UW Biology Mentoring Philosophies

Contents

Lauren Buckley

Functional ecology, evolution, and biogeography for changing environments

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trenchproject.github.io

Buckley Lab Mentoring Philosophy

Overview. Most research in the Buckley lab concerns functional ecology, evolution, and biogeography in changing environments, a broad and complex topic leaving lots of room for creative and interdisciplinary approaches and independent projects. One focus of the lab is coupling theoretical and quantitative tools with data collection. I feel that combining multiple approaches is central to tackling questions of environmental change and a primary benefit of choosing to conduct graduate research in the Buckley lab. Student projects often span two of the following three approaches: theory, ecoinformatic analysis, and field or lab work. My goal as a mentor is to facilitate students learning how to identify interesting questions, develop feasible approaches, and process and synthesize information to address the question.

Student goals. I appreciate the advice given to me and other graduate students by my UW colleague Ray Huey, who was given the advice by Eric Pianka. "Namely, when you set out on your graduate career, your goal should be nothing less than becoming *The* established authority in some area by the time you complete your degree. That may sound ambitious. But if you aim high, you will hit high." (See also his other advice for graduate students: https://faculty.washington.edu/hueyrb/prospective.php.) With academic jobs becoming increasingly scarce and graduate training sometimes poorly aligned with other careers, I agree with the sentiment that a PhD is best undertaken by someone who cannot bear to do anything else. If you are sufficiently passionate about the endeavor to undertake a PhD, it's worth aiming high. Of course, identifying innovative research questions is one of the most important challenges of graduate school. I generally start student out working closely with me on a manageable, short-term research question so that they gain background in the research area and in the lab's approach. I then work with students to develop research questions.

On independence. I encourage students to conduct independent research, but my vision of independent research may differ from yours. There are many ways to conduct conceptually independent research without working on a system I know nothing about in a place I know nothing about and for which I do not have funding. I generally expect students to conduct research in the systems I am working on (montane butterflies and grasshoppers in CO) so that I can best support their research (with expertise and financial support). Of course, some students will conduct quantitative research using existing data, in which case the alignment of questions is more important that the system. It is easier to produce conceptual advancements if you do not have to start from scratch. Students seeking to ask similar questions in other systems may be encouraged to do so as long as the question motivates the different system rather than preference. Having a collaborator or co-advisor with expertise in the other system is ideal.

Student characteristics. I view the ability to take scientific initiative as central to success as a graduate student. I thus look for lab members that have demonstrated an ability to take initiative. Successfully completing and ideally publishing independent research is a primary way that students demonstrate initiative, but demonstrating initiative outside science (e.g., leadership in student groups, art, athletics) is also a strength. I also look for students who demonstrate aptitude for identifying interesting research areas and questions. Students interested in working in my group should have at least basic quantitative skills (e.g., mathematics or computer science training, experience with a computing language such as R), but there are many opportunities to build quantitative skills at UW. In additional to accepting students through the UW Department of Biology, I am a member of the Quantitative Ecology and Resource Management (QERM) interdisciplinary graduate program; an affiliate of the eScience Institute; and I interact with the Program on Climate Change (PCC).

Lab structure. I strive for a manageable group size (1-3 graduate students, 0-2 postdocs, and 1-4 undergraduates). I try to maintain a vibrant research environment regardless of the number of group members by closely interacting with other research groups. For example, we have weekly group meetings where we present research, discuss papers, and undertake professional development activities. They have always been shared, initially with the research groups of Joel Kingsolver and Allen Hurlbert at the University of North Carolina and now with Ray Huey (the Huckley Lab) at UW. We also conduct joint lab meetings with Janneke HilleRisLambers some quarters.

I generally meet with graduate students weekly but am happy to interact with students more frequently when beneficial. I understand that productivity is uneven as are the demands of non-research activities, but I expect students to arrive to meet each week with something they have produced (graphs especially welcome) or learned. We'll review progress on the previous week's goals and set goals for the next week. I ask students to complete an individual development plan annually that we will go over together. The process includes assessing progress on meeting past goals and timelines and revisiting research and professional goals and milestones. I also appreciate feedback on how I can be a better mentor for each student's individual needs.

You can expect me to assist with your professional development regardless of your goals following graduate school. The professional goals or outcomes of past students have included academic positions, non-profits, education, and data science.

Funding. I aim to provide research assistantships (RAs) in the summer and for 1-2 quarters each academic year as well as research funding for students conducting research aligned with my funding. Students are encouraged to apply for external fellowships (e.g., National

Science Foundation Graduate Research Fellowship, Environmental Protection Agency STAR Fellowship, Ford Foundation Predoctoral Diversity Fellowship). Grant writing is an important skill and receiving independent funding is important for professional advancement. I aim to provide lab members funding to attend at least one scientific meeting each year.

Outreach and Education. Lab members are expected to disseminate their research through outreach and education. Our TrEnCh project aims to develop computational tools to translate physical climate changes into impacts on organisms. Students are encouraged to contribute to the associated outreach and education tools aimed at disseminating information about the ecological impacts of climate change. Students with quantitative skills have often disseminated them through teaching workshops.

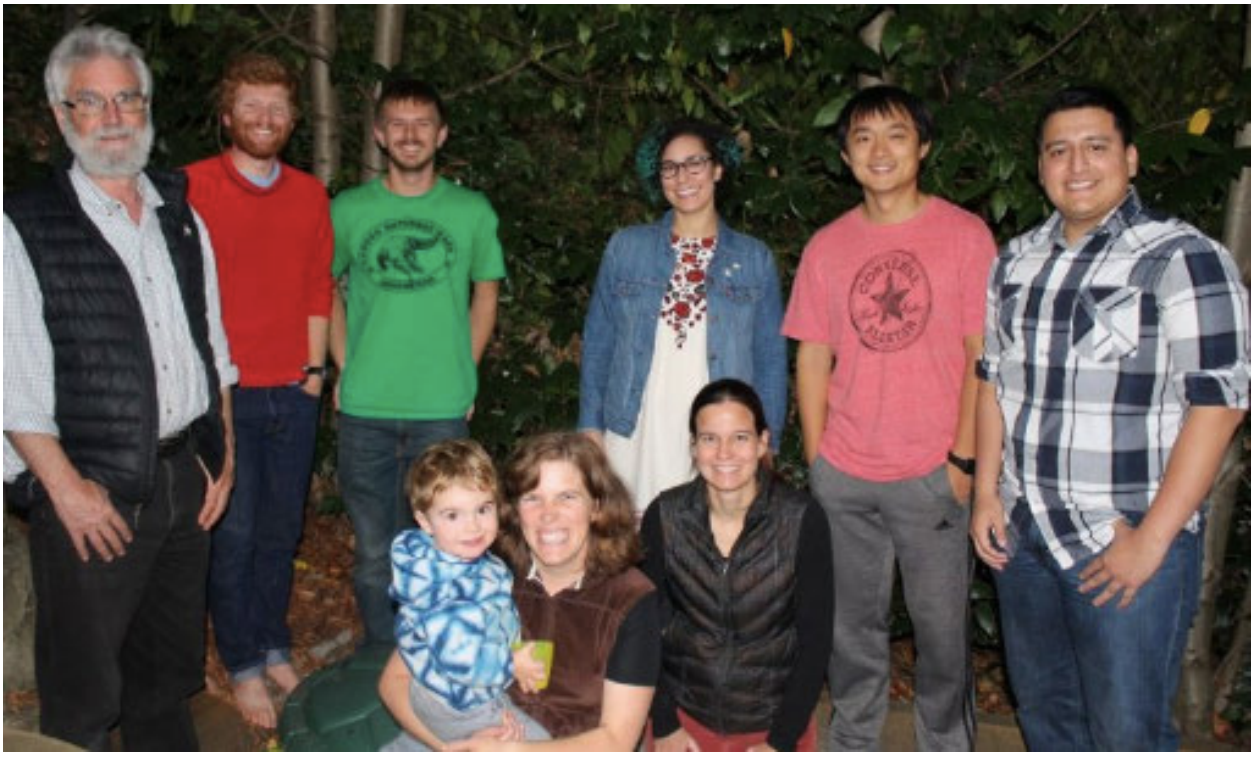
Lab environment. We strive to provide an equitable, inclusive, and inspiring research environment. We welcome members irrespective of race, religion, gender identification, sexual orientation, age, or disability status and appreciate diverse perspectives. We aim to be allies to those encountering harassment or discrimination.
We aim to follow best scientific practices including conducting open and reproducible research and disseminating data and code. Students are required to use version control (generally github; see https://github.com/HuckleyLab and https://github.com/trenchproject). I do not have expectations for the amount of time spent in lab, but I do expect you to spend sufficient time in the lab to interact and to make the commitment of time and effort necessary to make steady progress in your research and to meet milestones. Balancing research with hobbies and other enjoyable activities is central to success in graduate school, so group members are encouraged to bring their whole selves to the research group.

Graduate school and the process of transforming from someone who reads research to someone whose research is read is challenging. Expect you will go through periods of stress and feeling inadequate. Cultivating a support network is essential. Celebrate small accomplishments (e.g., making a graph of new data) to remind yourself of the joy of discovery. I encourage you to talk with me and others in the department if you are encountering challenges to your mental health. I am also happy to help you access the many mental health resources on campus.

Mentorship. Each student has unique mentoring needs and a primary challenge I face as a mentor is adjusting my mentoring to meet these unique needs. I still have much to learn as a mentor and expect I may always have that sentiment. You can expect my dedication to mentoring and also that I will sometimes fail as a mentor. I am happy to receive feedback on my mentoring and encourage you to talk with previous students about their experience

with me as a mentor. I would ideally interact with lab members at colleagues, but I realize a lot of learning is required to get trainees to that point. I also view learning to mentor as an important part of being a graduate student or postdoc. Lab members will be encouraged to mentor more junior colleagues (often undergraduates).

There are some personally traits that make me a less suitable mentor. *Procrastination*: I expect students to meet timelines. Students need to finish drafts of grant applications, papers, and presentations in plenty of time for me to provide feedback. I do not excel at nagging students to get something done. *Perfectionism*: The relationship between effort and quality has an asymptote. Once you reach the asymptote, it's time to call the product done and move on to the next step. Recognizing when something is good enough is essential to publishing your research early in your graduate career, which will improve your prospects after graduate school.



Clemens Cabernard

Cell biology and mechanics
of asymmetric cell division

cabernardlab.org

Clemens Cabernard

Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.

During my PhD, I "wasted" a lot of time with needless experiments. Rather than focusing on what needs to be done, I spent a lot of time with experiments I liked to do. The upshot of this approach was that I got to explore many different experimental approaches and methods, which also shaped my approach to research. During my postdoc, I learned to improve my time management while still exploring exciting areas of research – some of which did not come to fruition but still provided valuable lessons. Now as a PI, I analyze and reanalyze my time management on a weekly basis to optimally use the finite amount of time so that I can carve out blocks of time I can spend for my own little experiments.

How would you describe a successful graduate student?

A successful graduate student is somebody who leaves the advisor's lab with skills and knowledge surpassing the advisor.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

Stipend and research costs are predominantly covered through grants or other funds from the PIs lab, unless the PhD student is able to obtain an independent fellowship. I aim to support my graduate students for at least 3 quarters/year. Graduate students and postdocs are also encouraged to, and supported in, obtaining independent fellowships and grants. This part of the training will benefit the trainee in several ways.

What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?

The process varies and is dependent on the new graduate student, the composition of the lab and the ongoing research. In general and if possible, students first do a rotation in the lab to work on a defined project, ideally something that will yield results during the duration of the rotation. If the rotating student decides to join the lab, the project can either be expanded, or in consultation with the graduate student, a new project is being developed. In some cases, I also discuss several possible projects with the incoming graduate student and have the student pick the one that appeals the most to the student. Another model is to pair an outgoing student or postdoc with a new graduate student and have them work jointly on a project. That way, valuable expertise can directly passed on to

the new graduate student resulting in a very steep learning curve. The new graduate student has the option to continue the project and take it into new directions.

Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?

We currently participate in 2 multi-lab forums. We also discuss current literature in our own lab meeting and will start a joint-lab meeting in a few weeks.

How often do you meet with your graduate students?

1 formal (= scheduled) meeting / week during the academic year. Short interactions often happen on a daily basis and informal discussions occur multiple times during the week. Also, I have an open-door policy. Everybody in my lab can always find me in my office for discussions or basic questions if I am available.

What do you see as the ideal size and composition (e.g. ratio of grads to undergrads to postdocs) of your lab?

Size: I am still figuring this out. So far, I learned that a large lab (large = more than 10 people) composed of multiple postdocs, grad students and undergrads is too difficult for me to manage efficiently. At the same time, to enhance learning and training opportunities, a critical mass of 1-2 postdocs, 1-2 graduate students and 2-3 undergraduates seems to work for my lab. The mix of more senior and junior people (especially postdocs and graduate students) provides an interactive and collaborative environment.

Composition: As mentioned above, I like a healthy mix of postdocs, graduate students and undergraduates. I strive for a team that brings a multitude of different research experiences and training. Ideally, new lab members are experienced in areas I have little expertise in.

Describe a few of the career paths your trainees have pursued after leaving your lab.

Graduating PhD students either found postdoc positions or chose to pursue non- academic careers in life-science industries. Half of my former postdocs found faculty positions while the other half pursued a second postdoc (total n = 4).

Strangely enough, about half of my undergraduate students pursued a Biology PhD, whereas the other half found a job in the life-science industry or other non-academic positions.

What role do you think (if any) TA-ing has in earning a PhD?

TA-ing benefits students on several fronts: they learn how to teach and whether they like teaching. They enhance their knowledge through teaching. They also learn time management. However, there must be sufficient time for independent study and research.

Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?

New undergraduates join on a regular basis. They start as basic (paid) lab helpers (1-2 quarters) before moving on to a research project. Depending on the undergraduate student, they work closely with a more senior lab member, such as a graduate student or pursue a project semi-independently. More experienced undergraduate students work almost independently on their own project.

Some undergraduates also directly work with the PI.

How do you know when a graduate student is ready to graduate?

During my previous appointment, graduate students HAD to graduate within 4 years. In other words, the decision was system dependent. At UW, I have not yet crossed that bridge.

Have you trained graduate students who now work outside of R1 academic institutions? If so, please describe differences (if any) in your approach to their training.

Yes. The training approach remained the same. Skills in analytical and critical thinking are universally applicable. Knowing how to effectively and clearly communicate is worth more than knowing how to run a PCR reaction. So, many skills graduate students acquire and/or refine during their PhD are directly transferable to non (R1)-academic careers.
Also, no graduate student joining my lab so far did articulate a specific long-term career plan outside of academia so I could not anticipate in what line of work they would end up.

How do you handle conflict in your lab?

I would like to come back to this question in 25 years. So far, I learned that there is a broad spectrum of conflict. If a serious conflict arises in the lab, I will seek professional support ASAP. HR has necessary resources to help with conflict resolution. Involving an outside person is sometimes the only option. If I recognize that a conflict is starting to arise, I try to learn its source and consult with more senior colleagues. Ideally, I try to mediate by bringing all the involved parties together. Needless to say, the best strategy would be to

avoid conflict to begin with. However, I believe it is naïve to assume that a lab can avoid conflicts altogether.

What qualities do you look for when recruiting a new student into your lab?

Team player ability. Willingness for collaborations. Ability to express independent thinking (verbally or non-verbally). Excitement and interest for basic science.

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

Yes. Guided lab tours, experiments with kids, organized talks to non-scientists. Off campus visits in schools and other institutions.

Are there differences in the skills needed to be a successful scientist today than those you learned in graduate school? If so, please describe these differences, and how you help your students acquire them.

In my field, research is more collaborative, quantitative and interdisciplinary. I try building a lab composed of people with complementary education, research experience and skills. I encourage collaborations within the lab – particularly between postdocs and grad students. I also encourage but don't force collaborations across labs. Having the skills to effectively communicate science to both a non-scientific and scientific audience is and will be even more important today than in the past. I am trying to support my students in this endeavour by encouraging them to present their project whenever possible.


Ed Sheeran
÷ TOUR

Takato Imaizumi

Molecular mechanisms that allow plants to sense seasonal changes

faculty.washington.edu/takato

The Imaizumi lab philosophy

Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.

During graduate school, my mentor's philosophy was to let us figure out how to do experiments on our own and to learn from our mistakes. We did not receive much guidance and we did not work together when planning experiments. He merely gave his feedback after we were done. To be honest, this was really challenging for me as I did not have much experience and everything I did was new, so I did not know if what I was thinking or doing was correct. I felt it was really ineffective and also less productive to have to blunder my way through. Therefore, in my lab, I decided to work on all aspects of our research together with my grad students. I do not tell them what to do, but I give them guidance regularly, so they can make more effective decisions, and incorporate my feedback if they like. Even with my input, grad students can still be creative. Also, discussion often deepens our understanding and stimulates more well-conceived research plans. Therefore, I meet with grads every week to work together.

I was a postdoctoral researcher in a large lab that was a pioneer in plant circadian biology. As the PI was often busy and absent from the lab, grad students were directly mentored by postdocs. In some cases, the grad students were treated similar to lab techs by the postdocs. As grad students need to become independent once they finish their degrees, this type of training was a bit imbalanced. Of course, grad students often collaborate with postdocs or researchers. But they should not be there just as technical help. To become an independent scientist, the grad students need different skillsets. In my lab, I focus on ensuring that grad students learn how to 1) make reasonable hypotheses and plan experiments, 2) execute experiments and troubleshoot, 3) present results at meetings and in manuscripts, 4) communicate, collaborate, and convince other people about their findings and ideas, and 5) financially support themselves.

How would you describe a successful graduate student?

A successful graduate student for me is passionate about this field, and self-motivated. Without this enthusiasm, it is difficult to successfully complete graduate studies. Being excited about their studies is what carries students through the stressful and challenging times, and confirms that they are on the right path. My role is help students along this career path, but the motivation should come from them.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

My graduate students are usually funded by TAs, RAs, and scholarships (such as NSF or NIH training grants).

What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?

I strongly believe that students should study what they are truly interested in during graduate school. I always tell grad students that our key words are "circadian rhythms". Because all organisms live in 24-hour recurring conditions, you can find a link between circadian rhythms and any developmental and physiological responses. Graduate students can choose any subject which they are interested in and approach the specific subject from the circadian biology point of view. I also think, in this way, the students can develop ownership of their projects easily. Of course, I am happy to provide input as they develop their topic, but usually they come to me with their idea first. It is very exciting to study new research avenues with my graduate students. I really appreciate all of the interesting research trajectories they have provided to our lab.

Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?

Our lab has had a weekly joint-lab meeting with the Nemhauser lab for the past 11 years. At these meetings, usually one or two lab members (postdocs, grads, and undergrads) present their work, and obtain comments and suggestions from both PIs and other lab members, which is beneficial to everyone in the meeting. Starting this fall, the Steinbrenner lab is joining our meeting, providing even more interesting and varied input. We (the Imaizumi lab) also have a journal club every week in addition to our joint lab meeting. At the journal club, we read and discuss the contents of one paper. Each week, different lab members become discussion leaders for the paper they chose.

How often do you meet with your graduate students?

I meet with my graduate students at least once a week. At the meetings, we discuss yearly, quarterly, and weekly goals. I like to make sure that my graduate students are making steady progress, and also provide them with the opportunity to ask me for advice or help in a timely manner.

Describe a few of the career paths your trainees have pursued after leaving your lab.

So far all of my graduate students have become postdocs. What I found interesting is that none of them were originally planning to become postdocs when they started our

program. However, by the end, all of them really enjoyed their topics and wanted to continue studying, so they all decided to become postdocs.

Benjamin Kerr

Theoretical and empirical angles on topics in ecology, evolutionary biology, and the philosophy of biology

kerrlab.org/Public/HomePage

Twitter @evokerr

Ben Kerr

Please provide up to 5 words or phrases that describe your lab culture.

Curious, collaborative, collegial, cooperative and constructive (5 C's!)
(...assuming we're not talking about our lab *cultures,* where the adjectives would be more bacteria-centric!)

How would you describe a successful graduate student?

Over the course of graduate school, a student shifts from a consumer to a producer of research, which is a profound transition. This involves gaining enough familiarity with an area of focus to understand what the exciting and timely questions are. It involves the formulation of ideas or models about a relevant system and the design of a research approach. It involves the quantitative processing of data, as well as the communication of results through writing, talks, outreach and social media. It involves meaningful teaching and mentorship within one's area of expertise. A successful graduate student is one who recognizes and experiences these elements while maintaining a good work-life balance and a sense of fulfilment in these professional investments.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

For any student that joins my lab, both they and I commit to working towards getting funding to cover their stipend and research costs (I work closely with every student on fellowship applications, and I involve students in the grant proposals that I prepare). The stipend for most of my students comes through some combination of fellowship support (e.g., NSF GRF, MCB training grant, etc.) and grant support (e.g., NSF, NIH, HHMI, etc.). Most of our research costs are covered by federal grant support with occasional supplemental help from small grant awards.

What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?

Some students arrive with an intense interest in one or two topics. Other students arrive with extremely diverse and numerous interests. The interests of nearly all students evolve somewhat over their time as a graduate student. After joining our group, a new PhD student will start by working with a mentor (a more senior graduate student or a postdoc) on an on-going project that is a good match for their interests (whether these happen to be broad or focused). This position is meant to orient the new student to how the lab functions day-to-day and to share the skill set of a senior colleague. Sometimes this project

will evolve into an independent research avenue pursued by the student in later years. Other times the student will branch out and try something different after this initial mentored experience. The choice of the research focus for the student happens over many 1-on-1 meetings where we discuss literature, brainstorm ideas, propose experiments, and work through logistics. This research path is further guided by interactions with other lab members, the student's peers, the student's committee, and current collaborators of our lab. These conversations and interactions always occur against the backdrop of the student's current interests.

Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?

Yes. Our lab has run journal-club-style meetings where we take a deep dive into an area of interest in the primary literature. We have also used a similar format to read books as a group (past themes have ranged from evolutionary robustness to complexity theory to networks to statistical analysis to philosophy of biology). We have paired with other labs for joint lab meetings and we have held regular remote meetings with labs at other institutions. Many students also attend other lab group meetings (something I encourage), journal clubs, workshops and seminars. Some students also spend substantial time visiting other labs at other institutions (to receive critical training and to further develop their research projects).

How often do you meet with your graduate students?

I meet with every graduate student once every week. Each graduate student has a regular time (set at the beginning of each quarter). The grad sets our agenda for the meeting (including anything they want me to look at beforehand—data, figures, a manuscript, a proposal, etc.). I come to these meetings with feedback on the material sent by the grad. Whenever a student would like to meet for additional time outside our regular meeting, I will arrange for an extra meeting.

What do you see as the ideal size and composition (e.g. ratio of grads to undergrads to postdocs) of your lab?

An ideal lab size depends partly on the degree of collaboration between lab members. However, generally a combination of 1-2 postdocs, 3-5 grads, 4-6 undergrads has been a good size. The most important aspect of a healthy lab involves functional mentorship ladders, where each postdoc and senior grad is collaborating with 1 or 2 junior grads, and each graduate student is collaborating with 1 or 2 undergraduate interns.

What role do you think (if any) TA-ing has in earning a PhD?

Learning how to effectively communicate the nature of science and scientific results to audiences of varying degrees of experience is a critical skill for a graduate student in STEM. The classroom can be both a challenging and rewarding arena to hone this skill. I believe that investment in teaching by a graduate student not only benefits their students, but can also empower and bring joy to the graduate student in the process. While everything in graduate school involves striking a balance between multiple worthy objectives, I believe that effective teaching is a central mission of any institution of higher learning. Thus, I see TA-ing as a vital component of graduate training.

What qualities do you look for when recruiting a new student into your lab?

I generally look for a genuine sense of curiosity about the world, where there is motivation to ask questions and dig deeply into a subject. In addition to this inquisitiveness, it is extremely important to me that anyone joining our group will contribute to a collaborative, respectful and interactive atmosphere within the lab, so it is important that a new member shares these values. On a more practical level, I tend to gravitate towards students that are more question- or concept-oriented (as opposed to system- or technique-oriented). Finally, I have a soft spot for students that are galvanized by learning and sharing new things.


QUIK
SILVER


BEACON
CENTER FOR THE STUDY OF EVOLUTION IN ACTION

Janneke Hille Ris Lambers

Plant community ecology

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meadowatch.org

Mentoring Philosophy and Expectations (HilleRisLambers)

Graduate school should primarily be fun! The freedom to pursue ecological questions, continually discuss ideas and thus be intellectually challenged by super smart people, learn, and discover something new should *generally* be incredibly exciting. On the other hand (from personal experience), getting a PhD often involves feeling stupid, working long hours on tedious things, and discovering, only after the fact, what series of seemingly arbitrary unwritten 'rules' should be followed to jump the necessary hoops. This document is my attempt to demystify what I think it takes to have a successful graduate career. Some of this advice would hold for graduate students in any life sciences graduate program, other advice is particular to this institution and still other very specific to my lab.

Goals (What should you learn during graduate school?)

During graduate school, you should familiarize yourself with all aspects of being a thoughtful and creative scientist. This is an ongoing process for all scientists, and you will never quite be done with it (a wonderful but sometimes frustrating aspect of our job!). By the end of your graduate career, I hope you know way more than I do about some topic, have mastered skills I don't have, and operate as a partner in our pursuit of understanding (and communicating) ecological topics. But know it will take you some time to get there! Here are some skills I believe you need to be a first rate scientist (and colleague), and the ways in which you can practice and learn those skills.

1. *You should be able to identify, talk about, criticize, and conduct interesting and important science.* You will learn how to do this by reading and discussing the primary literature, planning new experiments / field studies, analyzing your data, writing grant proposals, and communicating the results of your research broadly.

2. You should learn to teach and mentor a broad range of people ranging from your scientific peers to the general public. You will learn how to do this by serving as a teaching assistant, giving regular talks in broad venues, and mentoring undergraduates.

3. Most importantly, you should take charge of your PhD experience! Believe me, I can't drag you through it (no fun for either of us). You should learn how to manage your time (in particular, what to say yes and no to), the logistics of your research, ask for help and advice when you need it, and definitely let me know when you are struggling so I can help.

What you can expect from me

1. *Intellectual support.* My aim is to help you become an intellectual peer. I will do this by pushing you to come up with an interesting/important research projects (that are also feasible), encouraging you to read widely (and relate what you read to your own research), involving you in the discussion/pursuit of science, and introducing you to other excellent scientists (in labgroup, ecoseminar, meetings).

2. *Advice.* I will meet with you regularly about your research and science career (I meet with my grad students and postdocs individually at least biweekly). I will help you think about your long-term goals, what short-term goals you can set to meet these, and motivate you to keep to deadlines.

3. Skill-based support. There are lots of skills you need to be a scientist, including (but not limited to) grant writing, paper writing, giving talks, reading and reviewing papers, mentoring, teaching, outreach. I will require you to participate in these scholarly activities, read and provide (constructive) feedback on drafts and help you strategize to overcome difficulties if any of these skills are particularly hard for you (some will be).

4. *Research and Salary funding.* Where I can, I will help support your salary (RAships) and research (funds), but this will depend on grant funding in the lab. Unfortunately, the uncertain nature of grants means I cannot guarantee a priori that all my students will be funded by grant support. However, I do not take on students when I do not anticipate being able to fund their salary during the first 2-3 summers of their field work. Regardless, I will help you in what should be a continual quest to fund yourself – both fellowships and research grants, meaning, I will read and comment on drafts of grants and provide letters of reference.


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Nemhauser Lab Mentoring Philosophy

My objective as a mentor is to provide an environment that fosters high-level scientific achievement, while also emphasizing training in the breadth of skills needed for trainees to be highly competitive at the next career stage.

The competencies we work on together follow published guidelines for excellence in STEM training (Verderame *et al.*, 2018). These competencies include: (1) broad conceptual knowledge of plant development and synthetic biology; (2) deep knowledge on a specific research project within those domains; (3) critical thinking skills; (4) experimental skills; (5) computational skills; (6) collaboration and team science; (7) ethical and responsible conduct including institutional change; (8) communication skills; (9) leadership skills; and (10) resilience and self-care.

I am committed to facilitating success for trainees while centering their own definitions of success. I use Individual Development Plans, in combination with formal annual meetings and informal check-ins, to help graduate students and postdoctoral scholars make concrete plans to meet their goals.

Some examples of supportive actions:

Critical Thinking; Computational Skills. In lab meetings and in individual bi-weekly meetings, I discuss experimental design, strategies for data analysis and interpretation, and model building with my trainees. Trainees prepare an agenda for our one-on-one meetings that prioritizes areas where they need support, reminding them of their own agency in their educational progress and professional development.

Communication. Trainees are encouraged to attend at least one professional meeting per year after their first year in the lab. They also actively participate in writing manuscripts and grants, as well as practicing effective communication through teaching and outreach opportunities.

Leadership/Management Skills. All trainees are encouraged to mentor at least one undergraduate intern during their time in the lab. As part of this mentorship, graduate students and postdoctoral scholars assist their intern in applying for scholarships and awards, and help them prepare a poster for the annual undergraduate symposium. By asking trainees to act as a mentor for an undergraduate, and then discussing this experience with them, I have found that the trainee gains new perspective on what they need as mentees, as well as how to more effectively ask for that support.

Equity. There is incontrovertible evidence that inviting diverse voices into the laboratory leads to smarter, more creative, more productive science (e.g., AlShebli *et al.*, 2018). Beyond the practical benefits, pursuing equity is a moral imperative (Nemhauser and Haswell, 2019). During one-on-one meetings and in informal check-ins, I monitor the culture of the lab and try to identify any early warning signs of intolerance or bullying behavior. I seek out trainings for improving lab and institutional culture (and encourage trainees to do the same). We regularly have informal discussions as a group on best practices and actions to foster institutional change.

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LED
ZEPPELIN

David Perkel

Neural Mechanisms of Vocal Communication and of Bipedal Balance

faculty.washington.edu/perkel

David Perkel

MENTORING PHILOSOPHY

Please provide a brief description of your mentoring philosophy.

My overall philosophy is to help each trainee (used here as shorthand for undergraduate, post-baccalaureate, graduate student or postdoc) to own his/her/their project, to become the world expert on that project and to be able to discuss the rationale, design, data collection and analysis, interpretation and implications of the work. My goal is for each individual to be able to present his/her/their work clearly both orally and in writing and to make thoughtful choices about data presentation.

I want trainees to choose from a menu or generate a customized project. I learned as an Asst. Prof. to listen to trainees' ideas; one rotation student substantially changed the course of my lab's research, with hugely positive consequences.

I meet at least weekly but usually much more often with each trainee, to discuss progress, problems, strategy, troubleshooting, career goals and other topics.

Describe a few of the career paths your trainees have pursued after leaving your lab.

I have trainees who have gone in a wide variety of directions, ranging from active research, to teaching to science writing and career services. I am proud of all my trainees and look forward to our nearly annual reunion at the Society for Neuroscience Meeting.

My students are typically supported from my own grants or from training grant slots. In a few cases, they have taken TA support, but my goal is to provide the best support possible to further my students' research and other career goals.

Daniel Promislow

Evolutionary genetics of aging and age-related traits

promislowlab.org

Twitter @DPromislow

Promislow Lab mentoring philosophy

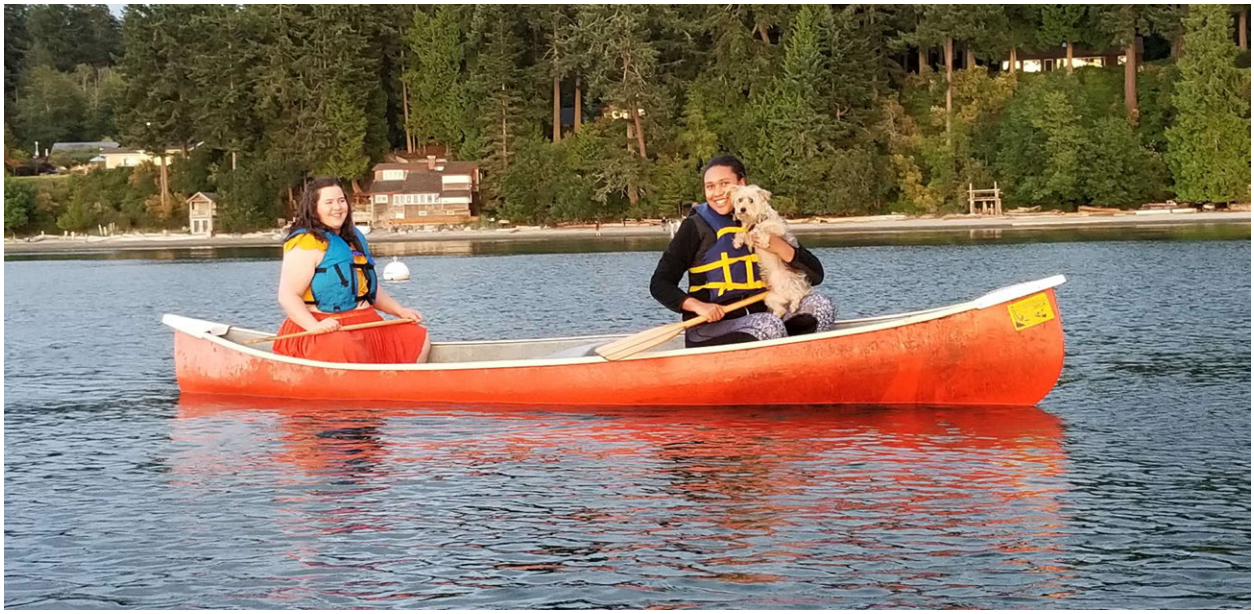
As a mentor to graduate students, I seek to help students discover their full potential, to help them figure out their short-term and long-term career goals, and to help them get there. I have seen each graduate student in my lab follow a unique trajectory of intellectual growth, and similarly, for each student I need to bring unique approaches as a mentor to the relationship. To start with, I strive to help create a lab environment that is supportive, collaborative, respective, and always open to new ideas and approaches. People in my lab work on diverse questions, but we try to be open to the fact that there are always interesting connections one can find between disciplines, and sometimes the most interesting questions are those that exist between disciplines.

I meet regularly with each graduate student. Sometimes we will use that time to discuss experimental design or data interpretation, sometimes to discuss short-term or long-term career goals, and sometimes to discuss whatever the student wants to talk about that is relevant to the exciting and sometimes quite challenging journey of graduate school. Former students from my lab now have diverse careers, from senior lab manager, to college professor (some more research focused, some more teaching focused), to USDA researcher, to young adult science writer and novelist. I don't believe there is one 'right' career path from my lab. Rather, my goal is to help each student best define their desired career goals, and to help them achieve those goals. I have encouraged students to take part in outside activities, whether that is helping with science fairs, taking special workshops, or teaching summer courses, to help them figure out what they want to do after their Ph.D.

Students who join my lab are encouraged to design their own projects that fall within the very broad scope of what the lab works on, and to identify outside collaborators so that they can benefit from approaches and technologies that will then *transcend* the scope of what the lab works on. So far, every graduate student who has done their Ph.D. work in my lab has completed their Ph.D. within 5 years.

In addition to the daily informal interactions that take place in the lab, we also meet weekly in lab meetings, and also have additional journal club meetings. Students and post-docs typically choose what papers we are discussing. The lab has many undergraduate researchers, and they are welcome at these meetings, and are considered full and respected members of the lab.

The structure of the lab varies over the years, but an ideal size might be 3-4 post-doctoral fellows, 3-4 graduate students, a senior scientist, 1-2 technicians (depending on funding), and about 10 undergrads, with each undergrad working closely with a graduate student or post-doc.




ABERCROMBIE
& FITCH

Jeff Rasmussen

Development and repair of sensory structures in the zebrafish skin

jraslab.org

Twitter @jraslab

Jeff Rasmussen

Mentoring Philosophy

The projects in the lab are, by nature, quite interdisciplinary (blending developmental biology, neuroscience, regeneration, and disease modeling). To tackle these projects, we use a variety of *in vivo* and *in silico* techniques. Lab members are expected to work hard, ask questions, and have fun doing science.

We seek to recruit trainees from diverse backgrounds and with diverse skill sets. We take a growth mindset[1] approach to mentorship and aim to develop new skills based on individuals' goals and projects. The lab actively engages with the zebrafish, developmental biology, and neuroscience communities in Seattle. Lab members have a variety of opportunities to present their work and network within this broad community (departmental meetings, joint lab meetings, local and regional meetings).

[1] https://www.brainpickings.org/2014/01/29/carol-dweck-mindset/

Alejandro Rico-Guevera

Behavioral ecophysics in birds

alejorico.com

Rico-Guevara **MENTORING PHILOSOPHY**

The Behavioral Ecophysics lab focuses on the study of organismal **mechanisms** (e.g. physiology, biomechanics) in light of **biotic** and **abiotic** interactions, with the goal of establishing explicit links between physical laws and rules of life, at an organismal and ecological scale.

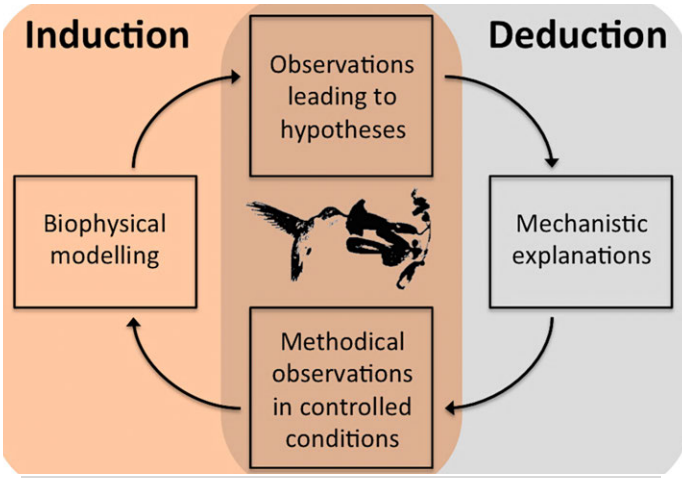
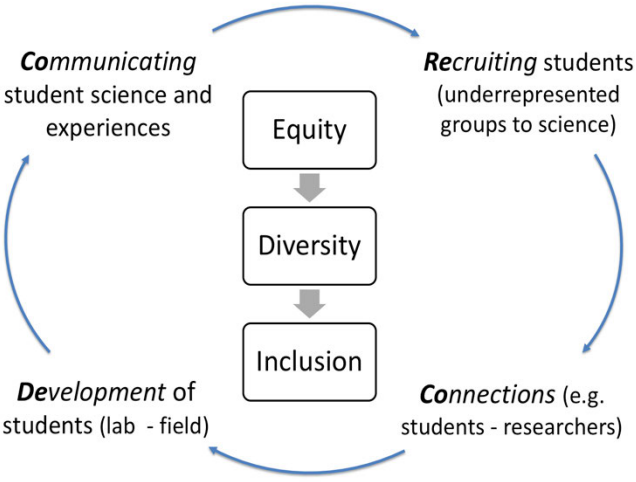


Figure 1. Scientific method applied to my research.

To accomplish this goal, I follow a tailored cycle of deduction and induction (Fig. 1). The induction-deduction method is excellent for use in mentoring students: it allows proposing related but novel projects, and permits us to constantly reassess how we grasp the system by collecting new data. It is the perfect set up to link mathematical modeling, by exploring the parameter space that I have narrowed down, with field data. To involve students, I have developed scenarios in complementary settings, from lab experiments to trials in hummingbird feeders, to floral foraging, in order to translate the insights from controlled conditions all the way to species interactions in the wild.

As supervisor I have learned that there is no magic formula that works for every mentee, so I am very attentive of my advisees' needs and I am flexible about the degree of involvement for different stages on their development. I like deadlines, I encourage writing, and I am very passionate about trying to solve big questions, so I love talking science with my students! I advocate for a wider approach to science; to me, trying to understand how nature works and evolves is what drives me to take on new challenges, and pursuing novel approaches with students and collaborators. **I am open for my students to explore their own questions**, and I want to be able to help them as much as I my expertise allows me to. I am fully committed to help in any way I can to increase diversity in science, in all fronts, and also I believe in cross-disciplinary studies (e.g. applying technology to physiology and ecology).

I like to complete cycles, and the one on the right will be our lab's ***CoReCoDe***. I am deeply committed to foment equity and inclusion in higher education. This commitment includes a strong focus on underrepresented groups in science. I strive to achieve this by encouraging and supporting my mentees' careers; and by fomenting a lab culture of communicating the importance of our research to both scientists and non-scientists, recruiting students forming future researchers acknowledging that excellence can only be achieved through diversity of perspectives, fostering connections between students at all levels and researchers at all levels (undergrads-techs-grads-postdocs-collaborators, etc.), and investing heavily in the development of students both in their research skills in different settings, and in their work-life balance. I am constantly assessing new ways to promote equity at all levels; it will be my chief endeavor to make the ecophysics lab an example of inclusion and success for underrepresented groups in science.



Jeff Riffell

Neuroecology and chemical communication

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Twitter @RiffellLab

Riffell Mentoring Philosophy

General Mentoring Philosophy: Young scientists and students are indispensable for a successful and exciting lab. Incoming scientists – whether undergraduate, graduate, or postdoctorate – bring fresh ideas and perspectives to the laboratory. By contrast, more seasoned lab members provide important mentoring and a historical foundation to help test hypotheses and provide methodological training. In particularly, a "mentoring ladder" is critical for the success of any lab, and I try to provide a supportive environment where young scientists can explore exciting topics while gaining interdisciplinary training in diverse methodologies. This latter point is an important one, and one where I've benefitted from having fantastic postdoctoral and senior graduate student colleagues who've provided effective mentoring for scientists at a variety of educational levels. My mentoring experience includes methodological training (sensory neurobiology, central nervous system recordings, chemical analytical methods, behavioral and advanced quantitative analyses), as well as providing co-advising and training of undergraduates, graduates and postdoctorates. Over the years, I've tried to create a lab environment that is built on the foundations of open communication and discovery- and excitement-driven science.

Postdocs: Postdocs are vital for a successful lab, and I have been extremely lucky to have had fantastic postdoctoral colleagues who not only are excellent scientists but are also fantastic mentors. I consider postdocs in my lab to be my colleagues. My expectation of postdocs include that they manage their time and research, to effectively prioritize their responsibilities, to pursue funding opportunities, and demonstrate leadership in the lab, which includes mentoring and helping graduate and undergraduate students. In addition, postdocs assist me in organizing lab activities (lab meetings, social activities). In all cases, open communication is important. My reference frame for mentoring postdocs is to teach new scientific methods, and provide mentoring in teaching, grant writing, mentoring and project management, with the goal to provide an environment where the postdoc reaches the final stage of becoming an independent researcher.

Graduate students: I am part of the Department of Biology and Graduate Program in Neuroscience, and both programs offer excellent training for graduate students in interdisciplinary research. In general, my laboratory uses diverse approaches including those with chemical, sensory biological, neurobiological, behavioral, and ecological foci. For this reason, my students have benefitted from the interdisciplinary research at the University of Washington. It is common for my students to have committee members in the Departments of Chemistry, Physiology, Applied Mathematics, and Engineering, as well as my own department (Biology). As with my postdoctorates, I encourage an environment that involves open communication. This is structured around weekly meetings and an

'open door' policy. One of the things that makes me happy is to mentor and train the next generation of scientists.

In general, my expectations of graduate students involves: (1) that they are excited and curious of the natural world and the organisms around them; (2) that they recognize an unsuccessful experiment or a failed hypothesis is not reflective of their self-worth (indeed, unsuccessful experiments are the norm, and should be treated with a combination of 'pulling up the sleeves' and excitement for examining a problem in a new light); (3) that they take full advantage of the expertise and resources around them, and they take responsibility for their project, which includes understanding the literature and gaining experience in the experimental methods. By the time you graduate, point #3 will be critical because you will need to be both self-sufficient and self-motivated to accomplish your career goals. (4) An important part of a safe and supportive lab is one where everyone treats each other with respect and kindness. This is particularly important for cases where ethnic, cultural or philosophical differences may exist.

I encourage my graduate students to travel and attend national and international meetings (Gordon Research Conferences, International Congress for Neuroethology, Society for Neuroscience, International Meeting for Chemical Ecology, Entomological Society of America, Association for Chemoreception Sciences, Society of Integrative and Comparative Biology, etc...). In addition, I support students that seek training in summer courses (e.g., Friday Harbor Laboratories, or Marine Biological Laboratory, others) and visiting collaborators in other labs to gain new experience and techniques.

At times, working on your PhD can seem a long and arduous process, while at other times it can be extremely joyous and go by too quickly. In other words, there are peaks and valleys. I encourage my students to be honest with themselves (and me) regarding their mental health. It's not a mistake to seek help when life seems overwhelming. Ph.D projects can also be difficult, with failed experiments the norm. But I try to guide students to have alternate strategies when their hypothesis fails, or when their project seems to be in danger. Ultimately, however, the student is the person responsible for the project, and that it often takes a lot of bandwidth to get the project going and keep the momentum.

Undergraduate students: Undergraduates are an important part of the lab. We typically train ~5 undergraduates per year. Undergraduates are provided a graduate student or postdoctoral mentor who provides training on different techniques or bioassays. Undergraduates typically start out as 'volunteers' before gaining research credits or paid opportunities. An important part of working in the lab is balancing coursework with the research experience; we ask that students spend approximately 10 h/week in the lab.

Jennifer Ruesink

Field marine community ecologist

biology.washington.edu/people/profile/jennifer-l-ruesink

Jennifer Ruesink
Mentoring

Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.

I was fortunate to learn to do science with mentors who were fundamentally fascinated by the natural world. They were motivated by their curiosity, their interest in making observations and determining causal relationships, and the joy that came across as they discussed what they saw with others. Above all, I wish to cultivate that sense of joy in science for everyone in the lab.

How would you describe a successful graduate student?

A successful graduate student has learned how to love to write. And rewrite. And rewrite. Alternatively, the key to success may be the strength of will to set a time for writing every day, while postponing all other tasks until the time for writing is complete. I emphasize the willingness to write for three reasons: first, because the exit ticket from graduate school is a written document; second, because the calibre of writing that is ready for peer review is such a step up from what is a typical expectation in undergraduate classes – including the scholarly effort to place the research in context, and clarity of argument from evidence; and finally, from a number of examples of graduate students getting stuck at that step. A mentor can help set deadlines, provide feedback on writing, and suggest new approaches for getting un-stuck. In UW Biology, we also encourage that the thesis might as well be a set of published manuscripts, bound together. Ultimately, however, it rests on the graduate student to generate this written record their effort and discovery.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

Students working on research in soft-sediment estuarine ecosystems have typically had RA or fellowship support for about three-fourths of their time in graduate school. In most cases, these stipends are part of larger projects funded in the lab, but occasionally through research grants authored by students. Students working in other marine systems have been successful in receiving department support for their research costs, but have often TA'd for their stipend.

Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?

The University of Washington is like a candy store for ecologists: so many opportunities exist for out-of-lab discussions and collaborations, including several units in the College of the Environment, and the international use of Friday Harbor Laboratories. Lab members participate each term in ecology seminar, a discussion group primarily among ecologists within Biology, but also open to others. We also meet regularly with several labs studying estuaries and eelgrass from different perspectives.

How often do you meet with your graduate students?

Within the lab, we meet for an hour weekly, usually with a focus of helping each other communicate: providing feedback on manuscripts or talks, or a forum for project ideas. I also meet with each graduate student individually for those at a stage where this one-on-one communication is helpful to them in navigating graduate school. I have an open-door policy and am happy to meet as-needed when issues come up.

Describe a few of the career paths your trainees have pursued after leaving your lab.

Four major pathways are evident among the students earning a PhD in my lab: faculty members at universities with strong research emphasis; agency scientists and data analysts responsible for the quantitative support of natural-resource decisions; technical writers; and biology educators. These pathways reflect a range of emphasis on data collection, analysis, and translational efforts to communicate environmental science to students and the general public.

What role do you think (if any) TA-ing has in earning a PhD?

TA-ing has numerous benefits in becoming a scientist. This answer is thus a little different from the prompt about earning a PhD. TA-ing provides practice in time management, and in using small portions of unstructured time to move forward with research projects. It provides many opportunities to speak in front of groups and to become more comfortable with science communication and public speaking. Because there is no better way to learn material than to teach it, TA-ing develops a graduate student's content knowledge and potentially opens up new connections and questions. UW Biology is especially fortunate to have faculty whose research focus is in evidence-based teaching, so TAs benefit from practicing within a culture of active learning and trying new methods in the classroom.

Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?

Undergraduates have been instrumental in the research carried out by the lab. These undergraduates tend to have long-term paid associations with the lab: about half have been

lead authors on papers, and most have used their undergraduate research as a platform to launch into graduate school. Additionally, many of the graduate students in the lab have mentored undergraduates who have contributed to their PhD research, or as summer interns.

How do you handle conflict in your lab?

Honestly, conflict is painful to me, and I need to continue to work hard in developing a growth mindset about conflict. Fortunately for me, the university provides excellent guidance in terms of responses to conflict (e.g., who needs to be notified, who serves as a resource). The first step is to cultivate an atmosphere of openness and safe space where people can raise issues, and expect that a response will further resolution, rather than be defensive. This sort of lab culture is a major goal.

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

Outreach efforts include participation in open houses, mentoring K-12 students, responding to email inquiries about "what's this thing I found on the beach?", and working with UW News to generate publicly-accessible highlights of published research. Recently, an early-career lab member presented on the ecosystem functions of eelgrass at "Willapa on Tap," open to the general public as a forum to better understand coastal ecology (70 people in attendance).

Are there differences in the skills needed to be a successful scientist today than those you learned in graduate school? If so, please describe these differences, and how you help your students acquire them.

Ecology has become more quantitative since my time in graduate school. The principles of careful study design remain the same, but the toolbox of options for finding pattern in data – along with new types of data – has expanded dramatically. I encourage graduate students to get structured quantitative learning through coursework, which often occurs through options outside biology at UW.

Sharlene Santana

Mammal ecomorphology and macroevolution

faculty.washington.edu/ssantana/wordpress

Twitter @SESantanaM

Santana Lab – Mentoring Philosophy

Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.

I greatly valued the opportunity that my own mentors gave me to be independent in my research interests and approaches, while being available to provide advice so my plans wouldn't fail miserably. I encourage my students to pursue the research topics that they are passionate about and to develop their own questions, while also advising them to maximize the possibilities of success. Being an integrative biology lab, it is often the case that part of a student's dissertation will fall well outside my expertise, so I encourage and help my students to connect with relevant colleagues outside the lab to seek mentorship, which in turn also helps them expand their professional network.

How would you describe a successful graduate student?

A successful graduate student is an independent researcher; they have gained a deep and broad understanding of their field, are able to identify critical gaps and the most interesting questions within it and propose potential approaches to address them. They are excited and passionate about their research. They are also aware and critical of inequalities in science.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

Students in my lab are generally funded through a combination of research and teaching assistantships. Research assistantships may come from federal grants that require students to assist in a particular research project, or from endowments that belong to the Mammalogy Department at the Burke Museum. Student research costs are funded through current grants (if the student's research falls within the theme of the grant) or through the student's own Departmental or extramural grants.

What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?

Most of my students develop ideas for their research projects during their first year after joining the lab, although we do discuss potential projects before they apply to our graduate program. During their first year, I encourage my students to take on a small research project (e.g., a portion of an ongoing project in the lab) so that they can start learning tools relevant to our field, become more confident in their research skills, and develop ideas for their dissertation. As our work is largely interdisciplinary, tutorials, rotations, and

discussions involving other faculty members are also important for the development of my students' research projects.

How often do you meet with your graduate students?

The frequency of meetings with my graduate students varies across students, throughout the year, and across years during their PhD. This can range from once a week (e.g., during regular quarters) to once or twice per quarter (e.g., in the summer when they are away doing fieldwork), depending on how often we need to communicate about research progress, obstacles, etc.

Have you trained graduate students who now work outside of R1 academic institutions? If so, please describe differences (if any) in your approach to their training.

Two of my recent PhD graduates expressed their interest in careers outside of R1 academic institutions (teaching and applied wildlife research) about halfway through their PhDs, and we worked together to ensure that they would gain additional skills necessary for those career paths. For example, one of these students included a biology education research faculty member in her committee and sought out TAing opportunities that would complement her teaching portfolio. I helped the second student make connections with colleagues at various institutions (e.g., Zoos, USFW) to seek out advice on necessary skills and how to navigate that job market.

What qualities do you look for when recruiting a new student into your lab?

Curiosity, creativity, maturity, motivation, previous research experience, and a well-thought-out justification to conduct a PhD and join our lab.

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

As part of the Burke Museum, the members of my lab regularly engage in public outreach activities targeting University and K-12 students, and the general public. These include: creating and presenting mini-exhibits showcasing their own research, participating in fundraising events, leading tables at large family events (e.g., "Meet the Mammals", attended by over 1,000 people each year), visiting schools to talk about their research, creating educational materials showcasing research process and products for classroom or public use (e.g., Burke boxes, augmented reality materials, etc.).


COMING FALL 2019

Christian Sidor

Vertebrate Evolution during the Permian and Triassic

biology.washington.edu/people/profile/christian-sidor

https://www.burkemuseum.org/collections-and-research/geology-and-paleontology/vertebrate-paleontology

Twitter @ChristianSidor

Christian Sidor

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

At our beginning of year meeting, I ask each student what anticipated costs they will have to accomplish their research goals and to outline plan to fund them. If there are some costs can be supported by one of my grants, we make note of that. Then we look at what grants the student could apply for (e.g., departmental, professional society, etc.) to cover the remainder. Stipend funding comes from three sources: departmental teaching assistantships, research assistantship from one of my grants, or museum funding. The latter comes from the vertebrate paleontology graduate fellowship and typically provides summer support so that students can participate in fieldwork or other activities away from campus.

What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?

Students very rarely arrive at UW well versed in the paleobiology of Permo-Triassic vertebrates, which is the focus of my lab. For this reason, I typically structure a first-year project with each student in order to get them reading the literature and starting to think about research ideas, in addition to having a project that should be publishable in a year or two. By the time the general exam rolls around, the goal is for each student to develop their own thesis research project. If this research aligns with the goals of one of my grants—great, but it's not required. In fact, most of my students wind up doing thesis research on Permo-Triassic vertebrates only tangentially related to the main thrusts of my research.

Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?

We all attend the weekly PaleoLunch seminar, which is held Autumn, Winter, and Spring quarters. More sporadically, we attend seminars in ESS and the dental school, depending on the relevance of the topic covered.

How often do you meet with your graduate students?

Once at a mandatory beginning-of-year meeting, weekly at lab meetings, and individually as needed. Some students prefer regular check-ins (e.g., bimonthly), but my door is almost always open.

What do you see as the ideal size and composition (e.g. ratio of grads to undergrads to postdocs) of your lab?

Three graduate students seems ideal, staggered roughly 2-years apart. Two or three undergrads is typical. I've only rarely had post-docs, each tied to a specific NSF-funded project developed collaboratively.

Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?

While I don't actively recruit undergrads, sometimes the graduate students in my lab will identify undergrads to assist them with their research. Otherwise, the undergrads are the ones who do seek out our lab on their own and so they tend to be highly interested in paleo. Usually we have only two or three undergrads in the lab, but we invest heavily in each and historically most have gone on to publishing a paper and getting admitted to a highly selective graduate program.

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

All of my students participate in public outreach, most often through the Burke Museum. Each year we engage with the public at Dino Day, which generally takes the form of pulling specimens from the collection around a theme (e.g., recent research or fieldwork projects) and then talking about those fossils. Several of my students have also spoken at local K-12 schools (set up through the Burke's education department) or written blog posts on the museum's website about recent field experiences.

Adam Steinbrenner

Plant immune systems

steinbrennerlab.org

Twitter @ADSteinbrenner

Steinbrenner Lab Mentorship Policies

Our goal is to understand plant immunity through reading, discussion, and experimentation, and then share insights with the world. As a Principal Investigator I hope to mentor the next generation of plant biologists. I aim to foster trainees' own curiosity, skill, and independence. I work to maintain an environment where trainees can build these foundations in a safe and welcoming space and where they can grow and be challenged as scientists.

All mentorship relationships are different; I use an expectations rubric to guide each. (See below.) Two weeks after starting rotation and while settling into a routine, we will both fill this out and discuss in addition to any other aspects of mentorship in question. My answers for a typical 3rd year graduate student are below; these change according the level of trainee (tech → postdoc) and over time. For undergraduates: I have a set of generalized expectations you will receive when joining the lab, but your day-to-day expectations will come from your immediate mentor (a technician, graduate student, or postdoc).

Expectations of Research Supervision

Supervisors and research students often have differing expectations of supervision. The supervisor and student should complete this scale independently and then compare their responses. Circle a number depending on whether you think the responsibility lies more with the supervisor or the student.

	Supervisor	Rating	Student
1.	It is the supervisor's responsibility to select the research topic.	1 2 **3** 4 5	The student is responsible for selecting her/his own topic.
2.	The supervisor should decide which theoretical framework and/or methodology is most appropriate.	1 **2** 3 4 5	The students should decide which theoretical framework and/or methodology they wish to use.
3.	The supervisor should develop an appropriate program and timetable of research and study for the student.	1 2 **3** 4 5	The student should develop their own program and timetable of research.
4.	The supervisor should ensure that the student has access to the resources and facilities that they need.	1 2 **3** 4 5	It is the student's responsibility to locate and access all necessary resources and facilities.
5.	It is the supervisors' responsibility to advise the student of all relevant policies, procedures and requirements.	1 2 3 **4** 5	The student is responsible for being familiar with the relevant policies, procedures and requirements.
6.	It's up to the supervisor to build an appropriate professional relationship with the student.	1 2 **3** 4 5	It is the student's responsibility to manage the relationship with their supervisor.
7.	The supervisor should insist on regular meetings with the student.	**1** 2 3 4 5	The student should decide when she/he wants to meet.
8.	The supervisor should check regularly that the student is working consistently and on track.	1 **2** 3 4 5	The student should work independently and not have to account for how and where time is spent.
9.	It is the supervisor's responsibility to should ensure that the thesis is finished by the required submission date.	1 2 3 **4** 5	It is up to the student to finish within the allocated timeframe.
10.	The supervisor should insist on seeing all drafts of work to ensure that the student is on the right track.	1 2 **3** 4 5	It's up to the student to decide when to show drafts of their work.
11.	The supervisor should assist in the writing, editing and presentation of the thesis.	1 2 3 **4** 5	The writing of the thesis should only be the student's own work and they must take full responsibility for presentation of the thesis.
12.	The supervisor is responsible for deciding when the thesis can be submitted for examination.	1 **2** 3 4 5	The student should decide when they are ready to submit the thesis for examination.

Adapted from: Moses, I. (1985). Supervising postgraduates. HERDSA Green Guide No 3. Kensington: Higher Education Research & Development Society of Australasia.

www.ithinkwell.com.au Supervising PhD Students, Kearns and Finn, 2017.

My answers to additional mentorship questions formulated by myself or by the UW Biology Department's Graduate and Postdoctoral Committee are below. I hope they give a sense of my mentorship style. Feel free to email with any additional comments or questions.

How frequent are meetings? How are projects planned?

At minimum, weekly one-on-one meetings are required for all non-undergraduate trainees. We schedule these by quarter. This is a forum to discuss experiment planning, results, and analysis, but I also encourage other items to discuss (e.g. a paper or technique of interest, conferences on the horizon, job market preparedness etc.)

As a new lab, I anticipate that most projects will fit within a strategic framework that I introduce as a trainee considers joining the lab. Specific projects have large room for flexibility, but details and scope are always good topics for the one-on-one meetings.

Leadership and Independence:
My style is to provide direction but leave detail management to the trainee as much as possible to build sense of ownership, independence, and confidence. Postdocs are especially encouraged to develop independent research angles that facilitate career goals. For mentees at all levels, I will bring up opportunities for exposure and experience through e.g. guest lectures, external presentations, suggestions to be a reviewer etc.

I encourage mentorship of undergraduates and any others relative to whom your skillset is more developed. I will suggest undergraduate pairings in consultation with each potential mentor.

Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?

I anticipate that undergraduates will be important contributors to our research. Students will be recruited through 1) Planned outreach through individual instructors e.g. via selected lectures in the Intro series courses (180/200/220), 2) Outreach to specific student groups, e.g. the Bio Students for Equity mentorship program in Bio200, and 3) Students who reach out directly by email. I pay particular attention to equity issues involved with how students "find" their research group, and the fact that a disproportionate number of URM and first-gen students may not know that option 3 is even possible.

Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?

September 2019: We participate in plant group meetings held jointly with the Imaizumi and Nemhauser labs (their labs are next to us in our "pod" in the 5th floor of LSB.) Steinbrenner lab meetings will also be held to catch up on logistics and run a journal club on plant defense (welcome to visitors). Timing and frequency TBD.

What do you see as the ideal size and composition (e.g. ratio of grads to undergrads to postdocs) of your lab?

A critical part of scientific training is access to laddered mentorship, where not only myself but those at your potential next career stage (undergrad → tech → grad → postdoc) are readily accessed. My lab aims to have all stages represented in roughly even proportion, but specific ratios will depend on many factors.

How would you describe a successful graduate student?

In the broadest sense, a PhD indicates deep, working expertise in a particular topic and engagement with others on that topic across levels of understanding (from experts in the field to members of the general public). Research, teaching, and outreach are all ways to develop skill sets and build toward this training goal. A successful graduate student seeks excellence and applies their own passion and dedication to specific projects at hand, working toward this larger goal.

Adam Summers

Comparative Vertebrate Biomechanics

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Adam Summers

I have been asked to describe the lab culture by answering these prompts. I am concerned that my shortcomings include an inability to perceive lab culture. I asked my lab group to take a look and make additions and changes.

Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.

I was a highly collaborative, or potentially scattered, graduate student. My PhD advisor was listening to me talk about a project at a marine lab in Maine and she asked if I had any idea how many projects I was working on. I admitted that I had a vague, but potentially incorrect, idea of the number, and no concept of the breadth. She required me to make a list of each project, the collaborators, the current status (data collection, modeling, writing, figures, etc.) and the target journal for the output. This was transformative for me. I was very happy with the breadth of my collaborations and decided, in the face of some skepticism from academics other than my advisor, to embrace my wide interests. I continue to maintain a very broad set of collaborations that span many taxa and different fields. I encourage my students to collaborate widely and I am quite happy to not be an author on their work. (APS - PI)

How would you describe a successful graduate student?

One who enjoys graduate school a lot. It is a special time when you are allowed largely unfettered access to questions and organisms, great colleagues, and unusual experiences. It is meant to be fun. Regardless of whether you want to be an academic or have some more reasonable career path in mind, this stage should be fun. (APS - PI)

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

My students are typically funded on TAships and grants that they write to support their research. We have resources in the lab to do lots of projects at no or low cost, but for field work or expensive new gear students, often with my collaboration, write grants. I will rarely have a quarter of support on a grant of mine, but if I use that to support a student I do not expect them to ‘work’ on the grant. (APS - PI)

Not sure if this goes without saying but you also appreciate a student who isn't afraid to try new techniques and equipment necessary for their projects. (CD - Grad Student)

How often do you meet with your graduate students?

I am available via email, slack, and messenger pretty much all the time. I travel a lot, but when I am in the lab I am rarely unwilling to meet. When my students are at Friday Harbor Labs I see them pretty much every day. At least to say hi. (APS - PI)
Sometimes students randomly walk into my office and sit on my couch for hours while they write code and/or manuscripts so that they can intermittently ask me questions as they go (CD - Grad Student)

Always available in some form or another and when in lab will take the time to sit and talk with you about anything, whether it be to work through an idea or problem, or some exciting thing you just saw a fish do. (KH - Grad Student)
When around always available to chat, troubleshoot, etc. Also very reachable by email, slack, or text which is very helpful when you cannot be at the labs all the time. (KC - Grad Student)

Describe a few of the career paths your trainees have pursued after leaving your lab.

My Ph.D. students are (1) headmaster at a school in Sweden, (2) assistant professor, (3) group leader at a Max Planck, (4) associate professor, (5) assistant professor, (6) post-doc. Three students have graduated with a masters from my lab and they are (1) an associate professor, (2) research lead at a biotech firm, (3) stay at home dad. My post docs include (1) associate professor, (2) professor, (3) technical lead in industry, (4) internet mogul, (5) K12 educator, (6) small business owner based on tech we created in the lab, (7) post-doc, (8) assistant professor. (APS - PI)

What role do you think (if any) TA-ing has in earning a PhD?

I was a teaching fellow every quarter of my masters and my PhD. In my opinion it was a key to structuring my time, making me see the value in teaching well, showing me the diversity of minds that love biology, and forcing me to command larger bodies of knowledge than I otherwise would have. (APS - PI)

Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?

At FHL there are only a few undergraduates to work with. We usually have one, and rarely two. They work with post-docs and grad students to develop projects that interest them. We typically have at least one publication with an undergraduate co-author for every student

who stays two years in the lab. We also have a strong summer REU program and regularly publish those projects. (APS - PI)

Despite how far the lab is from main campus, I had no trouble coming up for a quarter (or two) and several weekends during my undergrad. Always a fun, productive, and collaborative time. Even got two papers out of it. (JH - Former undergrad, current Lab Technician)

How do you know when a graduate student is ready to graduate?

So far it has been when they felt ready to move on to something else. I have not had any stay longer than six years. I suppose at some point I might have to work out a method to dislodge a student who wanted to stay too long. I don't know that I have more than about five years of interesting new material as a mentor for a graduate student. They naturally find other things to do at about that point. (APS - PI)

Have you trained graduate students who now work outside of R1 academic institutions? If so, please describe differences (if any) in your approach to their training.

I have students working outside R1 institutions. I am not sure I do anything particularly differently. They have different desires and needs, and I do my best to make sure they are keeping the concept of having fun in graduate school at the forefront. (APS - PI)

How do you handle conflict in your lab?

Pray there is none. (APS - PI)

Clear communication. Fostering an open, but respectful environment where labmates can talk with each other. Adam, you have been good at heading things off at the pass before - and taking an active role. Never got the sense you were being aggressive, always compassionate. (MK - post doc)

Talk to all parties involved individually. Make sure everyone's needs are heard. See what can be done about making sure everyone's needs are met. (SF - Grad student)

First of all, Adam does a great job in preventing conflicts by creating a very welcoming, creative and comforting environment. He never refuses or severely postpones a meeting if needed or wanted and takes every idea, problem or perspective seriously. And for what I have seen in the lab the rare conflicts were treated the same way; Adam open mindedly

talked with everybody involved and searched for compromises. I couldn't think of any better way to deal with conflicts. (SK - post doc)

Whenever I've been around for/involved in conflict you always take the time to either chat with us in your office or take us out to lunch/coffee if we need to get out of the lab. You do a really good job at creating an environment where we aren't afraid to tell you what's going on and ask for help when we need it. I know I've personally called, texted, and e-mailed you in a crisis which is not something I'd be comfortable doing with everyone. (CD - Grad student)

Great job of fostering an environment where A) there is limited conflict and B) a space to respectfully voice that conflict. Whenever I have had an issue I knew I could go to Adam and talk it out and get advice and support on how to deal with the situation. (KC - Grad Student)

What qualities do you look for when recruiting a new student into your lab?

A love of biological form and function, and a willingness to learn lots of new things are important to me. I don't care about scores. A student who now has tenure had 800 on the GREs. I don't care about GPA, my own was a 2.8...or maybe less, who can remember that long ago. I do put a lot of stock in the opinions of my colleagues. Recommendations matter, whether they are formal letters or a chat at a meeting.

It is very difficult to be a graduate student in the biology department in my lab because my base is a 3-4 hour trip away from main campus. There are systems that graduate students deal with that make no allowances for remote labs, so my students have typically been strong willed people willing to make things work, and to bend stupid bureaucratic frameworks to their will. I am always willing to advocate for them, but they have been effective squeaky wheels when faced with injustices. (APS - PI)

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

My lab does a lot of outreach. From working with poets to memorialize the natural world, to making art from data, to writing pieces for the popular press, we are constantly considering ways to engage with the general public. We try to write blog entries for every paper that is published, and often we work with the UW press offices to generate press releases for our work. We make physical models of anatomy for museums and teachers, and we work to find metaphors that make our research efforts accessible to the general

public. We frequently host impromptu lab tours for visitors to FHL in general, and are called upon to lecture at the local schools every now and again. (APS - PI)

What about work-life balance?

This is myth – everything is life. Everything. I do not expect my students, or any colleagues, to follow my work habits. Furthermore, there is a pernicious and demeaning culture around lying about how hard we work. No one works effectively more than 40-45 hours a week. Virtually no one does well with less than 8-9 hours of sleep. More work time is simply inefficiency. I do not think there is any better career than academic for raising kids. I have two. They are around a lot. I usually pick them up at school. I don't miss their events. This job is flexible, I can put in time outside of business hours. That said, I do not expect anyone to answer emails after hours, indeed I don't expect answers to emails on the same day. Pressure to put in hours, expectations about performance, and additional obligations all contribute to stress and poor mental health. I want my students to be healthy in body and mind, that takes real attention to self care. (APS - PI)

Adam has, on multiple occasions, as my PI and even before I was his student, pushed me to take breaks from work to go out and partake in life activities. At the beginning of my first year, I was having a difficult time balancing living and teaching in Seattle and commuting to the island on the weekends to do research. Adam told me something that has stuck with me since, "This is a distance race, not a sprint. There is a lot to enjoy about being a graduate student. I hope you are taking the time to yourself to adjust, enjoy the locale, and rest. There will always be projects and questions ." (KH - Grad student)


Stephanie Crofts


Sebastian Kruppert


Petra Ditsche


Paulina Urban


Morgan Stewart


Misty Paig-Tran


Matt Kolmann


Mackenzie Gerringer


Jules Chabain

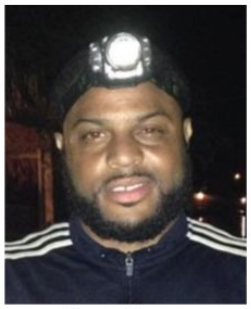

Marianne Porter


Thaddaeus Buser


Cassandra Donatelli


Kayla Hall


Karly Cohen


Kory Evans

Billie Swalla

Molecular analysis of the evolution and development of the chordates

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Billie J. Swalla Mentoring Philosophy for Graduate Students

I take an active role in mentoring students in the Swalla Lab and over time my students become excellent mentors to new lab members. When a student joins the Swalla lab, they write up their first-year goals as a graduate student in UW Biology, MCB, or whatever graduate program that they are in. We go over their short-term and long-term goals together. When are the grants due this year? What courses should they take to meet their goals? Are these goals too ambitious? Are they in line with the student's long-term aspirations? When we agree on a course of action for the first year, then the student meets with me once a week to talk about their progress and research. We also have Swalla lab meetings once a week, when everyone comes together and one person presents their research to the entire group.

Every student in the Swalla lab will initially choose a project from a list I keep of various half-done projects that show good promise of success. This will bring the student into a research project for which we have the materials and expertise to succeed and frequently, this initial project will result in their first publication from the Swalla lab. Each year in September we revisit the student's goals and they reconsider their long-term goals. I've had students who keep the same goals their entire career in my lab and those who changed them more than once. The important part is that the student spends the next year working in the short term, for their long-term goal. Sometimes the student has made great success, doing everything on their list and more. Frequently they meet some of their goals and fall short on others. These we discuss, what do they think is holding them back? Writing can be a difficulty for students, and then we strategize how to keep them focused. My students write papers as they progress through their graduate work and within 5-6 years will have 3-6 papers and graduate with a Ph.D., ready to move on to a new challenge. Meanwhile, my students are reading and critiquing original scientific literature, designing and carrying out experiments, usually doing genome analyses and presenting the findings of their work to me and the lab. Once they complete their first project (usually 1-2 years), then I invite them to explore what they would like to concentrate on for their thesis research. There have been students who continue on the same topic and some that switch to a different project. All of my graduate students have been very successful and moved on to their chosen goals.

Grant writing is necessary for our work in the evolution and development of animal body plans, so all of my students spend the first couple of years grant writing and most of them have been successful in obtaining their own funding. I've had three students receive NSF GRFPs and one student receive an NIH graduate award. Most of my students have written several Training Grant proposals and have been supported for part of their graduate studies on Training Grants. One foreign student received an American Heart Association award for stem cells in ascidians for his graduate work. Of course, I am also

grant writing and obtaining funding, so there are always a few well funded research projects in the lab that students can pursue.

Science in the Swalla lab is fun! We work on marine animals, so within everyone's graduate career there will be frequent trips and stays at Friday Harbor Labs (FHL), or other marine labs around the world, including France, Hawaii and Tahiti. Students present at local Northwest Developmental Biology Conferences (FHL) and also at national SICB or SDB meetings. Students may need to visit another lab to learn techniques or computational skills and I usually have a number of collaborators who send students to my lab as well. Where do my students end up after their PhDs? Most of my graduate students have done postdoctoral work in another lab, two of them are currently working in biotech and three of them are tenured Professors in higher education. I have undergraduates in hospitals, the Allen Center for Cell and Molecular Biology, and other research and teaching institutions. I continue mentoring all of my students, writing letters, watching their children grow up and helping them negotiate promotions or difficulties that they are having. I am committed to their success and happiness, throughout their careers, and they have all done very well.

Greg Wilson

Evolution and ecology of early mammals

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Greg Wilson

How would you describe a successful graduate student?

A successful graduate student is passionate about the topic that they have chosen to pursue. In addition to passion, they should strive to become a scholar with respect to their topic of choice and related fields. This means digging into the literature to follow questions, curiosities, uncertainties, etc. A successful graduate student is resourceful, meaning that they find ways of learning the content that they need to learn or acquiring the skills that they need to have, whether that be through conversations, meetings, workshops, or the literature. Resourceful also means knowing when you need to seek assistance or indicate that you're having difficulty—that's the communication part. Communication with your mentor, your peers, your friends and the public are also important traits of a successful graduate student. Communication can lead to new discovery, can help you de-stress, can inform those invested in your success. A successful graduate student is also productive—they generate products from their passion, scholarship, and resourcefulness. Those products can vary but ultimately they should help the student progress through the PhD and to the next step (a postdoc or a job). These products include things like a research proposal, presentations at meetings, presentations in lab meetings, publications, thesis chapters, grant proposals, etc. All of these traits require hard work and persistence in the face of adversity because there will be ups and downs during the PhD. In the end a successful graduate student is a contributor to the field of their choice.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.

This varies from year to year and student to student. However, I always encourage students to seek funding for their own stipend and costs through grants. Even if not successful, this provides the student training in developing a project proposal, constructing a budget for the work, and submitting grant applications. These are all things that most students will need to be successful at following graduation. Of course, I have grants for certain projects and I seek grants for others, so when a student is doing research that falls under these projects then I often will cover expenses. As for student stipends, I have grant funding to supply research and outreach assistantships, and as a curator of vertebrate paleontology at the Burke Museum I can also request museum assistantships for students periodically. Typically I can offer my students 1 quarter of stipend via research, outreach, or museum assistantship to every 2 to 3 quarters that they teach. That said, the graduate students in my lab that have been eligible have been very successful with applying for the NSF graduate research fellowship (4 out of 5 and the one that wasn't successful for the graduate research fellowship eventually received an NSF postdoctoral fellowship).

How often do you meet with your graduate students?

I formally meet with graduate students once a week in a lab meeting. I also arranged individual meetings about once every 2-3 weeks. That said, we have many more spontaneous meetings depending on what's going on. I am down the hall from all of my students' desks so they know that they can always pop into my office and have a meeting if I'm available or they can email me to arrange a time that week.

Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?

We recruit a large number of undergraduates to our lab (~15-25). Many of them do critical tasks in the lab that all of our research depends on: picking fossils from sediment, identifying fossils to element and taxon, cataloging fossils in the Burke Museum, etc. These provide the primary data for much of the work in the lab. There are a smaller subset (~2-5) that are engaged in their own or collaborative research. They either work independently with a grad student or me as mentor or they work side-by-side with a graduate student or me on some component of our research.

What qualities do you look for when recruiting a new student into your lab?

I look for students who have familiarity/experience with the steps in the scientific process (conceiving of a project, collecting data, analyzing data, interpreting results, presenting those results, writing the manuscript). I look for students who have passionate for the study topic (paleontology in my lab). I look for students who can demonstrate that they are rigorous in their thinking and they are hard working and persistent. One of the harder things to gauge but very important is creativity. I want to see whether the person will eventually be able to find the interesting questions and design studies to address them. I also look for someone that is interested in engaging others in their science and are open to the community of scholars here at UW, in Biology, and in the paleontology group.

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

Yes, they do. I'm a curator at the Burke Museum, where there are many outreach events and activities. I always encourage my students to participate. It hones their skills in communicating their science, and it helps them understand the impact of their science.

I also lead the DIG Field School, which is a professional development program for K-12 science teachers around the country. The DIG has a field school (5 days in Montana) and associated activities throughout the school year. I encourage all of my students to participate at least once.

Appendix

UW Biology Faculty, Process for Gathering Mentoring Philosophies

Goals: Helping our current and future trainees understand/navigate/anticipate our mentoring styles. We also hoped that sharing these statements would give UW Biology faculty a chance to learn from each other.

Charge: Faculty were given two options. They could either: 1) provide a mentoring philosophy statement in a format of their own devising, OR 2) provide responses for any combination of a series of prompts (reproduced below).

A full set of prompts provided to faculty

Please provide up to 5 words or phrases that describe your lab culture.
Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.
How would you describe a successful graduate student?
Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.
What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?
Do the members of your lab regularly participate in any journal clubs, joint lab meetings or other multi-lab/community forums?
How often do you meet with your graduate students?
What do you see as the ideal size and composition (e.g. ratio of grads to undergrads to postdocs) of your lab?
Describe a few of the career paths your trainees have pursued after leaving your lab.
What role do you think (if any) TA-ing has in earning a PhD?
Do you often recruit undergraduates to work in your lab? If so, what is their role and how do they interact with graduate students in your lab?
How do you know when a graduate student is ready to graduate?
Have you trained graduate students who now work outside of R1 academic institutions? If so, please describe differences (if any) in your approach to their training.
How do you handle conflict in your lab?
What qualities do you look for when recruiting a new student into your lab?
Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.
Are there differences in the skills needed to be a successful scientist today than those you learned in graduate school? If so, please describe these differences, and how you help your students acquire them.