

Advising statement - Trinity Hamilton
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My job as a professor includes research, teaching, and service. I am expected to write grants and perform research that will result in tangible contributions to the field, the community, and to society. The Fringe Lab is dedicated to conducting sound and ethical research. As a member of the Hamilton lab, advisees are expected to take responsibility for their own research as well as providing a supportive, accepting, and constructive environment for fellow lab members. Advisees are expected to contribute to a lab setting that is a fun, safe, and inclusive place for scientific discovery. As the PI, I expect each member to disseminate the findings of their research. Our goal is to publish research in scientific journals and communicate our findings through presentations in academic settings as well through outreach or other forms of science education. As the PI, I will also train and advise researchers in the lab. I aim to contribute to your professional development including progress toward your degree as well as long-term goals. I have prepared this document to clearly communicate my expectations of advisees and what advisees can expect of me.

DISSERTATION

- **TOPIC ORIGIN:** I expect my advisees to develop research topics within environmental microbiology. In some cases, these projects are part of ongoing grants and collaborations. In other cases, the research topic can be a new direction or tangential to ongoing research. Regardless, research project development will be an active and ongoing conversation. Lab projects generally examine carbon, nitrogen, and/or sulfur cycling in aquatic environments and address questions related to the role of biology in global processes over geologic time.
 - The development of an advisee's research topic is an ongoing and evolving process between myself and the advisee along with other lab members through individual meetings, lab group meetings, journal discussion and in-depth literature and topic review by the advisee. Typically, the topic and hypotheses will become clear before or during the second year of the degree program coincident with the prelim proposal writing schedule.
- **ORIENTATION:** I expect my advisees to develop research projects that are hypothesis-driven while also understanding that some unknowns in complex biological systems will lend themselves better to a question-oriented approach from which hypotheses can be generated and tested.
- **DISSERTATION vs. PUBLICATIONS:** The dissertation chapters should be written with the expectation that they be submitted as a series of publications. The thesis chapters should be accompanied by a first chapter providing a literature review and synthesis of the subsequent chapters to represent a cohesive research program and a final chapter or conclusion briefly underscoring the results of the research program and potential next steps.

PUBLICATIONS: Publishing is essential for most career paths followed by my advisees. My expectation is that a PhD project would be consistent with 3 first-author publications. Students pursuing a Masters degree would undertake a project that would make major contributions to at least one journal paper submission. Assuming our shared goal is to publish your data, writing of those manuscripts (dissertation chapters, etc) should occur during the training program (not only at the end). There are also (usually) opportunities for advisees to be working on manuscripts that may be tangential to their thesis, whether as first author or contributing to collaborative projects in the lab or with external collaborators.

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AUTHORSHIP: Barring unusual circumstances, it is my policy that advisees are first-author on all work for which they took the lead on data collection and preparation of the initial draft of the manuscript. Authorship arrangements should be discussed at the onset of a project and be re-visited as soon as it is apparent that data will result in a publication. I expect all students to prepare figures and write the results of interpretation of their data. In general, authorship arrangements will be discussed primarily between the first author and myself (or whomever is the corresponding author). I will dedicate time to reading and editing manuscripts, abstract for meetings, grant proposals, etc..

CAREER PATHS: I will dedicate time and resources to best equip advisees for their career goals. To do so, I ask that advisees discuss the career paths and goals they are interested in while realizing this may evolve over time. Through the lab, coursework, workshops, and other opportunities, we will work together to build a program where you can obtain the experiences and skills needed to reach your career goals.

LAB GROUP MEETINGS: Participation in weekly or bi-weekly group meetings including presenting data, leading or contributing to discussions, and providing support for others is expected. I also expect each advisee will do their part to create a climate of constructive engagement and mutual respect. Advisees are expected to attend lab meetings and lab events and to show up on time and prepared. In the event that these expectations cannot be met, advisees must alert myself and other members of the lab in a timely manner.

INDIVIDUAL MEETINGS AND MENTORING STYLE: During the semester, we will meet weekly or bi-weekly. During the summer, meetings are typically less frequent due to travel and field work schedules. I expect advisees to schedule individual meetings with me each semester and summer as our schedules change. We may schedule additional meetings as necessary. Individual meetings do not have a set agenda but serve as a mutual check-in about progress and their program. If we are to discuss specific items (papers, etc), these should be shared with me at least 24 hours prior to the meeting so that I have time for review.

I aim to be flexible and adaptable in mentoring for each advisee. I only have my lived experience but I will do my best to adapt and alter my mentoring style to best meet advisee background, expertise, and professional goals. I will strive to be aware of the power differential that is inherent in the advisor-advisee relationship and I will seek out opportunities to improve my ability to mentor. I will remain aware that graduate school is a job with very high expectations and work-life balance and mental health are important for advisee success.

INDEPENDENCE: In general, I expect advisees to work without daily input or guidance from me. As long as advisees are meeting expectations and deadlines, they can largely set their own schedule. We maintain an active Slack channel for the lab where myself and other members can be available as a resource. We also work in an open lab and office space where we communicate regularly. We will work to establish mutually agreed upon deadlines for each phase of your work during one-on-one meetings. We will set short-term (weekly) goals and longer-term goals (semester / yearly).

NATIONAL/INTERNATIONAL MEETINGS AND CONFERENCES: Developing a professional network is important for many career paths. I expect advisees to attend national meetings and to report on their research at those meetings. I will do my best to help find money to make this possible but obtaining support for meeting attendance should be a joint effort. I regularly make the lab aware of upcoming conferences and meetings of interest and we keep a shared spreadsheet of opportunities. Attending meetings will be discussed in individual meetings and as part of short- and long-term goals.

GRADUATE STUDENT STIPENDS: The nature of funding (TA, RA, Fellowship) is often unpredictable but there will be funding for advisees throughout their time in the lab. I also expect advisees to consistently look for and apply to opportunities for outside funding, and personal and professional development. I accept responsibility for supporting you while you are in the lab, but opportunities for

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professional development and external funding are mutually beneficial for both the lab and your career. (See Lab website for some funding opportunities.)

RESEARCH FUNDING: I will work to obtain funding from external sources to pay for salaries, supplies, and general lab operations to facilitate advisee success. I also expect advisees to consistently look for and apply to opportunities for outside funding, and personal and professional development. I accept responsibility for supporting you while you are in the lab, but opportunities for professional development and external funding are mutually beneficial for both the lab and your career. (See Lab website for some funding opportunities.). I will also communicate with advisees where their funding comes from—this includes their stipend, research money, and travel funding.

COURSEWORK: I do not have standard or expected course requirements beyond those of the graduate program. I encourage advisees to seek out coursework that adds to their career goals and professional development. I encourage advisees to attend workshops and seminars, rotate with other labs on campus, visit collaborators labs or seek out any other opportunities that would add concepts and skills that their research and career path require.

I ask that advisees acknowledge they have the primary responsibility for the successful completion of their degree. This responsibility includes commitment to coursework and research.

GRANT PROPOSAL WRITING: Proposal writing is an important skill for all scientists regardless of career path. I expect advisees to write proposals for internal (department, college, university) and external funding opportunities including fellowships, research grants, travel grants, etc.. I also regularly involve advisees in the grant writing process assuming their time permits.

ORIGINAL LITERATURE: I expect advisees to dedicate time each week to read and review literature. Advisees are expected to maintain context for their research within recent and historical published literature so that previous studies guide their research. I also suggest advisees participate in journal clubs as their schedule permits.

OPEN SCIENCE: We are working, as a lab, to ensure greater transparency in our research by providing lab policies and updating procedures. I expect advisees to share codes and scripts and ensure the reproducibility of data analyses. Assuming the advisee is comfortable with it, we will post manuscripts to BioRxiv and EarthRxiv which are free for everyone, in addition to submitting them to peer-reviewed journals.

TEACHING: I expect all advisees to be involved in teaching and mentoring. These activities aid in communicating complex subject matter to a range of audiences. In PMB, graduate students will TA at least one semester. In addition to communication skills, TA-ing is an opportunity of advisees to gain valuable time management skills and to be able to balance to balance multiple responsibilities (such as teaching and research). Postdocs and graduate student advisees may also have the opportunity to guest lecture and graduate students will have the opportunity to TA more often based on TA needs and professional / career development goals.

TIME MANAGEMENT: I expect a lot of advisees and degree programs come with their own expectations for course work and other degree requirements. I expect advisees to practice good time management and to work efficiently using a schedule and time that works best for them. I expect advisees to set and meet regular deadlines. I also expect advisees to need and want time away. Work-life balance and vacation time or time away are essential for creative thinking and health and I encourage advisees to take time off. Be aware that there at times when more effort will need to be devoted to work such as field seasons and it may not be ideal to schedule time away.

RELATIONSHIPS WITH OTHER ADVISEES: I expect advisees to participate in the mentoring process. We each have strengths and weaknesses, and differing expertise or experience. As a result, each lab

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member is expected to help out other members of the lab when help is requested, provide constructive feedback and suggestions, and ask for help when necessary. In general, more senior personnel are expected to take on more responsibility for mentoring but the overall goal is for each of us to know our own strengths and weaknesses and aid each other when necessary. At the same time, advisees are responsible for their own research goals and are expected to use our time wisely to reach those goals and to respect others' time.

ETHICS: Advisees should abide by, the University of Minnesota's code of conduct: http://regents.umn.edu/sites/regents.umn.edu/files/policies/Code_of_Conduct.pdf

COMMUNICATION: Communication is central to science and society. I prepared this document to clearly communicate my expectations of advisees and to reduce the possibility of misunderstandings. However, I also expect this document to evolve and adapt with changing circumstances and as I continue to develop as a mentor and a scientist.

I am available by email, in my office, or via Slack messenger. I am notoriously unreliable via phone. I will respond to email and Slack messages as soon as time permits. My office door is usually open and I'm happy for walk-ins but may not always have time to dedicate to a longer question during these times. When I submit something on behalf of an advisee, (e.g. a letter of recommendation), I will notify you by email that this task was completed.

I am open to questions, comments and concerns but also acknowledge that our relationship may not facilitate all types of conversations and feedback and encourage advisees to reach out to the DGS, the Department Head, the College HR Lead, or the Office of Student Conflict Resolution.

INDIVIDUAL DEVELOPMENT PLAN: I encourage advisees to write individual development plans, and, if advisees feel comfortable sharing these, I am happy to contribute to the development and evolution of the plan. For a template: <https://docs.google.com/document/d/1IJ2dEFef-qp0TWWqDqwBEvrNtcAnWxyenpO1Zkxdjc0/edit>. And some examples: <https://grad.umn.edu/academic-career-support/individual-development-plan>

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