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February 12, 2023

Dear CTL Awards Committee,

It is my pleasure to nominate Dr. Emily Weigel for the Geoffrey G. Eichholz Faculty Teaching Award; Dr. Weigel was selected for this nomination by the Biological Sciences Teaching Awards Committee, a committee of faculty appointed by the chair. Dr. Weigel is a Senior Academic Professional in the School of Biological Sciences (SoBS), where she demonstrates teaching excellence at all levels of the undergraduate program, including general education courses such as Introductory Biology courses (Biological Principles, Organismal Biology), core courses for the Biology and Neuroscience majors (Ecology, Ecology Lab, Experimental Design and Biostatistics), elective courses (Behavioral Biology and VIP courses), and the Biology TA training program courses. Additionally, Dr. Weigel's education research investigates the specific strategies that lead to student success and sense of belonging, particularly in large and non-major courses. Dr. Weigel is absolutely committed to excellence in teaching to support and inspire her students, fosters connections between her students even in large-enrollment core courses, dedicates her time to the discovery and implementation of student-centered learning pedagogies, and is highly attentive to the successes of each individual student in her classes.

Dr. Weigel's efforts in the classroom inspire her students to see the relevance of their learning to their lives and beyond Georgia Tech. She connects with students personally by learning their names (even in large courses), she circulates the classroom to interact with individuals and small groups during class discussions, and she individually invites struggling students to attend her office hours. Dr. Weigel maintains an open-door policy with multiple weekly office hours and intentional scheduling with her TAs to maximize availability to students who need guidance. Student letters included in this packet reflect how Dr. Weigel's teaching and support for students has helped them acclimate to Tech, develop better study habits, and build connections with the course content. As evidenced from her student letters of support, her teaching has had meaningful and measurable impacts on her students: her teaching approach has reassured and validated students in their choice of major, provided the background experiences for students to be successful in their undergraduate research and other co-curricular experiences, inspired students to recognize their potential for growth rather than focusing on their current knowledge, motivated students to rise to challenges to pursue their career plans, and supported students in recognizing the importance of their mental and emotional well-being.

Dr. Weigel consistently demonstrates extraordinary excellence in teaching, and she leverages multiple technologies to support student learning and meet the needs of all students. As an educator in the Biology introductory and required core courses, Dr. Weigel employs innovative strategies that specifically address the challenges of large-enrollment, core courses. She uses collaborative in-class exercises and the on-line platform Learning Catalytics for in-class activities to make the large classroom "smaller," allowing every student to ask questions while working through course concepts. She actively circulates the room in classes with 200+ students, checking in with small groups and individuals to answer questions and gauge understanding. In

the pivot to online synchronous classes in response to Covid-19, Dr. Weigel leveraged the chat feature, breakout rooms, open mic discussion with students and her co-instructor, and TA support to make the online classroom active and experiential. She fosters peer-to-peer and TA-to-peer instruction in the classroom and through the on-line forum Piazza, both to provide more support to students and to allow them to make connections with peers; this creates opportunities to discuss course concepts and give students the confidence to ask questions and feel heard in large-lecture classes. Leaning on experience with online and hybrid courses due to the pandemic, Dr. Weigel also structures her courses to facilitate group work in hybrid classrooms to better support students with health concerns, both acute and long-term, in inclusive and non-othering ways. She also makes content connections to the real world by using case studies and student-driven projects in the Intro Biology two-course sequence, Experimental Design and Statistics, and Ecology Lab, to help majors and non-majors engage and appreciate the relevance of biological concepts to their daily lives; importantly, she empowers students to leverage their knowledge to action by participating in community-engaged service learning in several of her courses.

Dr. Weigel also utilizes the evidence-based "flipped" class approach in all of her "lecture" courses. In a flipped classroom, students first read or watch course materials and complete a short online homework before class, then practice working in groups with the information in-class, and finally complete homework assignments based on the material after class. Importantly, this approach creates time in class for students to integrate concepts and practice testing themselves on information they have already been exposed to before class, rather than passively listening to a lecture on information they are seeing for the first time. Moreover, she has extended this approach to Ecology Lab, where she has written and published 10+ interactive R language tutorials to adaptively walk students through programming using sample data before lab. This approach allows students to use their lab time to focus on collecting their own data, as well as how and why a technique is used, rather than on rote mechanics. By scaffolding these 'how to program' tutorials across the semester, students apply their newly acquired programming skills to authentic research experiences to answer novel research questions.

While establishing herself as an outstanding and award-winning instructor at Georgia Tech, Dr. Weigel has consistently collected high quality data on student learning in her courses. She became Chair of the Biological Sciences Assessment Committee, which under her leadership applies the same rigor to programmatic assessment of teaching and learning. Dr. Weigel is immensely creative in her approach to teaching, student learning, and documentation of student learning. Her work has included how TA training influences TA perspectives on teaching (Reid and Weigel 2022), how graph use and interpretation enhance student learning and classroom equity (Weigel and Angra, *In Press, Journal of College Science Teaching*), how anxiety and study strategies differ between majors and non-majors in introductory biology (Pardo-Sanchez and Weigel 2021), among others. All of these works are informed by, and have influenced, both her coursework and decisions made about courses within the department to best serve student needs. As a natural collaborator and good Georgia Tech citizen, she continues to engage more faculty and volunteer her time to help other faculty to successfully implement and assess the use of best practices in their classes.

What may not be obvious from the above work is in how Dr. Weigel incorporates undergraduate and graduate students into research on education at Tech- not as subjects, but as partners. Two students have completed capstone experiences with her investigating the role of access to Zoom

features (engagement modes) and sense of belonging in class, and how majors and non-major students navigated the Pandemic in large lecture courses. She has also worked with eight former teaching assistants to build course materials based on student needs which have now been published, with a former TA reporting “this is what helped me get the job”. Working with student co-authors has required considerable time in mentoring students in education research and the publication process, but it is entirely on her own initiative: her position and job description does not require such scholarship.

As an Academic Advisor for well over 100 Biology majors and minors, and those pursuing the International Plan, Dr. Weigel is sensitive to student academic and personal issues. She has insight into individual academic circumstances because she develops a rapport with her advisees as individuals. She applies this same sensitivity not only to her students in the classroom, but also the graduate and undergraduate TAs who work with her in lecture and laboratory courses. She mentors her TAs in their instructional approaches, providing constructive feedback and guidance as they navigate what is often their first experience leading a class. As a member of the instructional team for the Biology TA Training courses (CETL 2000 and 8000 Biology sections), Dr. Weigel developed new resources to enhance TA training in recognizing and supporting diversity in the classroom and to engage TAs in biology education literature. Sensitive also to the impact that a TA can have on students, Dr. Weigel has brought her own research into the TA classroom to show the TAs the roll of their teaching perspectives in developing student-centered approaches to teaching (e.g. Weigel and Reid, 2022).

Dr. Weigel’s extraordinary efforts in teaching are evident through her efforts in the classroom, her broad curricular innovations, and direct impacts she has had on students. Her strong commitments to teaching excellence and student success make her the ideal candidate for the Geoffrey G. Eichholz Faculty Teaching Award, and I am pleased to nominate her for consideration by the committee.

Sincerely,

J.T. Streelman
Professor & Chair
School of Biological Sciences

Teaching Statement

I love to be asked what many instructors call *THE* most annoying question:
"When am I ever going to use *that*?"

This question, while more frequently encountered in general education and core classes, can seem dismissive of education, is actually hitting on something important: a student's utility value for what they're learning, and where they may dream to be after my class and after their time at Tech. It's also a sign they are looking to learn. This is my golden ticket for making learning in the class memorable, useful, and engaging.

In all of my teaching, and in particular, in core courses, I take the responsibility of developing student's foundational skills seriously. Frankly, the problems our students face now are (and will be) unprecedented, but so, too, is the talent they possess. I therefore aim to empower my students to take charge of their own learning and 'do' as much as possible, including synthesizing, analyzing, and revising their own work. This evidence-based process of active inquiry allows students to reorient their thinking as they acquire new knowledge and integrate it within their framework of prior experiences. Also—and important to me as a scientist—the evidence repeatedly shows active learning to be educationally effective (see Freeman et al 2014 for a nice meta-analysis) and promote equity in STEM (Theobald et al, 2019).

It is my goal to promote and develop students' skills in discovering and integrating diverse information: reading, reasoning, problem-solving critically, and confidently communicating their understanding to others. These are all fundamental elements of biological literacy, and, more broadly, mastery of nearly any subject and contributing to shared knowledge. Therefore, my teaching focuses on three methods of cultivation: **(1) promoting collaboration, (2) ensuring authentic science practices, and (3) designing through data.**

1. Promoting Collaboration

Nearly all science, and indeed, occupations generally, require some degree of working with others. Thus, students need practice developing good collaboration and communication skills, *especially* when working with tricky real-world problems and across disciplines. Starting from the first day of class, we use various technologies, in-class activities, and assignments to get students thinking in groups. Whether in Introductory Biology, where students complete in-class active learning exercises and group projects, or my large lecture Biostats course, where students collect and ask questions of big datasets, or engage in heated data-driven scientific debates, the students drive their own learning. I'm just a facilitator with the aim of guiding, and mostly getting out of the way of, exploration!

Where I often need to step in a bit more deliberately is in coaching students through using observations to guide experiments and hypotheses. For many students, this is most interesting when directed towards understanding mating behavior or medicine, but I intentionally consider a diverse array of problems. Repeatedly practicing and relating abstract concepts to 'real life' is critical to facilitate knowledge transfer to future unknowns. Their natural curiosity often drives further questions, and students leave not only knowing more about biology, but themselves as scientists and people.

In this same regard, I regularly collaborate in the study of our students. For example, I have partnered with colleagues in Computer Science to better understand how our students build conceptual models in our introductory courses, and recruited former teaching assistants (TAs) to deliberately study how community-engaged partnerships enhance student learning within core labs. Collaboration has been a key part of my development as a teacher-scholar, so I take care to work with established and emerging colleagues (TAs interested in teaching careers) both to study the students, and to develop targeted, evidence-based lessons to meet the student needs our data highlights.

2. Ensuring Authentic Science Practices

Society is by its nature both collaborative and complex. Thus, my teaching emphasizes building real-world skills (e.g. coding statistics and the communication of data through graphs) anchored in real-world experiences—we make data *matter*.

Although it can be challenging, aspects of authentic research can be integrated into curricula in a variety of ways (see a nice overview in Healey and Jenkins, 2018) and notably, such experiences can be as influential as research-laboratory experiences (Lopatto, 2007; Hunter et al., 2007). Even better, these experiences can reach many more students than research labs can alone. To this end, I've worked for the past several years in redesigning the undergraduate Ecology Lab, which is often the first biology lab course students take exclusively in their major. The course has doubled its enrollment since I took on the course, and it now has a strong emphasis on necessary skills for 21st-century biologists: coding statistics and the communication of data through graphs— anchored in experiences with real research collaborations.

For example, in collaboration with officials from EPA and USFW, as well as the West Atlanta Watershed Alliance, I designed a multi-week field lab for students to investigate urban stream health using professional protocols. The students collected biological and chemical data at different sites and then connected the history and building activity of Atlanta to the resulting ecological effects. The student-generated data has contributed to ongoing monitoring efforts by these professional organizations and the City of Atlanta. This represents just one of many experiences of the lab's broader curriculum, which is now fully aligned with *Vision and Change* (AAAS) and the Ecological Society of America's educational frameworks. We also address disease outbreaks, using aerial drones for biology, and many current events as they arise.

3. Designing through Data

As a scientist, I prefer data-driven approaches to teaching. Thus, I gauge my students' understanding through a variety of formative and summative assessments and track affective responses across the semester. These assessments help me to actively meet my students' needs by both pacing the course and tracking learning gains relative to each course objective set. It also helps students to receive feedback often so that they can adjust accordingly. I strive to incorporate questions and activities that span Bloom's taxonomy levels, gauge confidence, and address student metacognition. This helps to both place the material into a broader context and discover where gaps in students' knowledge remain. It also helps to make clear when learners just need reassurance—from me and from classmates.

As I strive for my students to learn, value, and use real statistical and coding skills for biology, and communicating their findings with others, it seems only appropriate that I also model such behavior by studying my classes and sharing my findings with students. This perspective not only helps me track what's working for students, but also for whom. For example, from work with a former undergraduate TA, it has become evident that, while students in lower-levels labs are generally interested and see utility in math and computer science, mitigating perceived costs of biology coursework that use these topics is key, particularly for women and ethnic minority students (Caughman and Weigel, 2022). Focusing first on the biology and logic, and later on the mechanical steps, appears to reduce some of the barriers to using these skills. My previous publications have also addressed the impact of major-specific courses on learning (Pardo-Sanchez and Weigel 2021), and how TA attitudes towards teaching influence how they instruct students (Reid and Weigel, 2022). Such insights help me to confidently reach and train all of my students well.

In sum: Asking questions, and in particular, seeking out why we're here in a learning space helps us stay focused on building the foundational skills useful far beyond our class meetings. I seek to

make my classroom, and indeed Georgia Tech, a scholarly community of respect and appreciation of others, their work, and the ways we all learn, conduct, and communicate knowledge. After all, what better way to answer "When will we use that?" than for students to become alums that showcase the brilliant and varied possibilities.

Teaching Illustrations

1. Select Conferences and Professional Development

- University System of Georgia Teaching and Learing Fellow for Georgia Tech
- Smithsonian Institute BESPOKES Meeting: Big Data in Ecology- Invited talk on the state of modeling in K-16 Ecology Education
- US Department of Education Luncheon at Georgia Tech Serve-Learn-Sustain - Invited talk on sustainable education using Ecology Lab as a case study
- Quantitative Undergraduate Biology Education and Synthesis (QUBES) Discrete Mathematics Faculty Mentoring Network- Faculty working together to improve Math-in-Biology teaching tools
- QUBES Data Access-Inclusive Pedagogy Faculty Mentoring Network
- QUBES Teaching R in Undergraduate Biology Less Excruciating Faculty Mentoring Network
- National Association of Biology Teacher's (NABT) Meeting (2017) and the Society for the Advancement of Biology Education Research (2018)- Presented research showing the use of graph teaching materials improves student graph choice and interpretation
- Science Education for New Civic Engagements and Responsibilities (SENCER) Assessment Faculty Mentoring Network
- Chancellor's Faculty Learning Community, Classroom Assessment Techniques
- Chancellor's Faculty Learning Community, Hybrid/Remote Lab and Studio Courses

2. Select Course Development and Enhancements

Figure 1. Students collecting chemical and biological data for long-term monitoring as part of the Urban Waters Federal partnership, winner of the 2017

BIOS 2301: Ecology Lab Course Development

Redesigned the laboratory course to reflect the need for quantitative skill training. Students code statistics in R based on inquiry experiments they help design. The curriculum is now fully aligned with the BIOCORE, Vision and Change (AAAS Biology), and Ecological Society of America's educational goals and standards, is funded by three educational grants to Weigel, and includes collaboration with national science bodies (e.g. EPA) and community groups for data collection and management (see figure 1). Some of the new labs include leveraging the data from Stamps Health Center to study the dynamics of flu and the recent norovirus outbreak (see Breitbart and Weigel, 2019), to using drone aerial footage to monitor the changing landscape of Tech around the living building (Clopton and Weigel, 2019), to a long-term project monitoring the trees of the Campus Arboretum.

Although the students were admittedly initially less enthusiastic about the tree monitoring project, as were their TAs, here are some quotes which capture the overall student response at the end:

- *"This is a great project and I'm glad I got to participate in it. This lab really helped me become more aware of the phenotypic changes around me. I really enjoyed the campus tree study, and it gave me a greater appreciation for the changing of the seasons. I liked the experiment*

and by the end, I felt very attached to my trees."

- *"Observing the trees every week did not feel like a school assignment. It felt like I was doing something bigger."*
- *"I had never done a long-term observation in Biology and I thought it was really cool to see the small changes from week to week. If I look at my pictures from the beginning of the semester to the end, all of the small changes I noticed ended up completely changing the phenotype of tree as winter approached."*
- *"My biggest take-away is learning how to organize and manage my time while committing to a long-term monitoring project. I had to work efficiently yet quickly to get the work done on top of my other assignments, so it definitely taught me how to be better organized and maximize the time available in my day."*

BIOS 2300: Ecology Lecture Course: Accessible Design

Implemented a flipped-format video lecture series to replace the standard lecture course. Utilized a team of 9 TAs to create transcripts of each of the lecture videos of the course for accessibility.

BIOS1108/1208: Organismal Biology Learning Objective and Online Textbook Creation

In collaboration with leads Dave Garton and Shana Kerr, I have worked to write and revise a new, free online textbook for the 1108/1208 classes to replace our traditional textbook. This development began with the first draft of the textbook in Spring 2017 and continual revision of the text and associated learning objectives in each section. To test its effectiveness, I received IRB approval to investigate the role of customized textbooks in student learning gains and metacognitive skill building between our majors and non-majors; the results of this work were presented at the National Association for Biology Teacher's annual conference and published with an undergraduate first author (Pardo-Sanchez and Weigel, 2021). The textbook can be found here: https://organismalbio.biosci.gatech.edu/

BIOS 1107/1207: Introductory Biology Learning Objective and Online Textbook Revision

Led the effort, in collaboration with Dave Garton, Joe Montoya, and Chrissy Spencer, to develop new and revise existing learning objectives for the Ecology module. Objectives for each class session are now in alignment with national standards (BIOCORE, Vision and Change [AAAS Biology], and Ecological Society of America), as well as the AP Biology framework; these alignments ensure that students reaching subsequent biology courses are adequately—and equally—prepared to succeed. These objectives have subsequently been used to refine, rewrite, and reorganize the online course textbook website, as well in-class activities and formative and summative assessments.

Sample Learning Objectives from Ecology Module:

1. Define population, population size, population density, geographic range, exponential growth, logistic growth, and carrying capacity.
2. Compare and distinguish between exponential and logistic population growth equations and the resulting growth curves.
3. Compare and contrast models of population growth in the presence and absence of carrying capacity (K)
4. Analyze graphs to determine if regulation is influenced by density

Sample website entry: https://bioprinciples.biosci.gatech.edu/population-ecology-1/

BIOS 4401: Experimental Design and Biostatistics Lecture Development

Designed course from scratch in an active learning format. In-class time is devoted to short lectures and in-class group activities to conduct a variety of experiments, discussions, and modeling exercises to dive-deeper into the material. Homeworks are divided into two stages which ask students to address their comfort alongside their mastery of the material. Exams are in two parts: a basic skills calculation portion and a longer, vignette-style case study for which students work in groups to decide the most appropriate approaches—as real biostatisticians do!

3. Course Material Development: Case Study on Coding in Core Labs

Summary:
I developed and implemented R programming via interactive software in our undergraduate core Ecology Lab. These R tutorials (swirl lessons) are custom-designed and written for each lab to allow students to get a real taste of big data processing and statistics as done by professionals. Not only is the use of swirl lessons novel, but the use of R itself is nationally novel and typically not tackled in undergraduate biology due to the ease of using less applicable, but easier-to-implement point-and-click programs. Publications and presentations on this work have gained notoriety, particularly as student data demonstrates both learning and positive affect towards the lessons. Further, during COVID and the semesters beyond, the course has doubled in size. This is because the active coaching through code development was done through deliberate interactive software design, allowing us to flip coding to outside of the lab yet still provide custom, meaningful practice and feedback. Importantly, these lessons standardized instruction across sections so that the student lab experience was independent of their individual TA's background in R/coding and experience in teaching it. Several these lessons are published on the NSF's Quantitative Undergraduate Biology Education and Synthesis (QUBES) open education resource website and are in use by hundreds of instructors nationwide.

What is swirl?
For the open-source programming language R, a package has been designed for students to "learn R, in R". Swirl creates an interactive interface for students to learn code and course content by receiving immediate, custom feedback (and hints, if needed) as they work through lessons at their own pace. It works across platforms (e.g. Mac, PC, Linux) and students can be asked to do various tasks (e.g., watch a video, answer a multiple-choice question, type code, etc.) Progress is automatically saved so that students can complete the lessons as they have time and return to review tricky portions as needed.

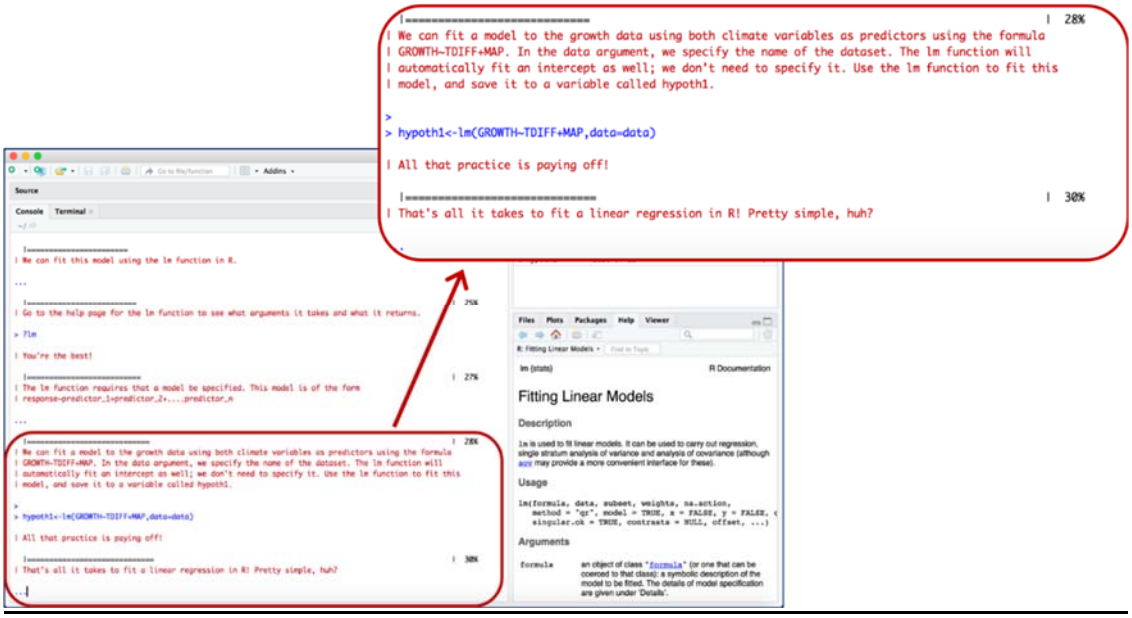

Figure 2. Images of swirl in action as a student would see them. Note that the program asks students to interactively build their own code and gives encouraging feedback. Note that the program also keeps track of student progress in the digital lesson such that students can stop/start/rerun as needed, and instructors can get a bird's-eye view of common student troublespots to address.

Swirl in R provides:

- Reproducibility (e.g., someone can run your code and see stepwise exactly what tests you performed and their outputs), regardless of operating system/user differences
- A simple interface in which you can integrate comments and experimental records
- More accurate algorithms and calculations, particularly with complex or big data
- Information to evaluate the validity of a statistical test (not just a *p* value after a click)
- Means to allow for note-taking and 'remixing' analyses to tackle new problems

For instructional teams, swirl has additional, unique advantages:

- Instructors/TAs needn't be R experts (this can ease anxiety in teaching programming)
- It provides standardization across multiple sections with different instructors/TAs, so student outcomes are not a function of the expertise of the TA of their section
- Lessons are 'chunked' and easily scaffolded to make goals clear and lower cognitive load, allowing for the tackling of problems beyond the basics
- Coaching can be done at the pace of each student, rather than what 'fits' into class
- Instructors can get a 'bird's eye' view of class-level issues while still providing interactivity and feedback (formative) as students work their way through the lessons
- Lessons are completely customizable and allow for the teaching of coding and content

How does it work? How do you use it?

Coding for the lab is flipped. Essentially, students have a pre-lab in swirl which walks them through the necessary coding and logic for the experiments they will conduct. Students take notes in a script that is then editable when students apply this coding to a novel dataset through the experiments they conduct in class. This way, the majority of lab time is spent on experimentation and understanding how/why analyses are done, rather than typing up working code and debugging. This allows us to spend time in class using technologies (e.g. drones, various sensors) or on field trips to really get deep into the biology to which they'll *apply* code.

Are they effective?

I specifically tested the efficacy of guided lessons (swirl in R) on quantitative skills by comparing gains (pre/post) a semester using swirl and in comparison to control students. Using established assessment tools (Assessment Resource Tools for Improving Statistical Thinking [ARTIST], delMas et al 2007- 33 items; Math Biology Values Instrument [MBVI], Andrews et al 2017- 11 items), I determined that students increased in both their coding and their quantitative skills (GLMM, t = 4.4943, df = 39, p-value = 3.042e-05) relative to those without training and prior semesters with less R scaffolding. I presented on the efficacy of this work at both Society for the Advancement of Biology Education Research meeting and the National Association of Biology Teacher's meetings, and have a manuscript currently under revision. This work as foundational to the successful NSF grant awarded on how to teach R well as an Instructor, for which I ran an 8-week instructor course in 2021 to spread this approach to their students.

What do students think?

From student feedback in semester surveys (or watch a video here):

- *"Swirl is a cool way to learn R! I've never learned a program within a program before!"*
- *"I like going at my own pace" (very common comment)*
- *"Fun and an effective method of instruction"*

- *"Swirl allows me to understand the code and why each part is done. Swirl lets me practice before doing the actual assignment, which is helpful."*
- *"They are helpful because they are easy to navigate through to understand a topic"*
- *"It's a new experience that is thus far engaging and challenging"*
- *"It's applicable to procedures and calculations in lab"*
- *"I can move at my own pace, and swirl does a pretty good job explaining and enforcing concepts"*
- *"I feel as though I'm learning a lot"*
- *"It leads you through code to write and why, instead of just googling your question and hoping it is on stack overflow"*
- *"It can be really rewarding once I figure out any mistakes that I made. Helps me to learn more about R on my own"*
- *"R is a good way to incorporate statistics with modern technology & I will continue to use it"*

Ok, so it works at Tech in her courses. What about elsewhere?

The impact of this innovation can be best understood through the Quantitative Undergraduate Biology Education and Synthesis (QUBES) Project. QUBES is "an NSF funded effort to promote the use of quantitative approaches across the biology curriculum." Among its many roles, their website, QUBES Hub http://qubeshub.org, serves as a resource for tested, effective education materials; the lessons I developed (and co-authored with graduate student TAs), while customized for use at Georgia Tech, have been published through this open-access website and found users (educators implementing these lessons) nationwide across institution types (K-12, public, private, 2 and 3-year institutions). These lessons which teach basic quantitative skills are summarized below:

Lesson	**Goal of the Lesson**	**Publication Date**	**Views and Instructor Downloads***
Optimal Foraging	Estimate population sizes and consider assumptions of mathematical models and their applicability to different organisms	7/15/19	536;330
Population Ecology: Estimating Population Sizes	Introduces marginal value theorem and teaches vectors, ANOVA, and basic box plot generation	9/26/19	795;398
Population Demography	Uses Oakland Cemetery Data to Teach Life History Curves, G-Tests, and Plotting	9/26/19	929;392
R Subsetting	Teaches data manipulation to add to or extract subsets of specific values, rows, columns, or subsets of data contained in existing data files	1/01/20	688;286
Island Biogeography	Tests MacArthur and Wilson's (1967) Island Biogeography model, focusing on how island size, distance, and perturbation affect species numbers	1/01/20	907;315
Basic Statistics	Identifying the appropriate basic statistical tests when given a scenario and learn how to run and interpret those statistical tests in R	1/27/20	741;369
Investigating human impacts on	Creating scatter plots and performing/interpreting linear regression, as	1/01/21	413;358

Southeastern US stream ecology using R	well as summarizing data, calculating outliers, and creating boxplots		
The Human Microbiome Biodiversity in Health and Disease.	Practice with a workflow in R to perform basic diversity analysis of gut and vaginal microbiome data in healthy and diseased (cancerous) states.	2/17/20	694;404
Tree Biomass and Phenology	Connecting tree biomass and phenology with climate change using student-collected data from GT's arboretum.	2/3/21	301;172

**Numbers per QUBES Report run on 2/5/23*

4. Effectiveness of Approach: Case Study from Community-Engaged Core Labwork

Documenting Student Gains in Service Learning (Pruett and Weigel, 2020)

Service learning is a pedagogical approach integrating academic work with complex civic issues. We examined the extent and nature of student learning during a short-term (2-week) service-learning experience focused on sustainability and water-quality monitoring in an urban watershed. Traditionally, the impact of service learning is demonstrated through written reflections, but we decided to also investigate how this service learning influenced student conceptual knowledge. We used pre-/post-concept maps and a new scoring methodology to quantify breadth and depth of knowledge (Figure 3, left). Despite being a short-term experience, we found gains in student knowledge in written reflections and concept maps, but also that the nature of knowledge students articulate differs by assessment method (Figure 3, right).

Briefly, short-term experiences are sufficient to result in knowledge gains and meaningful connections with the community. With such quick methods to score concept maps, instructors of even large courses can quickly glean what students took away from experiences and how they might further reinforce

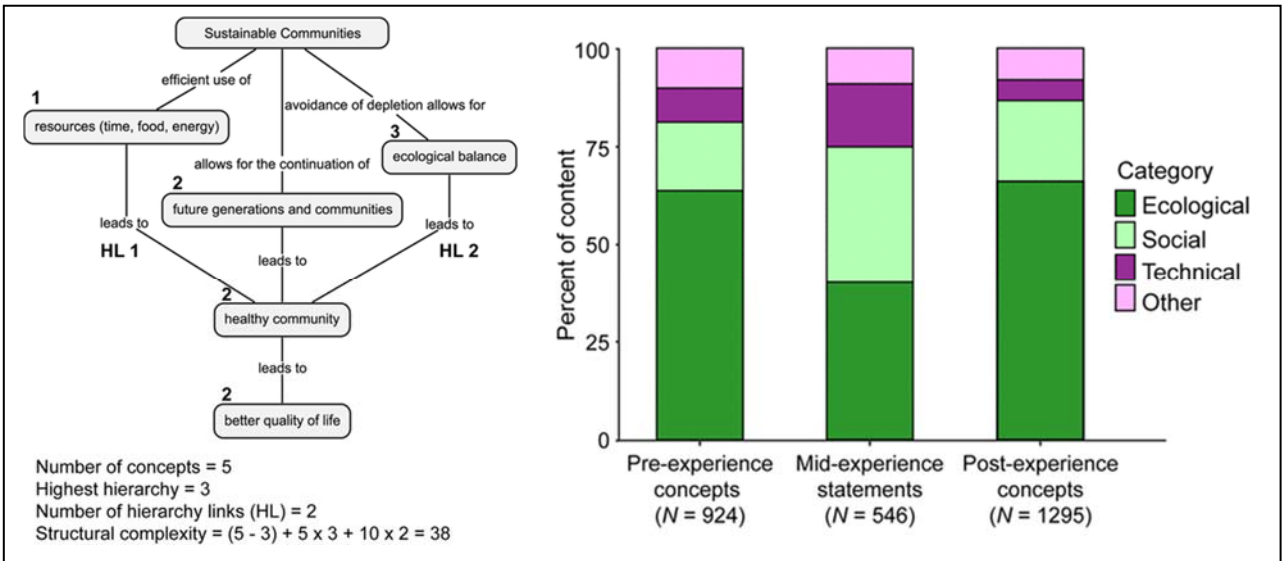

Figure 3. (Left) An example student map and the automatic scoring that would result. (Right) Percentage of each category of sustainability knowledge expressed in pre-/post- concept maps

concepts learned.

5. Effectiveness of Approach: Case Study from Active Learning Lecture

Using graphs in an active-learning classroom to shape students' understanding of biology concepts (Weigel and Angra, in press at *JCST*)

Data literacy skills have become increasingly important for undergraduate student success, yet these skills are not emphasized in lecture—rather, they're mostly done in labs, and those are often taught by emerging experts (graduate TAs) rather than expert faculty themselves. Here, we investigated how active-learning approaches for graph knowledge and interpretation in lecture impacted student data skills.

Specifically, we sought to understand how frequent use of published graphing materials (Angra and Gardner 2016; 2018) and freely available primary literature and data repositories, used in conjunction with active-learning instructional approaches, affected student graph knowledge and interpretation skills. We assessed students in two ways: a pre- and post-semester survey (using assessments from published literature) and by three exams over the course of the semester. Our findings showed overall improvement with graph choice and interpretation abilities, particularly in interpreting the purpose of the graph, the nature of the data, the relationships between independent and dependent variables and take-home message. These findings support and extend the utility of the graphing materials to lecture courses and illustrate the progression of student learning with graph choice and interpretation.

Importantly, we also found implications in our data with respect to equity. Specifically, non-white (minority) students in our course began with a lower baseline skillset, but by the end of the course, they were equally skilled as their majority peers. These findings align with prior research showing active learning to generally benefit more learners (Freeman et al 2014 and citations therein), and adds data analysis to one of the many skill sets for which this is true. It has also provided encouraging data for more of faculty to adopt active practices and investigate interventions in lab-based courses for the benefit of all learners.

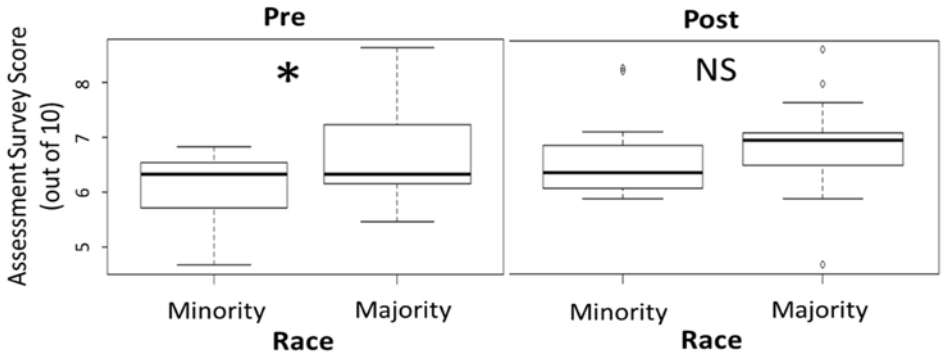

*Figure 4. Minority students score significantly lower on the pre-survey (Left; LM Model, F=4.309, df=1, 28, p=0.04721). However, the difference ('performance gap') between minority and majority race students disappears by the post-survey (Right; LM Model, F=0.647, df=1, 28, p=0.4279, N=31). Boxplots represent quartiles and sample medians (heavy bars), and the open circles (if present) are outlying data points. Significance levels of <.05 denoted by * (left) and NS (not significant; right).*

6. Selected CIOS comments

**BIOS 1107/1207: Biological Principles

- *Dr. Weigel was very accommodating and accessible. Quick to respond via email, and available to meet outside of office hours.*
- *Dr. Weigel is genuinely enthusiastic about the course, which is really effective and a good atmosphere to be in.*
- *Dr. Weigel is so nice! She really cares about the students and tries to be as accommodating as possible. She knows everything there is to know about bio and it shows, she is capable of covering a topic completely in a very short span of time. The IKEs and TICAs were a great indicator to me whether staying on track. She was also very conversational and liked to check in with students personally, especially people who sat by themselves like me.*
- *Dr.Weigel's enthusiasm for the course made it very enjoyable. Even the ecology unit, which I thought would be boring, was presented in manner that made me excited.*
- *She seemed like she really respected us and took the time to make us aware of that.*
- *After doing horribly on an exam, she was able to meet with me and discuss what I did/where I went wrong and then gave me useful pointers as to how I could do better next time, which all helped me to improve on every exam thereafter.*
- *Overall a great instructor -- always provided helped when needed, kept the class interesting, taught the information well, increased my interest in biology!*
- *Approachable and relatable making it easy for students to ask for help and learn from her*

**BIOS 1108/1208: Organismal Biology

- *She was very engaging, and I loved the way she explained concepts in class. She always tried to make her discussions as relatable as possible.*
- *Dr. Weigel is also very caring about us as students and tries to do things to help keep us engaged and interested in the material*
- *She does everything possible to help us understand the material by breaking each concept down and giving clear objectives. She encourages class participation.*
- *The greatest strength for Dr. Weigel would be her enthusiasm in teaching the course. She also introduced new perspectives into lecture and emphasized making associations with the material being taught, as opposed to just regurgitating content.*
- *She clearly communicated her material and was engaging with the class and used relevant examples which made the course easier to relate to and understand.*
- *Dr. Weigel is exceptional and bringing in real-life examples of biological concepts so that students can greater understand the context of biology in our lives.*
- *She is enthusiastic, highly intelligent, and her love for the subject was palpable. She would often ask the class what we cared to know about, and would spend time there to further inspire students to enjoy the wonders of biology. Despite the fact that I was in this class to graduate, I found myself sharing her awe and excitement regarding the subject. Also, she's hilarious. Really fascinating course with her*
- *You can easily tell that Dr. Weigel enjoys teaching because she would…bring in other things for us to try like a heart monitor when we were learning cardiac functions. She was very engaging in lecture and accessible outside of class.*
- *Explaining the concepts in a way that was fun and helpful. Also in office hours she was soo helpful and literally helped me turn my study habits around in order to succeed in the class the way that I had strived & hoped to.*

**BIOS 2300: Ecology Lecture

- *Dr. Weigel has made me consider a career in ecological research rather than medicine*

- *Dr. Weigel is very dedicated to ensuring students with ODS accommodations participate to the fullest extent.*
- *Fun facts that related lecture content to real life applications engaged the class. In addition, a lot of assigned homework asked us what difficulties we had from the learning objectives; this was an interesting idea and should be continued.*
- *The best aspect was Dr. Weigel's attitude about ecology. She was engaging and made the class fun while trying to make it more worth our time. She really seemed like she gave us every opportunity to succeed.*
- *Truly cares about the students and their wellbeing and success. Favorite biology professor by far.*
- *She is considerate of the entire class and asks/answers questions accordingly. She also slows down her teaching pace when she notices a majority of people struggling with what is taught at the current time, a rare characteristic of professors that I admire.*
- *She was always so open and eager to teach. She clearly identified what we needed to know from each chapter. She listened to our concerns and used them to improve so that we could better understand the material.*
- *She's such a good teacher, and I really admire her drive to work hard for her students in order for us to do well. She's so good about answering questions and trying her best to make sure students have a fair shot at doing well, which is so difficult in a class our size*
- *She was a great communicator and also very helpful in office hours. She was always willing to help, and would not give up until the student truly understood the material.*
- *Dr. Weigel shows that she really wants students to understand the material and succeed. She will not give up until a student leaves with a better understanding than when they came. She is highly accessible and gives fast responses to emails/questions. She is also very good at explaining concepts.*

<u>**BIOS 4401: Experimental Design and Statistics</u>

- *The best feature of this course was the formatting of the homework assignments. I really liked how the second part of the homework was about reviewing your answers and more like a self-reflection as to how you processed the questions and went through the material. This was very helpful in my learning process and made me learn the material better.*
- *This course actually taught statistics and tests in a way that no one had taken time to teach me before. I would go into class and we'd run an ANOVA test and obtain a p-value and I had no idea what that was. That might sound really bad but it's the truth. The lectures were great and funny and I plan to use a good bit of the information and lectures in the future to refresh myself when I need to as I begin to help with some research after school. The best part of the course is that Dr. Weigel is extremely honest about what you need to do to succeed and gives you many resources to learn and get help. It takes away a lot of stress and actually gives you are opportunity to appreciate what you're learning.*
- *To me, this was a very effective statistics course. The grading schema is very forgiving, which I appreciated so much and I actually found that I ended up focusing on learning the material much more thoroughly when I wasn't having to focus on just making an A within a harsh grading scheme. Lectures are very engaging and easy to follow for the most part, even when the material gets harder. The homeworks and tests both felt fair and seemed to test what we talked about in class. There was a lot of concern for the students' wellbeing and I think it ultimately led to a really good environment and attitude for the class.*
- *I liked how the professor related stats back to real world problems. This made me more interested in stats. I also really liked the coding homework.*
- *Lectures were the best part along with the group tests. The group tests allowed us to really dive deep into what we were learning and saw how the content applied to real-world examples. Lectures were interactive as well, as we got to discuss with our peers and interact with others in*

the class to better understand the content. Additionally, the grading rubric was super forgiving, and I'm very thankful for that. I hope that stays for other people who take this class, as it greatly helped me out this semester.

- *The absolute best feature was the focus of the course on critiquing real scientific articles. Breaking down statistical testing for real studies in both the lectures and tests will be an important and career long skill in science.*
- *Anyone who walks into one of Dr. Weigel's classes will truly understand not only her incredible care for her students, but also her passion for science of all kinds. It was always a joy bright and early Monday mornings to be greeted by her positive attitude and hype for science. I also have never had a professor who cared more about feedback and classroom transparency. Dr. Weigel lived up to not wanting us to worry about anything but becoming better statisticians. Loved her class!*
- *I really appreciate, respect, and admire how she made clear to her students that she cared about us as people and as students through not only her words, but also by her actions, her grading options, and the allocated drops (for assignments in each category of the grading scheme). I think that while the course was rigorous, she ensured that it was doable and provided the necessary resources that encouraged and prepared us to succeed. This is personally what I consider to be the best qualities of professors. I am graduating this semester and from all the professors I have had at GT and the university I transferred from, I think she was the one that most emphasized how much she cared, valued, and wanted her students to succeed. I know personally this means a LOT to me, and I imagine that it does to nearly all the other students; Tech can often seem bleak, overwhelming, and depressing, and it often seems like most professors just do not care. I truly wish more professors were like her. If you are reading this, I just want to say thank you so much and keep it up!! It does not go unnoticed :)*
- *She really emphasized why learning experimental design was important and gave real examples as to how specific concepts are crucial to obtain unbiased data and use the right tests and correctly interpret the results of those tests. Although I did not enjoy the content of this course, she made me think about why I needed to learn this content for whatever future career path I pursue.*
- *Dr. Weigel's greatest strengths were her inclusion of everyone in class discussions and participation, her consistent linking of our material to real world examples and great attitude. She has one of the brightest and most welcoming disposition of any professor I've worked with and it was highly beneficial for my career and stats skillset to take her course.*

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February 12, 2023

Dear CTL Awards Committee,

I am delighted to provide this letter in support of Dr. Emily Weigel's nomination for the CTL Geoffrey G. Eichholz Faculty Teaching Award. I have had the great pleasure of co-teaching multiple courses with Dr. Weigel, including BIOS 1107 Biological Principles, and 1108 Organismal Biology, the first and second semester introductory biology courses for science/engineering majors, and BIOS 1208 Majors Organismal Biology. I have also enjoyed serving with her on the Introductory Biology Committee and as members of the Biological Sciences undergraduate academic advising team. Throughout these interactions and many discussions, I have consistently observed that Dr. Weigel utilizes innovative and evidence-based pedagogies in her classes, incorporates authentic research projects in her teaching, and actively engages with students both in and out of the classroom to help them develop a sense of belonging in class to improve their academic performance.

Dr. Weigel's primary focus in the classroom is to help students learn and apply course concepts. She uses the evidence-based flipped class approach in introductory biology courses, where students first read or watch course materials and complete a short online homework before class, then practice working in groups with the information during in-class activities, and finally complete homework assignments based on the material after class. Importantly, this approach creates time in class for students to integrate concepts and practice testing themselves on information they have already been exposed to before class, rather than passively listening to a lecture on information they are seeing for the first time. While this model of instruction already existed in the introductory biology sequence when Dr. Weigel began teaching at Tech, she readily embraced and enhanced it by developing new classroom activities and revising course learning objectives and pre-class readings. I will elaborate on each of these efforts below.

As part of implementing a flipped class, Dr. Weigel utilizes real-life case studies to make complex biological processes more accessible to first-year students. In one memorable instance in Organismal Biology, Dr. Weigel presented a case study which she had personally developed on the case history of a newborn with a congenital intestinal cyst obstructing the small intestine. She proceeded to use the case history to illustrate the basic structures and functions of animal digestive systems, the consequences of their dysfunction, and diagnostic information that would help identify the location of the blockage. In addition to dramatically illustrating each of these concepts, Dr. Weigel tapped into the career interests of the students in her class: the medical aspect of the case made it highly engaging to the students, many of whom take the course as a medical school prerequisite.

Dr. Weigel's dedication to implementing the flipped class includes significant administrative and behind-the-scenes efforts. Each class session in the introductory biology series is based around a set of committee-developed learning objectives (LOs) and supported by an open-source, instructor-developed website containing the background reading and videos, rather than a commercial textbook. Though both the LOs and the textbook websites had been developed prior to Dr. Weigel joining the Biological Sciences faculty, she readily jumped onboard with the ongoing effort to revise, rewrite, and update the LOs and associated website pages. She has made substantial modifications to the LOs and readings for both the Biological

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Principles Organismal Biology textbooks, with revisions ranging from modifications to Bloom's Levels of LOs to substantial revisions and ground-up re-writes to the text in the textbooks to better align with the LOs. As a result of her many contributions, she is listed as an author on both online textbooks.

Dr. Weigel is proactive and accessible when working with students outside of class. She utilizes Piazza, an online discussion forum, for outside-of-class discussions and responds promptly to questions posted to the forum. She also responds promptly to student emails and makes herself widely available for in-person office hours. Well before the coronavirus pandemic, Dr. Weigel made of habit of holding virtual office hours online to accommodate a student's individual schedule. Dr. Weigel also reaches out proactively to students who are struggling in the class. After each exam, she emails low-scoring students to invite them to meet with her one-on-one to discuss study strategies and other circumstances which could be contributing their poor performance. She also monitors student engagement in online assignments, reaching out to students whose answers reveal that they are not productively engaging with the material. Her proactive initiatives reveal to students that they are not anonymous to her, and that she wants to be a resource to them no matter how successful they currently are in the class.

Dr. Weigel seeks to help students understand the how they learn, and how to improve in their study strategies. She builds metacognitive activities into her classes, including pre-class preparation prompts, end-of-class synthesis questions, and post-exam reflections to prompt students to explicitly identify their study strategies and habits and consider ways in which they could take steps to improve their class preparation. As a scientist, she also collects and analyzes student feedback about the course to identify ways she can restructure the course to better support student learning. Before the coronavirus pandemic, Dr. Weigel initiated a project to study differences in metacognition in major and nonmajor students in Organismal Biology and Majors Organismal Biology, and to assess whether metacognitive reflection correlated with improved student performance. During the pandemic, she expanded the study to assess difference in online vs in-person interactions between students, compared to those engaging asynchronously with the course materials; she found that real-time interaction is the most significant predictor of belongingness, independent of whether the interaction is in-person or virtual. Building on this study, prioritizes opportunities for students to engage in real-time, regardless of mode, in all her courses.

With her dedication to active learning, emphasis on authentic research experiences, and purposeful missions to help students recognize that they belong in her courses and also support them in developing effective study strategies, I believe that Dr. Weigel embodies all the traits associated with excellence in undergraduate education. I am extremely pleased to support her nomination for the Geoffrey G. Eichholz Faculty Teaching Award.

Sincerely,

Shana C. Kerr, Ph.D.
Senior Academic Professional (Teaching Faculty and Academic Advisor)

Dear Awards Committee,

I am writing to express my enthusiastic support for Dr. Emily Weigel's nomination for the 2023 Geoffrey G. Eichholz Faculty Teaching Award.

I first met Dr. Weigel as a freshman at Georgia Tech. At that point, as a low-income, first-generation college student and immigrant, I severely doubted myself even before I started at Tech and was experiencing severe imposter syndrome.

I am thankful I met Dr. Weigel early in my college career, as she played an integral part in overcoming these fears. As I still wanted to become a physician one day, I decided to take Organismal Biology for non-biology majors, co-taught by Dr. Weigel. Her passion for the content was infectious, and I felt simultaneously challenged and encouraged. The flipped-classroom style she utilized was excellent in allowing me to make safely make mistakes and learn how to pinpoint my weaknesses. More importantly, it also allowed me to see my strengths, which helped build my confidence. Amazingly, Dr. Weigel also intently monitored my (and I later learned, my classmates') progress and growth. Even before our first one-on-one meeting, Dr. Weigel would send kind words and remarks whenever I scored well on exams and offered advice and tips whenever she noticed dips. I could genuinely tell that she cared and wanted to see us succeed through these actions. Dr. Weigel was incredibly motivating, and I never felt like I could not learn something in that class, even though I had never seen or heard of most of the topics we were learning.

Dr. Weigel has been incredibly supportive of me and is one of the biggest reasons I am the major I am. After having my interest in the subject piqued, I soon went to Dr. Weigel for an exploratory advising session. By coincidence, my last name fell under her advising jurisdiction. In the session, Dr. Weigel genuinely listened to my goals and aspirations and provided me with lots of encouragement. She took the time to help map my four-year plan and taught me many aspects about what college courses might look like and how to best prepare and manage course loads while still preparing for life post-Tech. These interactions gave me the confidence to officially switch my major to biology and have aided my success since.

As her student and as her advisee, it is clear that my academic success is her priority, and for that, I am extremely thankful. Additionally, after serving as the teaching assistant (TA) for this same introductory biology course, I have realized her reach. TA-ing provided me with a behind-the-scenes perspective into Dr. Weigel's pedagogical strategies to provide students with a solid foundation in biology. Unsurprisingly, the core tenets were extremely student-focused, very interactive, and grounded in her own discipline-based education research and that of others. Additionally, as non-biology majors take the course, Dr. Weigel regularly emphasized making the content applicable and understandable through analogies and examples found in other disciplines. This approach was very successful and abundantly apparent through the high student engagement in lectures. I believe it is one of the reasons why she has often been tasked to help new faculty learn such approaches (as she did with a new co-instructor the term I TA-ed). Now I am serving as a TA under her for Experimental Design &Statistical Methods, a 4000 level statistics course for biology students. In this course, Dr. Weigel distills complex and often abstract topics and delivers them to the students with multiple real-world examples and emphasizes critical thinking and novel approaches to problem solving.

Dr. Weigel has been an incredibly influential part of my undergraduate experience, and I am grateful for her continued guidance as my biology advisor. I recommend Dr. Weigel for the 2023 Geoffrey G. Eichholz Faculty Teaching Award with complete confidence.

Sincerely,

Nabojeet Das (He/him) Georgia Tech B.S. Biology 2023

Dear Award Selection Committee,

My name is Travis Land, and I am a senior Biology student providing my support for Dr. Weigel's nomination for this award. The first Biology course I took at Georgia Tech was Organismal Biology instructed by Dr. Weigel in Fall 2021. After this course, I proceeded to take Behavioral Biology, Ecology, Ecology Lab, and the Living Building Science VIP with Dr. Weigel. Each course has not only improved my knowledge but also my enthusiasm for the biological sciences thanks to Dr. Weigel.

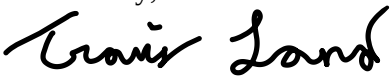
In my first class with Dr. Weigel the struggles of the pandemic added more challenge to an already rigorous school. Even with these added complications, Dr. Weigel found ways to make the class engaging by utilizing Learning Catalytics, encouraging breakout sessions with our peers, and promoting a dialogue instead of pure lecture. With these methods being implemented into the course lectures became less about silent notetaking and more about discussing the concepts among our peers and allowing us to get new perspectives on the subject matter. These methods were also coupled with either short, accessible pre-class readings or videos that helped set the stage for each lecture period. Innovation was not only limited to the lectures but also the lab. In Dr. Weigel's Ecology Lab, there was an emphasis on understanding how to analyze, model, and calculate our results utilizing RStudio. This intimidated me initially as my other experiences with coding were confusing and hard to follow at times, but Dr. Weigel utilized a program known as swirl that guided us through relevant scenarios while testing our knowledge along the way. This program eased my fears and even gave me confidence in my abilities to code while still pushing me to find my own solutions.

In addition to these helpful, engaging strategies, Dr. Weigel also excels at connecting classroom studies to the real-world research achievable with this knowledge. In the Organismal Biology course, she instructed, we were assigned weekly readings or videos about significant members of the biological science community connected to the concepts being covered in class. We were expected to write short summaries about these members to help us see why the concepts were important and what work was possible with our studies. Dr. Weigel also emphasized understanding primary literature. In Behavioral Biology, most lectures ended with an examination of a primary source relevant to the material. We would be split into breakout groups to read and discuss the article with the help of some guided questions. Dr. Weigel always put an emphasis on reading and analyzing figures and graphs and gave us useful strategies so that we could determine what was being tested, how, and what the variables meant. I still use these skills in each of my classes and now in my senior research project.

Aside from all the ways Dr. Weigel has made learning more engaging and effective, she also puts an emphasis on student well-being regardless of performance. Each homework assignment allowed us to reflect on how we felt about the material, our studies, and what life events might be influencing our performance. These reflections could result in a discussion on how to improve the course structure, our study habits, or words of encouragement and support during difficult times. I can recount a few times when I had been struggling and Dr. Weigel would reach out to see if I wanted to talk or offer resources and tips for any struggles in or outside the class. In addition to this, she also would build into the class schedules days for small group reviews, mental health days, and ways to catch up on any coursework we fell behind on.

When I switched from NRE to Biology in Fall 2020, I was just as nervous as the first time I had stepped foot on campus. Thankfully, I was introduced to an amazing professor who from the first day provided an encouraging, engaging, and effective environment to prepare me for whatever I pursue. These things and more are why I believe Dr. Weigel to be deserving of the Eicholz Teaching Award.

Sincerely,



Travis Land

Dear Award Selection Committee,

I am a transfer student from last semester, fall 2022. I took ecology with Dr. Weigel at that time, and it is one of my favorite classes I have ever taken. Coming into Tech, I was excited yet intimidated. I knew the course load would be heavier and the classes would be harder, and I was anxious to get to know my professors. I initially thought Dr. Weigel would be intimidating, but she proved just the opposite. She is approachable, attentive, and always listens to what her students have to say. She takes into consideration that students may be underperforming by connecting with them and working out a solution. I have had personal experience with this when I did not perform my best on an exam. I approached her and asked her about exploring my options. I could tell she was actively listening to me and was not looking to discard my thoughts, that really showed her compassion towards me. She urged me to stay in contact with her until we found a solution that not only benefited me but the entire class.

I fondly remember being challenged in the classroom by the complexity of the content, but it was the part I enjoyed the most. Dr. Weigel made the content engaging and interactive as much as possible. She would urge us to talk to fellow students and we would participate in active learning. By teaching fellow classmates and observing real-world application problems, it was easier to make more connections to topics. I appreciate her effort to urge students to talk to each other and form study groups. This has been a major resource for me, as my study group I have formed in ecology has transferred to my other classes as well, along with the formation of new friends. This helped me deepen my knowledge and form new study habits that I still use. One of the biggest impacts she had on me was when it came time to ask questions. I have always been afraid to ask questions. However, Dr. Weigel would push students to ask questions, and she would provide explanations in a supportive manner. Instead of supplying the student with a direct answer, she would have the student explain their thoughts on how they formed their solution instead. I have always been afraid to share my rationales, but she would always give positive reinforcement and encourage us to share. She wanted students to be kind to each other regardless of getting the incorrect answer and put a great emphasis on supporting and helping others.

At the end of each week and before each exam, Dr. Weigel would send us all an email of encouragement. Letting us know she believes in us and that we were one step closer to becoming a scientist, no matter what. She told me that most of all, she wants to see her students grow and live up to their potential. I believe that she truly fosters growth in her students and has made me more reflective of my personal growth. Dr. Weigel is extremely deserving of this award for her commitment to her quality of teaching and compassion and cares toward her students.

Thank you for your consideration,
Gillian Myers