**

Dr. Emily Weigel (she/her)  
 Email: emily.weigel@biosci.gatech.edu  
 CULC 474E  
 (404)385-1713

*Note that your TAs who lead your section should serve as your primary contacts.*

Tu 12:30pm-3:15pm, sec A1:	Stephanie	Andrew
Tu 3:30pm-6:15pm, sec A2:	Anh	Jonathan
W 12:30pm-3:15pm, sec A6:	Andrew	Katie
W 3:30pm-6:15pm, sec A7:	Marina	Stephanie
Th 8:00-10:45am, sec A5:	Katie	Emily
Th 12:30pm-3:15pm, sec A3:	Emily	Anh
Th 3:30pm-6:15pm, sec A4:	Jonathan	Marina

**Lab Instructors (Teaching Assistants/TAs) Contacts and Office Hours (links on Canvas):**

<u>Name</u>	<u>Email</u>	<u>Office Hours</u>
Stephanie Bilodeau (she/her)	sbilodeau6@gatech.edu	Mondays 3-4pm
Katie Slenker (she/her)	kslenker3@gatech.edu	Tuesdays 10-11am
Anh Pham (he/him)	anhph@gatech.edu	Wednesdays 9-10am
Andrew Robertson (he/him)	arobertson66@gatech.edu	Wednesdays 3:30-4:30pm
Jonathan Stevenson (he/him)	jstevenson37@gatech.edu	Thursdays 2:15-3:15pm
Marina Haldopoulos (she/her)	mhaldopoulos3@gatech.edu	Fridays 10-11am
Emily Skibinski (she/her)	eskibinski3@gatech.edu	Fridays 3-4pm

**1.0 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](http://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.

**2.0 Pre/Co-requisites:** Undergraduate Semester level BIOL 1510/1511 or BIOS1107/1108 or equivalent with a Minimum Grade of D and (Prior-) Enrollment in BIOS 2300. ***Note that this lab may be taken alongside BIOS 2300, but your grade in each course is independently earned.***

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

## BIOS 2301: General Ecology Laboratory

- (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

### **4.0 Required Materials:**

**1) A Fully-Charged Laptop to Access the Lab Manual and Write/Run Code:** Weekly lab exercises will be made available on CANVAS prior to each lab. These lab exercises are required to participate in lab each week, and some activities are only done digitally. We will be outside frequently, so it is important that you budget your battery to ensure you will be able complete the day's activities. Note: While there will be some weeks where you may want to print portions of the lab, please do so sparingly.

Also, laptops do not include chromebooks/tablets (they are particularly unsuited for coding assignments and general battery life). Rather, your laptop should meet institute standards (see here: <https://sco.gatech.edu/>). If something should happen to that device, temporary loaners are available 24/7 for free through the Library: <https://libcal.library.gatech.edu/reserve/gadgets>

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

**3) Personal protective equipment (PPE):** includes masks, eye protection, appropriate outdoor clothing (good gripping, closed-toe shoes; shorts or breathable pants/sleeves and rain gear)

**5.0 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 Video/GIS Project	25
Mask Behavior Project	30
Weekly Participation (includes activities)	60

Pre-labs: Pre-lab assessments ('Pre-labs') will be given either as an assignment due by the lab's start or a quiz at the start of lab concentrating on the current day's material. The Pre-labs contain critical safety information and baseline knowledge necessary to successfully complete the day's lab. As such, the Pre-labs (assignments/pre-readings) can vary in length, depending on your preparation and background, so please give yourself enough time to meaningfully complete them. Should your prelab be unsubmitted, incomplete, or insufficient to complete the lab, the teaching team (Dr. Weigel and your TAs) may ask you to leave for the education and safety of yourself and others. *Be advised: You are responsible for ensuring the timely, correctly-formatted submission of quality work for the correct prelab as required, so please check your work!*

Communicating Science: Writing Subsections, Reports, and Video/GIS Project: In the **writing subsections**, you will write one section of a lab report for a given week's lab. These subsections are intended to facilitate your development as a scientific writer across the semester by providing smaller, focused, and more immediate practice with feedback on writing a given lab report section. Your final **full lab report** serves as an opportunity to show what you have learned using a single long-term experiment for which you will write all sections of a formal lab report. You will further hone your scientific communication skills by creating a video/GIS site to communicate science with the public. More details will be given later in the term.

*For all assignments, you are responsible for ensuring you turn the correct file in, and in the correct format, by each deadline. **Please get in the habit of checking your submission prior to deadlines to ensure it appears as intended.** Resubmissions before the deadline are allowable (and encouraged, as we all improve with revisions), but be aware: we won't 'pregrade' or grade multiple versions- the last version you submit by the deadline will be the one we'll grade.*

Mask Behavior Project: Many ecological studies span time and space much larger than that of a standard, campus-bound university class. For this project, you will be responsible for the weekly observations of mask-wearing behavioral ecology of populations of humans (*Homo sapiens sapiens*) across the semester. More details on the larger multi-year dataset to which you're contributing, as well as how to do the measurements, will be given later in the first week.

**6.0 Participation, Acceptable Behavior, and Technology Usage Policy:** You are expected to be engaged and respectful of others. Whether or not you are on campus, you represent Georgia Tech, and the guest speakers and access we have to resources can be cut off due to misbehavior. Further, on days where we are outside/travel, you can and will be left behind if you are not present and ready to go when we need to leave and/or pose a risk to others during travel. While we encourage you to use laptops, smartphones, tablets, etc. in class to take advantage of online research tools during class time, we ask you to be mindful of your energy usage and attention, particularly when outside. This is for your- and your classmates'- learning AND safety.

### **7.0 Symptoms and Physical Presence:**

We are a community and are thus dependent on, and affected by, the actions, precautions, and protections each of us takes to mitigate the spread of COVID-19. If you are sick, or may have been around folks who were/now are, particularly but not limited to COVID-19, **do not attend**

*class in-person.* COVID-19 poses real risks to others, including those to whom we are connected and support at home. As such, we ask that you take reasonable efforts to protect yourselves, our campus, and our broader community from the spread of COVID-19 and use the asynchronous completion option in the event of illness.

**8.0 Participation and Missed Labs:** 100% participation, that is, weekly engagement with lab materials and timely submission of lab work, is expected. **If you must miss a laboratory, you need to contact Dr. Weigel and your lab instructors as soon as possible.** To protect other members of the lab and prevent disruptions, we will not conduct make-up laboratories, but Dr. Weigel and your TAs will work with you directly on a case-by-case basis if you are unable to asynchronously complete lab assignments on schedule. Vacation, work commitments, and social events are not acceptable reasons to miss lab; however, legitimate reasons to miss a lab include close-contact with a person with monkeypox/COVID-19 (or other readily communicable illness), suspected illness, serious illness, illness or death in your immediate family, and participation in official university activities. Whenever possible, please provide [official institute documentation](#); if this is an impediment, please just reach out and we will try to work with you within the bounds of institute policies. For your privacy, please do not send medical documentation, etc. directly to Dr. Weigel, but rather use the confidential official institute processes which will confidentially notify your professors. Please work with Dr. Weigel if you need assistance with this process. *In sum, your safety and wellbeing matter more than a course.*

**9.0 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 assignment dropboxes (**not email**) to your TAs. *To ensure all assignments are accounted for and to track your progress across the term, assignments submitted as linked documents (e.g. a link to a google doc) or email will not be accepted at any time, even if late.* We will still aim to evaluate and give you feedback on your work so that you may improve, however the grade will reflect the work's tardiness.

**10.0 Regrades thru Revise and Resubmit:** You will have one (1) opportunity to revise and resubmit one (1) writing subsection for reevaluation. You should use the feedback from your TAs and reflect 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. *As a tip, while every student is different, and you should pay attention to the personalized feedback your TAs, the sections which typically need the most work are introduction and discussion sections.*

**11.0 Extra Credit:** Periodically, extra credit opportunities may be offered. These are to supplement activities in the lab and improve undergraduate lab experience. Please pay attention to announcements (including the syllabus) for these opportunities. Please note that extra credit will be offered only to the entire class; it will not be offered on an individual basis.

**12.0 How to succeed in this course (in short):** Be on time, prepared for class, and participate actively. Ask lots of questions and actively seek solutions. Challenge yourself to do things that you find are difficult, and welcome (and appreciate) the growth that comes with practice. Plan for when you will do work, and take ownership of your own learning. Reflect on feedback from peers and the teaching team, and submit college-level work that reflects care. Recognize we have high expectations of you, and are asking you to try your best to reach those goals. Believe in yourselves and your potential- we do.

**13.0 Safety:** Given the rapidly evolving nature of the situation with COVID-19 (and increasingly monkeypox) and the general dangers that exist when doing field and laboratory work, we must always have an eye on safety. Specific safety measures will be announced relative to each week's work, and we ask that you always wear the appropriate PPE when conducting work for this course. You can be denied admission to spaces and field sites, get hurt, and may violate local laws/ordinances if you fail to comply. Furthermore, refusal to comply with proper PPE usage and other safety guidelines can result in grade reduction as well as potential disciplinary action for violating the Georgia Tech Honor Code. **Do science safely.**

**14.0 Piazza and Chat Policy:** We encourage asking questions and working together, both in and outside of class. To this end, we will set up Piazza, an online platform for you to ask us and your fellow students questions, and we will enable the chat feature in video conferences (e.g. in office hours). On Piazza, to minimize confusion between sections and ensure correct information is shared, please use the tags appropriate to your section (e.g. A1 Tues 12:30), so that the correct TA can answer and to ensure you are reading information applicable to your section; this is particularly important in a semester where sections may need modifications due to illness and extreme weather and therefore activities may differ between sections. We also ask that you do not post solutions or code to the board to give everyone the chance to do their own work.

Also: A challenge with written communication can be in interpreting text without the visual and auditory clues from speech. Please remember that this is an academic course, taught and taken by real people, so we are asking that you treat your fellow students and instructors with respect. Please grant each other grace and the benefit of the doubt in potential miscommunications by asking for clarification when needed, and please respond to requests in good faith. We will strive to keep our learning environment as a place where we can seek knowledge openly, and we will keep Piazza and the chat available as long as this goal is met.

**15.0 Email Policy:** Emails can be an appropriate forum to exchange ideas, particularly when addressing individual concerns (e.g., your grade, an institute absence, etc.). When you email, please put BIOS2301 in the subject line so we see and prioritize the message. Please also use your GT email; we can respond most thoroughly (and rapidly) when we can simply hit reply vs. needing to search for your verified GT email to respond. Please also do NOT use Canvas

messaging to email; it is not reliable. We will generally reply well within 24 hrs and be most responsive M-F 8am-5pm, but if we reply outside of those hours, unless the concern is urgent (e.g., a fieldsite has become unsafe, we're troubleshooting your access to a lab, etc.), please don't feel the need to immediately respond. We understand we all need balance. Please pay us this same respect.

**16.0 Office Hours Policy:** Office hours are a space to get help with lab tasks, but it is not tutoring where we simply repeat what already happened in lab. Thus, you should come prepared with specific questions and having reasonably (and demonstrably) attempted to work out solutions on your own first. We also ask that you do not attempt to request detailed feedback on written work; this is not an appropriate ask (especially if there are multiple students for that session), nor is it a very affective use of office hours to support your learning.

**17.0 'Pivot and Patience' Policy:** We, as an instructional team, are going to do our best to continue to limit our own personal risks with regard to COVID-19 and monkeypox (and other illnesses), both to keep ourselves and community healthy, and to preserve your educational experience. That said, by coming into contact with many students to teach, we are taking on an increased risk and may need to quarantine if exposed, or isolate for if positive/ill. For this reason, your section may only have 1 TA, be taught by Dr. Weigel, need to temporarily shift online, may change weekly topic, and in the worst case, be cancelled, for a given week. We will communicate with you as soon as we can, should any change arise in how the course will be delivered or in work which you are expecting to submit or have returned (Note: Please do not assume an absence of a student or instructor means a positive case, as other emergencies, while less frequent, may still cause similar disruptions). Please have patience, as the health and safety of everyone in our community matters and must be held in priority for good educational outcomes. We thank you in advance for your understanding support of this goal.

**18.0 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 Dr. Weigel as soon as possible to set up a time to discuss your learning needs. Be aware that accommodations must be discussed *prior to* implementation, particularly to ensure that an accommodation can work for your needs, can safely be implemented in the planned activities (e.g. if one requires food breaks), and fits pedagogically. The more proactive you are, the better we can collectively accomplish these goals.

**19.0 Class Content and Intellectual Property:** All course materials, including In-Class Materials, Labs, 'How To' Guides and Tutorials, Sample Assignments, Student Support materials, and the like are protected by copyright law. Students may NOT reproduce, distribute or display (post/upload/ screenshot/take photos of) course materials in any other way without the instructor's prior written consent (this includes uploading course materials to "study websites" such as Chegg, Course Hero, etc...). Violations of this policy will be subject to GT's Student Code of Conduct, and applicable laws, even after the course has concluded.

**20.0 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/>. As per GT policy, 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.

We'd like to avoid situations that involve potential violations of the Honor Code, so we'd like to make clear: 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.** Be advised that 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 personally rephrase the words to represent the ideas of others, without direct quotation, and provide the citation.* You are also expected to turn in your own original work produced for this class and avoid self-plagiarism. You will receive training and resources on how to avoid plagiarism, but if ever something is unclear or you are unsure, please ask your TA for help and/or clarification before turning in any assignment.

**21.0 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.

**22.0 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.

**23.0 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.

## Campus Resources for Students

In your time at Georgia Tech, you may find yourself in need of support. Below you will find some resources to support you both as a student and as a person.

### Academic support

- Center for Academic Success <http://success.gatech.edu>
  - 1-to-1 tutoring <http://success.gatech.edu/1-1-tutoring>
  - Peer-Led Undergraduate Study (PLUS) <http://success.gatech.edu/tutoring/plus>
  - Academic coaching <http://success.gatech.edu/coaching>
- Residence Life's Learning Assistance Program <https://housing.gatech.edu/learning-assistance-program>
  - Drop-in tutoring for many 1000 level courses
- OMED: Educational Services (<http://omed.gatech.edu/programs/academic-support>)
  - Group study sessions and tutoring programs
- Communication Center (<http://www.communicationcenter.gatech.edu>)
  - Individualized help with writing and multimedia projects
- Academic advisors for your major <http://advising.gatech.edu/>

### Personal Support

#### Georgia Tech Resources

- The Office of the Dean of Students: <http://studentlife.gatech.edu/content/services>; **404-894-6367**; Smithgall Student Services Building 2<sup>nd</sup> floor
  - You also may request assistance at [https://gatech-advocate.symplicity.com/care\\_report/index.php/pid383662?](https://gatech-advocate.symplicity.com/care_report/index.php/pid383662?)
- Counseling Center: <http://counseling.gatech.edu>; **404-894-2575**; Smithgall Student Services Building 2<sup>nd</sup> floor
  - Services include short-term individual counseling, group counseling, couples counseling, testing and assessment, referral services, and crisis intervention. Their website also includes links to state and national resources.
  - *Students in crisis may walk in during business hours (8am-5pm, Monday through Friday) or contact the counselor on call after hours at 404-894-2204.*
- Students' Temporary Assistance and Resources (STAR): <http://studentlife.gatech.edu/content/need-help>
  - Can assist with interview clothing, food, and housing needs.
- Stamps Health Services: <https://health.gatech.edu>; **404-894-1420**
  - Primary care, pharmacy, women's health, psychiatry, immunization and allergy, health promotion, and nutrition
- OMED: Educational Services: <http://www.omed.gatech.edu>
- Women's Resource Center: <http://www.womenscenter.gatech.edu>; **404-385-0230**
- LGBTQIA Resource Center: <http://lgbtqia.gatech.edu/>; **404-385-2679**
- Veteran's Resource Center: <http://veterans.gatech.edu/>; **404-385-2067**
- Georgia Tech Police: **404-894-2500**



**Tentative Lab Schedule** (Note the schedule of your individual lab determines the exact dates below)

*Prior to each week's lab*, read the lab exercise and complete prelab exercises (and mask measurements).

Be advised that lab materials for the coming week will post on Fridays after the teaching team has completed safety check protocols and weather is more certain.

Week	Dates	Pre-lab Activity (Always due by start of class)	Mask Project Measurement (Always due by start of class)	Lab Exercise (Due by end of class)	Assignment
1	Aug 23-25	Read Syllabus; Procure required materials	None	Introductions, Plagiarism Exercise, Lab Safety, & Project Intro	<b>Plagiarism Exercise (due by end of class)</b>
2	Aug 30-Sep 1	Read Sections 1&2 from 'A Guide to Using R for Ecology'; Download R and RStudio for Prelab #1 Credit	Measurement #1	Scientific Tools and Communication	--
3	Sep 6-8	Complete Prelab #2	Measurement #2	Campus Ecology: Biodiversity	<b>Introduction Due Sep 13-15</b>
4	Sept 13-15	Complete Prelab #3	Measurement #3	Campus Ecology: Tree Project	(Start narrowing your question for mask project)
5	Sept 20-22	Complete Prelab #4	Measurement #4	Community Composition	<b>Methods Due Sep 27-29</b>
6	Sept 27-29	Complete Prelab #5	Measurement #5	Sampling Methods	
7	Oct 4-6	Complete Prelab #6	Measurement #6	Population Structure	<b>Results Due Oct 11-13</b>
8	Oct 11-13	Complete Prelab #7	Measurement #7	Mask Project: Part I	<b>Stats &amp; Experimental Design Due Oct 11-13 (end of class)</b>
9	Oct 18-20	--	Extra Credit Measurement	**Fall Break**	--
10	Oct 25-27	Complete Prelab #8	Measurement #8	Ecosystem Health	<b>Discussion Due Nov 1-3</b>
11	Nov 1-3	Complete Prelab #9	Measurement #9	Modeling Disease Spread	(Keep working on your full lab report, video)
12	Nov 8-10	Complete Prelab #10	Measurement #10	Ecology and the Law (Asynchronous)	(Keep working on your full lab report, video)
13	Nov 15-17	Bring notes from Part I	None	Mask Project: Part II & Video/GIS Working Session	<b>Video/GIS Project Due by 11:55pm the night before your lab</b>
14	Nov 22-24	--	None	***Thanksgiving Break***	
15	Nov 29-Dec 1	--	None	Video/GIS Share-Out Symposium	<b>Full Lab Report due by 11:55pm the day of your lab</b>