**Wood Lab: Philosophy, Guidelines, and Rules\***

*\*Based on the Lab Philosophy of the Queller/Strassmann Group at Washington University, St. Louis*

*\*Updated 26 August 2018*

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Welcome! The Wood Lab is based at the School of Aquatic and Fishery Sciences of the University of Washington in Seattle. We study parasite ecology. We are interested in the ecological drivers of parasite transmission, in the determinants of parasite diversity and abundance, and in how environmental change alters parasite assemblages. We work in a variety of host–parasite systems, but favorites include metazoan parasites of fishes and *Schistosoma* spp. worms in freshwater snails of West Africa. We use field observation and manipulation, macroecological approaches, meta-analysis, parasitological dissection, museum specimens, microscopy, and molecular techniques as tools and approaches.

This document is intended to serve as a training guide for members of the Wood Lab and a mentorship guide for Chelsea – a way to state expectations on both sides so that students, technicians, and post-docs can develop to their maximum potential and Chelsea can become a better mentor and manager.

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For others, see web page, [http://chelsealwood.com/people](http://strassmannandquellerlab.wordpress.com/)

**Structure of research and learning in the Wood Lab**

1. **Lab meeting**is held on Fridays 1:15pm–2:30pm. Each lab member takes responsibility for one lab meeting per quarter, and you can do anything with your meeting: practice a talk, talk through a problem or roadblock you are having in your research, get feedback on a poster or manuscript (be sure to send it out ahead of time so folks can read it before the meeting), discuss a paper, or chat about a relevant professional development topic (e.g., authorship, starting and maintaining collaborations, inclusivity). The current schedule is shared via Google Calendar. We assign folks to dates on the first lab meeting of each quarter.
2. **Meetings with PI** – I have an open door policy and am happy to talk any time. Grad students, post-docs, and lab techs will have a standing weekly one-on-one meeting, but if you have questions in the intervening time, don’t hesitate to ask. If you have a pressing question (e.g., parasite ID), don’t hesitate to text or call.
3. **Absences** – Grad students, post-docs, and lab techs – ***you are responsible for updating the lab Google calendar to indicate whether you will be in or out of the office on all business days***. If you will be out, please indicate where you will be (e.g., sick day, personal day, in the field). Undergrads – please let Katie know if you expect to miss your scheduled lab time.
4. **Face time** – I usually poke my head into the lab once per day to check in and answer questions. Feel free to drop by my office with questions or just to chat.
5. **Seminars** – You are expected to attend the weekly SAFS seminar on Thursdays at 4pm. You are not required but are highly encouraged to attend the department happy hour that follows seminar at 5pm. You are also encouraged to attend the SAFS Quantitative Seminar, which is held on Fridays at 12:30–1:30pm in FISH 203.

**Wood Lab philosophy**

1. Ask and answer big questions.
2. Do careful science, with multiple working hypotheses, controls, and appropriate statistics.
3. Finish your work through to publication in a timely but thorough manner.
4. Learn the natural history of your organisms.
5. Understand the history of your question.
6. Read and re-read the literature.
7. Learn new techniques.
8. Writing is essential and is best learned through practice.
9. Never lose anything because it was not backed up properly.
10. Treat everyone with dignity and respect.
11. People work best when they have a say in what they do.
12. Collaboration is synergistic and leads to great science.
13. Ask questions often; brainstorm with others on anything new.
14. Your time in this group is one of discovery. Make the most of it!

**Guidelines**

1. **Read the literature**. It is important to stay up-to-date with what is going on in your field. You should aim to read at least one paper every day. Subscribe to tables of contents for journals in your field. Set up alerts on Google Scholar for topics that interest you.
2. **Design studies carefully**. Consider multiple working hypotheses. Run power analyses on dummy datasets. Do all the right controls. “To call in the statistician after the experiment is done may be no more than asking him to perform a post-mortem examination: he may be able to say what the experiment died of.” – Ronald Fisher
3. **Visualize your hypotheses and your results effectively**. Become a master of figures that clearly communicate your point and are appropriate to the data.
4. **Publish.** Getting your work done and out into the world is essential. The best approach is to write a little bit, every day. ***Undergrads*** – aim for at least one peer-reviewed publication from your capstone research. ***Grad students and postdocs*** – aim to publish two papers per year. This is going to be challenging, but one paper can be something you take the lead on and the other can be something you help with. The most important predictor of future career success is how many pubs you have when you get your PhD, so publishing early and often is a strong signal that you are a rising star. Always be on the lookout for new discoveries or ideas that can lead to a paper. The more you read, write, and run statistics, the easier it will become for you to quickly transform your research results into a compelling publication.
5. **Write up methods and protocols as you do them**. This is particularly important for undergrads and people new to the group, and will help with paper writing.
6. **Apply for funding**. There are funding opportunities available for all levels of researchers from undergrad to postdoc. Apply for every funding opportunity for which you are even remotely qualified. Be sure to workshop any proposals with the group and to give them to Chelsea with plenty of time for review.
7. **Accept mentoring and be a mentor and teacher**. We all have a lot to learn and can do this by helping others and being open to help from others. Mentoring a student is a responsibility. Keep careful track of your students and ask your mentor for mentoring advice.
8. **Ask questions constantly**. Remember the Star Trek quote: “I respect an officer who is prepared to admit ignorance and ask a question, rather than one who, out of pride, will blunder blindly forward.” – Capt. Jean-Luc Picard
9. **Speak up**. Think there might be a way to do something better? That’s awesome! Pipe up and we can give it a try.
10. **Be helpful**. You might know something that could be helpful to someone else that you realize before they do. Take the initiative and talk to them. Science is not a zero-sum game. Helpful people earn karma that translates into more positive letters of recommendation, more productive collaborations, and other kinds of reciprocal helpfulness.
11. **Learn new things**. Read books and papers, go to seminars, workshops, and scientific meetings, take courses in person or online, talk to people. Get okay with struggle and failure – that’s part of learning.
12. **Practice makes perfect**. Learning to do new things takes time. The most challenging part is figuring out how to work with the right combination of efficiency and attention to detail – and it can take some time to dial this in. Plan to spend lots of time practicing before you achieve maximum efficiency doing a task, whether that be parasitological dissections, stats, or writing papers.
13. **Address authorship issues early**. Authorship in a collaborative lab group can be challenging. You should ideally be first author on work you lead and write. There can be ties and they should be discussed and resolved in ways fair to all. When in doubt, include someone as an author. Chelsea has final say on all authorship issues.
14. **Talk to people outside our research group**. Just because they’re not interested in parasites doesn't mean they should be shunned (maybe it does a little…). There are people outside our group who know things we do not. Go talk to them.

**Rules:**

1. **Be safe at all times**. Stay up-to-date on safety training. Take proper precautions in the field. Do not eat or drink in the lab. Help others to stay safe by telling anyone immediately if they are doing something unsafe. Report any safety issue, large or small.
2. **Treat everyone with respect**. A friendly laboratory atmosphere is essential for productive, fun research. There are no stupid questions and everyone is deserving of support and help.
3. **Benefit from the synergy of working around other humans**. I do not want to tell you exactly what your hours should be, but they should overlap with normal business hours every day, because this facilitates cooperation and collaboration. If there are problems, we will discuss individual circumstances.
4. **No headphones in the lab**. I ask that no one use headphones in the lab, unless you are working alone – we want to develop an open lab culture where there is lots of opportunity for free-ranging conversation and exchange of information and ideas. Some of my best ideas have come from conversations that spontaneously arose around the lab bench. Feel free to listen to music, podcasts, TV, or anything out loud, so long as everyone working in the lab agrees!
5. **Notify the lab of your absences**. ***You are responsible for updating the lab Google calendar to indicate whether you will be in or out of the office on all business days***. If you will be out, please indicate where you will be (e.g., sick day, personal day, in the field).
6. **Pay attention to your email**.  There are many ways of communicating, but the Wood Lab’s primary medium is e-mail. You are responsible for checking your uw.edu address regularly and responding in a timely manner. ***Pro tip: If your advisor e-mails you, a good rule of thumb is to respond in no more than two business days. Make sure to respond to 100% of your advisor’s e-mails.***
7. **Submit monthly reports**. Each month, I ask for a list of goals you were hoping to accomplish, what you did accomplish, obstacles you faced, and your goals for the next month. This can be a very informal list written colloquially, but it is intended to get you in the habit of setting goals and tracking your progress toward those goals. It is also a way for me to make sure you are on the right track and making satisfactory progress toward your goals. For an example, see one of Chelsea’s monthly reports from her grad school years.
8. **Clean up after yourself and leave all areas tidy**. It is very important when working in shared areas that you do not leave a mess anywhere. Everything (samples, experiments, lunch) should be labeled with your name and date.
9. **Abide by lab safety rules.** Be especially careful with liquids – all liquids MUST be labeled with what they are, who made them, and the date.
10. **Do not begin a project without a careful plan approved by your PI**. This plan should be written and discussed with Chelsea. The work should address an important scientific question, should show deep familiarity of the background literature, and demonstrate that sample sizes will be appropriate, alternative hypotheses have been considered, and methods are feasible. This is crucial for avoiding problems in study design or inadvertent overlap among lab members. The design can take the form of part of the paper (intro and methods, for example) or a small grant proposal.
11. **Calibrate your tools**. Any measurement tool should be regularly calibrated. Our tool is our dissection skills. Do regular (~ monthly) calibrations by having two people count parasites in the same organ (e.g., metacercariae in fins). This will let us maintain high accuracy and data quality.
12. **Write everything in your laboratory or field notebook**. Your laboratory notebook should be a complete reflection of what you do in the laboratory. It should contain what you did, why you did it, and what you thought about the results. You can choose to do this in your computer – for example, Chelsea uses EverNote, which is searchable and shareable.
13. **Document everything**. As you collect data, you should be making drawings, taking pictures, and collecting voucher specimens. When in doubt, document.
14. **Protect the integrity of your physical samples**. If you have frozen fish, pickled fish or fish organs, parasite vouchers, or other physical specimens, make sure you have a spreadsheet that includes information on each sample and its physical location in the lab. Everything should be labeled carefully, with your name, date, and other information as specified for your material. ***Everything stored in the freezer should be labeled on its outer packaging: what it is, your name, your contact details, and the date.*** Feel free to use Rubbermaid containers to keep your samples organized. ***Things that are not properly labeled may be thrown away.***
15. **Protect your data**. You must have at least one automatic back up system, that updates daily and off-site, including cloud back ups for data and Time Machine for computers, or equivalent. You may use the lab server for real-time, automated back-up – see Chelsea to get this set up.
16. **Protect the lab Google Drive**. We use Google Drive to organize all of our lab documents. When you get your degree, graduate, and lose your uw.edu e-mail address, any document you “own” on the lab Google Drive will disappear. This means that you must transfer ownership of all of your files to Chelsea before your uw.edu account is discontinued. Please do not forget to do this – it is important that we keep a permanent record of your data in the lab.
17. **Protect your documents with appropriate document names and versioning**. Part of protecting your documents means using version control. Name any file you send to Chelsea beginning with your last name. As you update your document, update the version number in the file name so that you don’t lose prior versions – for example, “Wood – NSF GRFP proposal – V.4.docx”.
18. **Be a responsible mentor**. Make sure that anyone you are mentoring is practicing good science and following all the rules and guidelines.
19. **When in doubt, ask**. If there is a problem of any kind, or something you do not know or understand, let me know. I am committed to making our laboratory an excellent place for learning and discovery.

**Additional rules for undergrads**

1. **Always be sure you understand your project**. Fun is maximized if you understand your research: what the big question is, the specific question, and how the actual research will address it. Keep learning and research gets more and more fun.
2. **Be on time**. If you have an emergency, let your mentor know as soon as possible, certainly before you are late.
3. **Tell us if you break or contaminate something**. It is a normal part of learning to break things and inadvertently contaminate resources. Try not to, but if you do, tell us immediately.
4. **Hours counted as paid must be spent on research**. You may not do homework, read material unrelated to the lab, eat lunch, or any such things while being paid by us. Since we want our lab to be a welcoming community for you, you may do outside work like homework in the lab outside of your paid hours.

**Additional rules for grad students and postdocs**

1. **It is your responsibility to keep abreast of the requirements of your program**. This includes teaching, required courses, timely committee meetings, attending seminars, and generally being a good departmental citizen.
2. **Learn how to mentor undergrads well**. They should have a big question, should learn a set of techniques and then be given increasing levels of autonomy. They should not watch you do stuff, except for first-time learning. Get advice from more senior people in the group. A second- or third-year undergrad should be working on a project they can do largely on their own. Do not take on an undergrad if you can’t commit to mentoring them properly.
3. **I will (to the extent I can) support your participation at scientific meetings,** but only if you give a talk or a poster. If you want to travel to a meeting, talk to me.

**More details on data management in the Wood Lab:**

Our lab uses Google Drive to store, manage, and collaborate on datasets. To get access to the Google Drive, please contact Chelsea. All of the files relevant to your research in the Wood Lab should be stored on the Wood Lab Google Drive.

Our lab Google Drive is backed up in real time to a local Network Attached Storage (NAS) system housed right here in the Fisheries building. It has 10TB of storage space with two redundant drives (i.e., a drive that takes over if one of the active storage drives fail, and a second drive that takes over if that one fails). At some point in the coming months, we will add another redundancy on top of that (another set of physical drives, stored in MAR in case FISH burns down). The NAS saves down everything and never deletes a file - even if that file is deleted on the Google Drive, protecting against accidental deletions.

There is one disadvantage of our data management system to be aware of. Google Team Drives are nice because they are owned by the team – which means that files don't disappear when someone, for example, loses their .edu address. My Drives are a different story – if you create a file in the new Wood Lab Drive and then you graduate and lose your uw.edu address, that file will disappear from the Drive. It will stay on the NAS (since nothing is ever deleted from the NAS), but since the NAS is just a back-up, this is sub-ideal. Moving forward, when someone leaves UW, they will need to send all their files to me so I can upload them permanently onto the Wood Lab Drive (see **Rules**, above).

**Expectations\***

*\*Based on the Lab Policy of the Punt Lab at SAFS*

*What you can expect from me:*

* I believe that graduate students (especially PhD students) are one step away from leading research groups on their own. Thus, I believe that you are sufficiently mature academically to work on your own.
* I will create constructive and positive work and learning environment that strives for excellence in research and service.
* I will be committed to ensuring that you gain as much as possible, both academically and professionally, from your time at SAFS. This will involve encouraging you to be involved in all relevant activities available in the School.
* I will strive to be impartial in my dealing with all students and create an atmosphere of collegiality to facilitate learning and excellence, and will ensure that the lab is safe, equitable, and free from harassment.
* I will help you select a thesis topic and plan your research and will direct you towards resources that will help you during your studies, including providing advice regarding possible supervisory committee members and courses that I think will help you in your research (as well as in your future career).
* I will respond to any requests for help and meetings within 24 hours (except in exceptional circumstances).
* I will endeavour to be a clear in my advice / feedback to you – and be willing to clarify my thoughts if they are not as clear as they could be.
* I will monitor your progress towards your academic and professional goals and provide feedback intended to help you achieve those goals. I will keep you aware of the job market, comment on your CV, and introduce you to potential employers.
* I will keep you informed regarding your funding and will work with you if research funding runs out to find, for example, TAships for you.
* I will provide feedback on any products you produce during your time as a student in my lab.
* I will be open to your thoughts even if they conflict with my *a priori* expectations, in particular those related to timelines for completing tasks.
* I will not ask you to do tasks that are unrelated your academic or professional development.
* I will provide career advice and assist in finding you a position following the completion of your program. As part of this, I will write honest letters of recommendation for you.

*What I will expect of you:*

* You are expected to maintain a high level of professionalism, self-motivation, excellence, and scientific leadership and to apply ethical standards at all times, and behave in a manner that is consistent with the expectations of the University of Washington, including not being involved with harassment of students, staff, or faculty in any way.
* You are funded (as a RA or TA) to work on the research program funding you / the class to which you have been assigned for 20 hours a week. You are expected to spend another 20 hours a week working on your studies (broadly defined). I will not check how you use your time. Rather, I will review your progress against identified goals and milestones. “Side projects” are encouraged, but they should be considered part of your 20 hours of work on studies, and not your RA or TA responsibilities. Your highest priorities are completing the tasks related to your TA/RA work and your studies towards completing your degree.
* You should know the requirements of the program, including milestones.
* You should attend all relevant meetings and seminars, including lab meetings and one-on-one meetings with me (both will occur once per week during the academic year and as needed over summer quarter). Such events broaden your education and better prepare you for your future careers.
* You should keep me appraised of your academic progress. We should meet on a regular basis (in person or by Skype), but you should contact me whenever you need help. If you are unclear about my expectations, please talk to me so we can avoid conflict later on. You should be prepared for any meetings we have.
* You will keep careful notes of your research and ensure that you research data and software is backed up.
* You will ensure that your supervisory committee is kept abreast of your research and you will organize meetings with your supervisory committee at least annually.
* You should carefully review my comments on drafts of your work (not simply “accept all”) and question me if a suggestion for a change is unclear (or does not seems justified / appropriate). You should also use your peer network to provide a review of draft material – this is both useful to improve your writing skills, and to learn how to conduct peer-reviews.
* You should seek out a range of faculty and peers who can provide you with examples of the person you want to be once you have completed your program.