Lab Handbook

Updated 8/20/20

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**Byers Ecology Lab logo designed and created by Rebecca Atkins*

Mission Statement

Updated 8/20/20

The Byers Ecology Lab is an ecologically-focused research lab that studies species interactions and dynamics of marine, freshwater, and coastal environments. Our mission is to expand scientific knowledge and understanding of the natural world while training the next generation of ecologists. Our approaches include manipulative field and lab experiments, observational studies, and computational modeling to study species interactions, ecosystem engineers, parasite dynamics, physical-biological coupling, biogeography, and invasion ecology. We strive to create a safe, inclusive, and respectful research environment and welcome students from a diversity of backgrounds.

Research Group Culture

Updated 8/20/20

We the members of the Byers Ecology Lab define our culture by the following elements:

Inclusivity: We value all identities and the intersections of race/ethnicity, gender identity and expression, class, sexual orientation, ability, age, nationality and national origin, and religion/spirituality. We acknowledge that each of us has different experiences that shape who we are, and we seek to listen to one another, be open to differing opinions, and help break down barriers to each other's success. We are each other's allies and advocates. Included in this is an awareness that each member of our research group overcame obstacles of different shapes and magnitudes in order to be here, and that this continues to be true in our current efforts.

> *Action items: We aim to make the Byers lab as inclusive as possible through providing links to our published works on the website to avoid paywalls and providing opportunities for undergraduate and other research assistants (see undergraduates). We also strive to solicit input from communities traditionally marginalized by science or other underserved groups, and highlight the work done by scientists from these groups. Additionally, we try to make every lab member feel heard and valued by giving them space during lab meetings to express their thoughts and showcase their skills.*

Equity - Striving for equity in our research group means being attuned to the different social, economic, cultural, and political positions of individuals and aiming to transform power relations that contribute to unevenness in opportunities and/or resources between people. We also recognize the inherent power dynamics of higher education and academic culture. Equity is a process- it is being aware of and transforming the structures of power in our working environment to ensure that all lab members have access to the same opportunities as well as the support needed to grow and develop.

> *Action items: We work to provide reasonable stipends for those in our lab, provide allyship for junior and/or members of the lab from marginalized groups, holding space, not dominating, and asking questions to provide places for every lab member's input.*

We also aim to demystify the workings of academia by providing transparent justifications for career related decisions (see this document as an attempt) and providing honest, practical advice on navigating this career path. We aim to develop employment/recruitment equity practices when hiring or soliciting new lab members.

Anti-Racism - We strive to recognize our own individual privileges and biases that arise from living in a society that privileges white people and whiteness, as well as an association with higher education and academia. We acknowledge the long history of Anti-Black racism in our society and the ways in which racist ideas and policies have shaped institutions, organizations, and government to systematically oppress Black people, Indigenous people and other People of Color. We believe in pursuing anti-racist changes to the structural and institutional policies and practices in academia and the field of ecology. As a lab, we value anti-racism work and recognize that work should be encouraged, recognized, and incorporated into all aspects of our lives. We seek to actively engage with anti-racist literature, discussions, and actions, aim to hold ourselves accountable for our words and actions, and strive to be anti-racist in our communities.

Action items: We commit to learning more about systemic racism, colonialism, and other forms of oppression both as individuals and collectively, (e.g. creating space in lab meetings to have these discussions, joining/starting anti-racist reading groups); Using our privileges and platforms to boost marginalized voices in our communities and on social media and defending them from acts of racism; practicing effectively addressing microagressions and accepting criticism when we mess up; advocating for and supporting anti-racist initiatives within our department, university, and scientific community.

Integrity: While Academia is a fast-paced environment where we are often judged based on the amount of grants we put in and the amount of papers we publish, we must always remember that the ultimate goal of science is to increase collective knowledge. Often in the field of ecology, this knowledge will help inform policy and conservation initiatives. Therefore, we prioritize scientific accuracy, publishing quality, and scientific openness over other metrics of success.

Action Items: We aim to make our data and methodologies available whenever possible, and strive to make detailed, thorough notes about our process and create reproducible science. All lab members are expected to share their research as it is taking place, and consider ways to make their methods and results as transparent and reproducible as possible.

Communication - We strive to be open with one another on all matters related to our membership in this research group. We recognize open communication as an exercise of mutual respect, and it is our goal that everyone feels empowered and comfortable enough to express themselves in this way. Although some of us may choose to communicate outside of normal working hours for multiple reasons, no one is expected to address work-related matters during these times unless explicitly agreed upon in advance.

Action items: All members are expected to attend lab meetings whenever possible (see Lab Meetings section below). We also expect that you maintain contact with the lab, particularly when out doing field work (see Personal Safety above). Email

responsiveness is important. While no one expects an immediate response, keeping in touch about your progress and acknowledging that you received a piece of communication is essential to producing good, safe science.

Reciprocity and Collaboration: Science is almost always collaborative, and we work to build an environment that facilitates this. It is expected that lab members will help each other, both during lab meetings by providing constructive feedback and support, and outside of lab meetings by volunteering their time to help set up experiments, take field samples, and maintain the shared lab spaces and equipment. That said, everyone is busy and can feel overwhelmed at times. So, respect for your own as well as others' time is key. Volunteer when you can, help a lab member who has volunteered their time to you, and be open and honest about your needs and boundaries.

Action items: We strive to celebrate each other's accomplishments (big and small) as a lab, acknowledge each other's assistance, and reciprocate when possible.

Personal Safety: Although field work has inherent risks associated with it, personal safety, both physically and emotionally, is of the highest priorities. Lab members should not feel unsafe in the field or lab. Safety is more important than data collection, and data or sites should be abandoned or other arrangements made if these locations appear unsafe due to either field conditions (weather, wildlife, etc.) or social conditions (harassment from individuals, concerns about isolation, etc.). We recognize that different people will have different levels of comfort and feelings of personal safety while working in remote settings, both due to the physical environment and because of differing socio-political contexts. We strive to create an inclusive and supportive fieldwork atmosphere that values personal safety. We do not condone the fieldwork mindset that glorifies risk-taking behaviors, de-legitimizes concerns about personal safety, and excludes women and individuals from marginalized groups. Finally, we create a trusting environment to provide emotional support and point lab members towards resources to help resolve personal and professional issues.

Action items: To make field work as safe as possible, we recognize different levels of comfort when it comes to doing work in the field. No student should ever feel pressured to do fieldwork alone. Some alternatives to solo fieldwork include hiring a technician or undergraduate assistant or partnering with another graduate student (see reciprocity). All boat fieldwork requires a float plan filed with the lab and with the Skidaway or Sapelo office or field site manager. All non-boat field work should have a "check-in plan" registered with another labmate (via slack or text) or with a field site manager.

Work-Life Balance - Scientific research is target-based, not hour based. If we are producing a constant, evident stream of work, then we are doing it right. We do not believe that our members should sacrifice physical, mental or emotional health to meet progress benchmarks. Having a good work-life balance is essential to our mental health and the accuracy of our science. There may be specific time periods (for example field seasons) where work-life balance is difficult/impossible to maintain. Taking appropriate breaks can enhance the quality of our work, especially if they improve our mental and physical health. We encourage all lab members to maintain healthy interpersonal relationships inside and outside of the lab.

Action Items: To support a healthy work-life balance, we often make time to get to know each other and support each other outside of strictly lab settings. This includes periodic lab dinners hosted by Jeb Byers, periodic lab lunches or happy hours, celebrating achievements, and generally supporting each other. We also encourage and support all lab members engaging in mentally and physically sustaining activities. We have flexible work arrangements to acknowledge each member's need for time-off.

**This Research Group Culture section of the lab handbook was created using language and resources from the Humphries Lab Code of Conduct (University of Rhode Island), the CLEAR Lab Manual, the Humphries Lab Manual (University of Nottingham), and the Lab Manager.*

Lab Logistics

Updated 8/20/20

Lab Meetings - We believe that attending lab meetings is a great way to build our lab culture and support each other through our degree and beyond! It is expected that everyone makes a good effort to attend lab meetings every week (either in person or virtually). It is understood that attending every meeting is not always possible, especially during field season. If it is necessary for someone to miss a lab meeting, they should let the rest of us know as soon as possible. During lab meetings, it is expected that each member provides constructive feedback and support. Academia is tough, and we are here to support each other when needed, as well as celebrate each other's successes and accomplishments.

The Byers lab currently has a unique approach to weekly lab meetings. Jeb typically attends the first 30 minutes of the lab meeting, and then the rest of us take over for the next hour. Jeb may or may not be asked to attend the second part of the meeting, depending on the content. The topic of the lab meeting varies weekly, but typically, one person signs up to lead a lab meeting and presents their research, or provides a manuscript that we review. It's the expectation that every lab member (except for undergraduates) leads at least one lab meeting per semester. If that lab member wants feedback on a manuscript, they are expected to distribute a draft to the rest of the lab at least 3 weekdays prior. If no one is signed up to present, we typically pick a published paper to review, or just get together and chat about current events, general questions about a career in science, how to navigate grad school, etc. We have decided to reserve every 3rd lab meeting to discuss social justice issues and what we can do as individuals and as a lab to increase diversity and inclusivity in science.

Action Items: Our weekly lab meetings are essential to constantly re-calibrating what we are up to, what we stand for, and how we exist as a community. In addition this lab book is a living document, meaning it can and will change as membership changes and our focus changes, and should be re-visited annually.

Social Media - Social media is a powerful tool for science communication and inclusive science. We strive to use the lab social media pages to highlight the work of students, staff, and faculty in the lab as well as to interact with both scientific and nonscientific audiences. Lab members are not required to maintain their own social media pages, however they are

encouraged to contribute content to the Byers Ecology Lab social media pages (Facebook, Instagram, Twitter).

Action Items: We aim to identify the goals and objectives of our social media presence and develop an action plan to achieve those goals in an inclusive and equitable manner.

Guidelines

Updated 8/5/20

PI - Grad Student:

My goal as an advisor is to help my students develop the skills they need to be well-rounded scientists. I aim to foster critical thinking and creative skills, and ensure my students have the ability to design and execute compelling research projects, write interesting research papers, and deliver impactful research talks.

Research - I expect my students to know the literature related to their topic extremely well. Students should also be reading widely and broadly in their field and familiarizing themselves with the literature in the field of ecology and related to their dissertation work. I will work with my students to help develop their research ideas and expect regular updates about their progress.

Career and Professional Development - I encourage my students to be well-rounded in their training so that they are not limited in the career options available to them. I encourage my students to attend conferences and professional meetings to present their research and network with other researchers. I will support my students in their career development, including writing letters of recommendation, introducing them to other scientists, and encouraging them to pursue professional development opportunities in which they are interested.

Meetings - While I often meet regularly with my students - particularly in early formative stages of their work, in preparation for each field season, and as students are writing their chapters - I expect my students to take the lead in initiating meetings when they are stuck. I like to foster independence in my students, meaning it is their responsibility to engage their peers and colleagues to vet ideas and seek feedback both inside and outside the lab setting. I prefer scheduling meetings in advance but my door is open to unscheduled meetings during the week.

Lab Culture - I place a high priority on lab cohesiveness and lab culture (see lab culture and values). The current students, post-docs and technicians play a large role in creating and maintaining that lab culture. I expect my students to work well within the lab and bring any conflicts to me that they cannot resolve on their own.

Lab Responsibilities - All lab members are responsible for completing all required trainings and following all lab safety requirements. I expect all lab members to respect each other, respect equipment, and be a team player. In the absence of a lab manager, students may be asked to help out with collective lab activities including chemical inventory, annual vehicle maintenance, supply ordering, lab organization, and lab social media pages.

Departmental Service - The Odum School of Ecology provides unique opportunities for graduate students to get involved with the many administrative aspects of the department. This is a way to gain perspective on the inner workings of an academic department. Please consider the time commitment these opportunities take, and be selective that they do not conflict with research.

**The Guidelines section of the lab handbook was created using language and resources from the Texas A&M Office of Graduate and Professional Studies, the Peele Lab Manual, and the Humphries Lab Manual (University of Nottingham)*

Undergraduates

Updated 8/19/20

We are always interested in having undergraduates work in our lab!

There are many reasons students might be interested in working in a lab. Some may participate in research to get more lab experience, to learn more about how science operates, or to explore a topic of curiosity. As long as you are willing to work hard and be actively engaged with the project, we are happy to have you!

Many of the undergraduate students in our lab work for course credit. However, we realize that not all students are able to volunteer in this way, and so we strive to hire students or provide financial compensation whenever possible to make research opportunities more equitable. As such, if we do not have existing funds, we often work with students to write a UGA CURO fellowship or assistantship application or look for other funding sources.

If interested in the lab, please email Dr. Byers with a brief introduction and statement expressing your interest in the lab. We understand that emailing a professor directly asking to work in the lab might be intimidating, but this is commonplace and welcome! This email should be cordial and professional, but does not have to be overly formal. Including a copy of your CV or resume is usually helpful. You may also reach out directly to graduate students in the lab if there is a specific project you are interested in.

Expectations for the scope and independence of undergraduate research will vary widely based on the type of work (e.g. helping with a graduate student project vs. writing a senior thesis). Previous undergraduates in our lab have worked on a variety of projects ranging from chemical lab work and microcosm experiments in Athens, computer-based GIS analysis, and summer field research at the Skidaway Institute of Oceanography in Savannah or the UGA Marine Institute on Sapelo Island. Note that most of the summer field work is reserved for students who have been involved and trained in the lab's work during the preceding semester(s).

We expect all undergraduate students to uphold our lab values (see Values section). In return, we will work with our undergraduate students to help achieve their goals in participating in

research. Furthermore, we will support our undergraduate colleagues in their future endeavors by providing letters of recommendation/references and guidance for applying to jobs/graduate school.

We encourage our undergraduate collaborators to attend our weekly lab meetings (see Lab Meetings section above) and other meetings related to the project(s) they are working on. Weekly lab meetings can be a great way to learn more about the culture of a lab, the collaborative and iterative nature of science, to get comfortable talking about science with peers, and to build connections with a wider group of lab members. Attendance at lab meetings is not required. We set the time for our lab meetings with a poll at the beginning of each semester, so if you are interested in attending or leading lab meetings, let a graduate student in the lab know and we will bring you in the loop. If you want to participate in lab meetings, but cannot make the time set for that semester, speak with the graduate student(s) you work mostly closely with and we will find another way to involve you, such as smaller group meetings at a time convenient to you. Undergraduate researchers are welcome to sign up to lead a lab meeting to present findings from their work in the lab or get feedback on a presentation or poster about your lab project.

Undergraduate students working in the lab may have opportunities for co-authorship with Dr. Byers and/or graduate students and postdocs in the lab. However, there are specific requirements for co-authorship (see Authorship for details), and therefore it is important to discuss the possibility of authorship **early** on in a project. Undergraduate students pursuing a Senior Thesis, CURO Fellowship, or other advanced independent research project also have the opportunity to publish their work. However this is not an expectation for all research projects. Do not be shy about discussing authorship - we encourage undergraduate authorship and want to publish with you!

**The Undergraduate section of the lab handbook was created using language and resources from the Castorani Lab Guide and Code of Conduct.*

Authorship

Updated 8/5/20

Authorship is an extremely important aspect of every project and should be discussed early and often to minimize misunderstandings. Co-authorship is based on the level of interest, effort, and innovation that contribute to a successful published product. While there are many ways to decide authorship, we generally follow the following guidelines.

First, if you could not have completed the project without the help of someone, because they brought to the project a unique and indispensable skill, perspective, or data set then they should be a coauthor.

If their role was not unique then a person should be a co-author if they played a significant role in at least three of the five following criteria:

a) Formulating the initial idea. This can be very hard to judge so it is best to be generous with these criteria.
b) Planning/facilitating the research. May include figuring out how to collect data, outlining a modeling approach, writing/getting grants to fund the work, providing key equipment, etc.
c) Doing the research. Includes collecting data, coding a model, or working through tricky math.
d) Analyzing the data. May include database manipulations, statistical and graphical analysis, or providing new insights that derive from the results.
e) Writing and publishing the results. This could include writing some section(s) of the manuscript, providing extensive editorial comments, etc.

All authors should be well versed in the subject matter of the paper.
When in doubt, be generous about co-author inclusion. This is especially true when working with undergraduates, lab technicians, and early career scientists.

**This Authorship section of the lab handbook uses language liberally taken from David Post's Lab (Yale University)*