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Lab Philosophy, Expectations and Graduate Parameters[1]

Messier Lab

Graduate and post-graduate work is a mutual investment in the process of learning and producing excellent science. This is a joint effort from both the advisor and the student. Like all relationships, it requires hard work and good communication. Your job is to produce high-quality science and develop into an independent researcher. My job as a supervisor is to guide you through your journey, to provide resources and time within the limits of my resources. We are all colleagues and should be conscientious of our responsibilities to another. I am heavily invested in our shared goals and I expect you to honor your commitments. The following is a list of values, expectations and responsibilities that will guide our journey together.

Values

- **Mutual respect and civility -** All good relationships - including professional ones – are based on mutual respect. We will respect each other's abilities, personalities, limits, feelings, wishes, rights and traditions. This extends to everyone in the lab.
- **Open Communication -** Good communication is key to all good relationships. People can interpret situations from vastly different perspectives, and stating one's expectations and needs is often necessary. Let me know ***early*** if you have any concerns and we will work together in finding mutually satisfactory solutions. Good communication is transparent and frequent.
- **Quality -** We strive for research excellence. This is accomplished by doing the best we can at every step of the process, in all our endeavors.
- **Leadership -** To become a researcher, you must be autonomous, creative and independent. Take initiative. Propose ideas. Think about different ways to solve a problem before coming to ask for help.
- **Honesty -** It is okay to be wrong and to make mistakes. Everybody does. Mistakes need to be reported as soon as they are detected in order to fixed them quickly, and we need to take responsibility for them. We do not expect each other to be perfect and we are honest about our own abilities and limitations.

Expectations of lab members

Be committed.

- Graduate school and academia are hard, no doubt about it. I expect you to put in your best effort in your classes and research endeavors and to give your all to accomplish research goals on time. This does not mean I expect you to live an unbalanced life and work all the time; make sure you have space for your personal life. It is rejuvenating and essential to your well-being on the short and long term. Academic research is a marathon, not a spring, so make sure you keep a pace that you can maintain on the long-term.

[1] This material was adapted from material from Dr. Angert

- There will be setbacks. Persistence and determination are key ingredients in research, where many steps require tedious and repetitive tasks (such as collecting data and sample processing), or bouncing back from failures (when field work is slow, samples rot, writing is hard and scholarship applications or papers get rejected). This is a normal part of the process and doesn't mean the work isn't worth it or is of bad quality.

Be enthusiastic and self-motivated.

- Research is rewarding and many parts of grad school are fun. There will undoubtedly be times when staying motivated is difficult, but once in a while, step back and remember that we have the incredible privilege of studying whatever we choose. Make sure you enjoy it! Focusing on the fact that we are doing what we love helps alleviate the stress of the multiple demands on our time.
- Being self-motivated is crucial to successful grad and academic experience. Find ways to motivate yourself and remain excited about science. The best way to feed your passion is to share it with other people. This can happen at paper discussion group, lab meetings or conferences. Talk to other grads, postdocs, and profs in and out of your lab and the department. I find that it also really helps to stay involved with the scientific literature, to read relevant textbooks and to present my work.

Be a good lab citizen.

- Your presence is expected at lab meetings. This is essential for the cohesion of the group.
- Participate *actively* in lab meetings. Come prepared to contribute to discussions with ideas and questions. Lab meetings are a safe space for the free exchange of ideas, at any stage of a project and no matter how well versed you are in a topic – no judgment. But this is not the same as coming unprepared. If you notice you are a dominant voice at lab meetings, help create the space and opportunities for others to speak. If you don't speak up, I will ask you to share your thoughts with the group.
- Contribute positively to the social dynamic of the lab. Be present, be engaged, and suggest activities that will help us connect.
- Take on your fair share of responsibilities for maintaining common lab space and equipment. The lab should be kept clean and organized. Clean up after yourself.
- Promptly report mistakes or problems as soon as they arise. They happen to everyone, and we can then try to fix it together.
- Pitch in to help lab mates when they need it, whether it is a hands-on project or providing constructive feedback on an idea or draft. They will do the same for you.
- New trainees should consult with more experienced lab members for advice and get help navigating their way through research. Junior trainees should be open to receiving feedback and instructions and acknowledge their limitations. Senior trainees should mentor newer trainees. You will learn from each other.

Engage, Collaborate & Network.

- What you learn and how much you enjoy the grad experience depends a lot on the social network you develop. Be engaged in the broader research community of the department, the University and with ecologists locally and internationally. Cold-calling and cold-emailing other scientists you want to talk to is fair game. Learn from and build on each other's strengths. This really make the whole process even more fun.
- Strive to attend 1 research seminar or journal club every week.
  - Departmental seminars are Fridays at 2h30pm
  - EcoEvo Journal Club is on Tuesdays 1-2pm every 2nd week (sign up with WEN for information).
  - PUGSLEY talks occur once a month. (ask me for the link to the sign-up sheet)
  - iFast seminars occur once a month. See https://www.ou.edu/ieg/seminars
  - U. Laurier Biology seminars are Fridays every second week. See https://students.wlu.ca/programs/science/biology/research/biology-seminar-series.html
- Your attendance and participation at lab meetings is expected.

Maintain regular communication with me.

- I am an active partner in your research and will be closely involved. I will provide input to the best of my knowledge, guide you to resources, and make sure we do the best work we can. Keeping me updated is very important. Be willing and ready to share the good, the bad and the ugly.
- I meet with my students actively leading a research project once a week, and every second week otherwise. This ensures that we are on the same page. Save the non-urgent questions, issues and updates for that meeting.
- I have an open-door policy. This means that you can stop by my office for things that need my immediate attention (e.g. report problems, get a signature, etc).
- We use Slack extensively. Send me a message on slack for the day-to-day.
- Send me an email for more lengthy information or to share information or documents that we may need to reference in the future. Slack only keeps messages for 90 days.
- Carbon-copy me on your written communication with our research collaborators so that I know what is happening.
- Let me know how things are going, especially when you find yourself overwhelmed. I am here to help you, but I can't help solve the problems I am unaware of. We can adjust goals, timelines and priorities as necessary.

Graduate school is both a job and a lifestyle.

This means:

- Keep regular hours. You are free to set your own working hours, but I do expect you to be in the lab during most of the regular business hours. It is important for you to work with and help your lab mates.
- Schedule regular time for your research in order to make continuous progress. If you wait to do research until you have nothing else on your plate, you will never get around to it.

- Write early and often. Set aside your sharpest time of day for daily writing. Aim for at least 30 min/day at every stage of your program. Form a peer support group to help set and enforce weekly writing goals.
- You must be willing to work hard during those weeks that require a lot more than the normal amount of work. Some examples of intense weeks are during field work, when you are finalizing your research proposal, or studying for your comprehensive exams. However, these heavy weeks must be balanced by a majority of weeks with more reasonable work hours.
- Everybody needs vacation. Take them. The key is to strike a balance. Make sure to recharge your batteries enough to continue being efficient and *to enjoy the research process*. Research will not be sustainable if you do not enjoy it.

Work towards becoming an independent researcher.

- Time management is vital. Set short- and long-term goals, prioritize them and outline plans for how to achieve them by breaking them down into daily and weekly tasks. Revisit your goals lists regularly. *Be realistic* about how long tasks take, and how many hours per week you can dedicate to your research. Come talk to me about priorities and time management strategies. Work hard to meet the deadlines that you set for yourself.
- Read and stay abreast of the literature in your area. You will be asked questions at your proposal and thesis defense testing both the breadth (general knowledge in your area) and depth (thorough knowledge of your unique topic) of your knowledge. This includes seminal and recent papers and books. Find a good way to database and track what you read (e.g. annotated bibliography, Papers, Mendeley, etc). Keep me informed of the cool papers you find!
- Practice giving and receiving constructive criticism. Not everything we say or write is excellent. That holds for everyone, including myself. There is always room for improvement, so be open to criticism, offer your opinions, begin developing your reasoning and argument skills. Don't be afraid to respectfully disagree with me, or let me know when I am wrong about something.
- Develop the financial management aspects of being a researcher: Search and apply for grants to support your data collection and attendance at meetings and workshops. Prepare a budget for your project. Maintain an informal log of expenses and keep within the agreed upon budget.
- Be proactive on organizing logistics and paperwork required for your research (safety training, lodging, car rental, insurance, etc). Acquiring permits and permissions can take weeks to months to secure so plan accordingly. Please make sure that I have the opportunity to review documents prior to submission.
- Aim to give a presentation (poster or oral) at one conference per year. Funds are limited, so you will need to apply for travel grants, attend local conferences or come to me to discuss other ways to pay for conference travel.

Use best practices for open, reproducible Science.

- Keep physical lab notebooks for all lab and field work. Pages should be numbered and dated. Lab notebooks should stay in the lab (not be taken home). You can also record an overview of computational analyses in your notebook. Field and lab notebooks should be photographed at the end of every day so that we do not lose the data if the notebook gets lost.
- All your code should be thoroughly annotated, version-controlled and archived in GitHub.

Grad school parameters

- Be prepared to work hard to finish in a timely manner, 2-2.5 yrs for masters and ~5 yrs for a PhD.
- Publications: At least 1 publication is expected for an M.Sc. and at least 3 for a Ph.D. One to two publications are expected for postdocs, depending on their time of residence. These must be submitted to a renowned scientific journal before the end of their residence in the lab.
- Authorship: Following the Tri-Agency Responsible code of conduct of Research Framework (see sections 2.1.2 and 3.1.1) and UW's Policy 74 (see section 4), "*Authors of a publication comprise all, and only those individuals who have made a significant intellectual or scholarly contribution to the work reported, and without whose contribution the work would not be complete. Authors are listed in the order of the significance of their contributions*." (Policy 73). First authors must therefore have made the most significant intellectual contribution to the published work. Concretely, this means they conducted most of the (field, lab and analysis) work, written the bulk of the paper, and are the main contributor to the ideas presented in the paper. Thus, usually the student will be first author on their papers.
    - Note that 1.5 years after leaving the lab, if a student has not submitted a first draft of their work to a scientific journal and if I deem that regular satisfactory progress is not made towards the completion of the manuscript, I reserve the right to take the reigns of the paper in order to finish it and submit it for publication. In this case, the student may lose their first-author position on the paper.
    - All manuscripts should be submitted to co-authors for approval prior to submission to a journal.
- *You are responsible for knowing and meeting the requirements of the Biology Department in a timely manner.* Know the graduate forms that need to be filled out and deadlines for submission. Talk to April, the graduate coordinator, to your lab mates and other experienced grads. April is there to help you. Don't hesitate to reach out to her.
    - Graduate Handbook: https://uwaterloo.ca/biology/graduate-studies/biology-graduate-handbook. A pdf of the Graduate Handbook (2020-2021 version) is available on the lab's SharePoint.
    - April wetting: awettig@uwaterloo.ca ; 519-888-4567 x46392
- Finances: Every student is expected to apply to all the scholarships for which they are eligible.
- Plan for setbacks. You should have back up plans for your thesis chapters, and I will help you prepare them. Something will fail, but that is ok if you're are prepared.
- Stay in touch with your committee members and consult with other scientists with relevant expertise that I do not have. Do not wait for committee meetings to get their input. Early feedback is preferable. Tap into the vast experience that these people are happy to share with you. You will learn a lot from talking with formal and informal mentors.
- You will select committee members in consultation with me and set up annual committee meetings. Do not limit your interactions with these committee members to those dates.
- Prepare a Graduate Plan and a semester-plan, with deadlines, for meeting the major milestones of your program (proposal, fieldwork, labwork, grant applications, conferences, paper

submission, etc.). Revisit and update it frequently. This is a living document that will help you stay focus on the priorities. By the end of the second term, you should have a well-rounded research proposal with clear and realistic research objectives.

- Each student is responsible for hiring, training and overseeing their field and lab assistants.
- If you have issues or concerns that you feel you can't discuss with me, I strongly encourage you to talk to others in the lab, to April, the graduate coordinator, To Dr. Glerum, the Associate Chair for Graduate Studies, to your committee members, or other trusted faculty members. There are also resources outside the department to which they can point you if necessary.

What you can expect from me

I am here to help you develop into an independent researcher and learn to master the literature, concepts, methods and the research process in your chosen field. In addition to scientific and academic skills, I am also here to help you develop professional skills transferable to all careers. This includes, writing, presentations and public talking, organization, goal setting, time management, etc.

Availability.

I meet weekly with students actively leading research projects and bi-weekly with students whose research project is not their priority for the term. We will discuss your research ideas, results, progress, goals, priorities and timelines. I will not know the answer to all questions; each research project steps outside the zone of what we know, and we will figure things out together. I will invest into you as much as you invest into your research.

- I have an open-door policy. When I am in my office, don't hesitate to come and knock if you have a quick question (can be resolved in less than 5 minutes), or an urgent question.
- To protect my productivity, I only check my emails twice a day.

Feedback.

I will give you direct, honest and constructive feedback on your ideas, written research questions, proposals, progress reports, thesis chapters and publications. I will point out both your strengths and weaknesses.

- You must let me know ahead of time when you will send me a document to review, so that I can book a slot in my calendar to read your work. In turn, I will then let you know when you can expect comments. This is essential as my schedule is usually booked many days ahead of time.
- I request 2 weeks of notice to provide feedback on a document after I received it. For example, if you want feedback on your proposal by the 20th, then I must receive it by the 6th.

Financial support.

If you do not receive a major scholarship, I will provide the minimal stipend, as determined by the department. I will not be able to provide financial support beyond the normal timeline of your degree.

- I will provide one full-time field assistant for each field season. We may be able to obtain one part-time (6-10hrs/week) lab assistant to help with sample processing, but this is not

guaranteed. We will therefore design a research project that can be accomplished with these resources.

- I will provide up to $1,000 of financial support per year for each student to present their research at a conference.
- I will cover the costs of scientific publication.
- The money I have available for the field and lab work of each trainee depends on the source of funding for their project. We will discuss this when you start. I will do all I can and provide guidance and suggestions, but resources are finite.
- I expect students to apply to all the fellowships scholarship opportunities that they can to cover research, conferences and and travel.

Acknowledgement.

I will acknowledge appropriately your contributions to research and other efforts in presentations and publications.

Absences.

I will notify you in advance of any anticipated, prolonged periods of travel or leave and, in consultation with you, set up structures to support you during my absence (e.g., a faculty mentor on campus, alternate lab meetings).

Safety.

I aim to provide a lab environment amenable to learning, open discussion of ideas, and producing valid research without discrimination or harassment.

Transitions.

I will assist you in transitioning to the next stage of your career in a reasonable manner, whether it is academic or non-academic. This mainly takes two forms:

- Point you to networking opportunities (e.g. conferences and workshops).
- Submitting reference letters. I will be honest with the content of the letters. Let me know *at least* 2 weeks in advance and provide me with an email with the following info: the opportunity for which you are applying; the due date; the name, institution and address of the person/committee to whom the letter should be addressed; instructions on how to submit the letter (email address, physical address, etc) and; any instructions on what the letter should discuss. Senad a reminder 3-5 days before the deadline.