

Huntington Group Graduate Student Expectations & Information

This document is intended to provide a clear framework for our professional interaction, by making clear what my expectations are of you and facilitating a discussion of what your expectations are of me. Read this and discuss any questions, issues, or suggested changes. Remember that our professional relationship is a two-way interaction, and you are equally responsible for keeping the lines of communication open.

Goals

You may have many reasons for entering our graduate program. Regardless of your exact reasons, your major goal should be learning how to be a professional scientist, and my major role as a mentor is to help you learn how to develop into a professional scientist.

As a mentor, my specific goals are to:

- teach you how to do rigorous science and guide you on project(s) of mutual interest
- help you bring your project(s) to a conclusion through publication
- help you through the ups and downs of scientific inquiry
- provide you with experience and expertise necessary to pursue your career, whatever path you choose
- provide opportunities to develop technical skills, communication skills, professionalism, laboratory skills and the ability to problem solve

I will provide advice and direction on your research project, including direction in choosing and designing a thesis topic, researching the background information, planning and conducting field and/or laboratory analyses, writing and revising proposals, abstracts, and publishable manuscripts, and giving professional presentations. *I select and design (and/or guide you in selecting/designing) research projects with the intent that the results will be sufficiently new and important to merit publication*, and I have selected you as a student because of your talents and promise. Seeing a project through to publication requires *enormous* commitment and self-discipline, and will typically require significant work extending beyond the formal duration of your appointment. I will freely provide help, advice and suggestions; but you have the ultimate responsibility for completing your thesis satisfactorily.

I will expect to write letters of recommendation for you, upon your request. I will want to write as positive and honest a letter as possible, so keep me aware of your successes, and help me to find good things to say about you. Let me help you fix areas in which you are not successful, and develop a professional attitude that keeps any insecurities in their proper place. You can trust me to write a letter of recommendation for you that describes your skills and ability as positively and honestly as possible. If you want me to write that you consistently do more than I expect, then make that effort; i.e., impress me!

Please remember that as a student (and an academic in general) you are being evaluated during each of your interactions with faculty, writing projects, and research presentations. I urge you to put your “best foot forward” because you represent the University of Washington, the department, our working group, and me.

Time

My time

Just as I am imposing demands on your time, you have a right to my time as well, in terms of mentoring you in your project progress. Accordingly, we will have periodic meetings to review progress and discuss any issues or concerns (see **Semi-annual Progress Report** on the “Resources” page on my research website). In addition to these, please contact me anytime you need to discuss something – email works, but often it is most efficient to chat in person. I will not always be “around” monitoring your progress and work habits. But I will work my hardest to be there when you need me. Please be mindful of busy schedules and request important things like letters of recommendation as far in advance as possible.

Your time

I expect you to treat graduate school as your full time job. You may find that in order to get everything done, it may take you 45 – 60 hours/week to complete your work. Sometimes this will mean working weekends or during University breaks.

Your time will be spent doing your own work (research, courses, TAship), assisting me in my research when needed, and contributing to the working group in general.

Key to successful time management is doing the math: 8-9 credit hours of (non-research) coursework require around 20 hours per week. A Teaching Assistantship (TA) requires 10-15+ hours per week. Research will require a minimum of 10 to >25 hours per week; **clearly, however, all of these numbers will shift and evolve depending on your stage in the program.** As a beginning graduate student, your available time will be largely expended in non-project coursework and TA responsibilities, and your time available for research will be correspondingly less. As you progress through the program, your non-thesis coursework will diminish, and you should spend the majority of your time on research. If you are on a Research Assistantship (RA) or fellowship (and thus funded by grant or School money), you should be spending >20 hours/week on research (during the school year), and full time if not taking classes. Furthermore, if I am funding you on a RA, your duties may include both work related to your own thesis project **and** research tasks that I assign. Remember that a RA or TA-ship is a paid job, the funding that you are receiving is not easy to secure, and you should undertake the duties and commitments inherent to this job with a high degree of integrity and responsibility.

I don’t keep track of your hours. The bottom line is that you get what you put in (not all theses or dissertations are created equal). When you leave graduate school, you will be competing against others in the job market who have been logging the time needed to become the highest-caliber scientists and publish impactful research.

I do expect that you will...

- Set goals and work hard to achieve them. Keep a calendar that includes your weekly, monthly and long-term goals (quarterly/yearly). We will touch base about these goals on a regular basis (see **Semi-annual Activity Report** form on the “Resources” page of my research website)
- Be present around the department and touch base with me regularly. Flexibility is a major perk of academic careers and working at home or away from the office sometimes can be very efficient; but make sure you’re not a “stranger” to me, the lab group, or the department in general.
- Participate in lab meetings, seminars, and other events.

Each quarter, we will set up a time to meet every week as a working group. We will also meet individually, on an as-needed basis. Please bring your calendar to each meeting so that we can talk about goals and future meetings.

Use your time wisely, and enjoy your free time immensely. Non-work-related email, YouTube, Facebook? Whatever it is, banish it from your *working* hours. Know when you are working and when you are playing, and stay productive, happy and healthy by consciously making the most of both sets of time.

It is **your** responsibility to stay informed about degree and qualifying exam requirements at the University and Department level, and to fulfill the necessary steps to achieve your degree in a timely fashion (~2 years for an MS and ~5 years as a PhD).

Target milestones (very generalized)

All Students:

- Year 1 – coursework; select research topic and 1st year committee members; conduct exploratory research (read lots of papers with an eye out for good research questions); stay in regular contact with your advisor and committee; get comfortable asking lots of questions; collect data and do some data analysis; apply for research grants. Prepare prelim proposal and presentation.

PhD Students:

- Year 2 – take prelim exam, present at a professional meeting, write thesis proposal, defend proposal to committee, apply for student research grants, continue data collection, draft first manuscript (if ahead of the game)
- Year 3 – submit first manuscript for publication; have a start on a second manuscript, keep committee updated on progress, take General Exam by end of 3rd year
- Year 4 – Keep collecting data, submit additional manuscript(s) for publication, hold committee meetings
- Year 5 – Submit manuscript(s) for publication; hold committee meetings, defend thesis; depart graduate school for gainful employment!

Research Masters Students:

- Year 2 (Fall) – take prelim exam (prelim proposal = thesis proposal), construct timeline, finish data collection, continue coursework, consider abstract submission and start writing manuscript for publication
- Year 2 (Winter/Spring) – finish coursework, continue working on and complete project manuscript
- Year 2 (Summer) – finish manuscript for publication if necessary.

Time to degree: ~2 years (Masters), ~5 years (Ph.D.). It will go fast. **PhD students in good standing are guaranteed funding (for Autumn, Winter, Spring quarters) for five years.** Summer funding is usually available through my research grants, Fellowships you obtain, or limited TA opportunities. I will do my best to keep you supported through completion of your degree.

If your goal is indeed gainful employment at the end of all this work, your efforts should focus on the things that will help you in this regard: (1) developing skill as a professional scientist, writer, and speaker, (2) earning glowing letters of recommendation/references from me and other faculty or professionals with whom you interact, (3) strengthening your CV to reflect appropriate preparation for the job you seek.

Writing, Intellectual Property, Authorship

Plan to publish the results of your research in a peer-reviewed outlet. There are two important reasons for this – one that’s important to you, and one that’s important to me:

(1) You will spend significant effort on your project, and it is a wonderful feeling to see that effort translate into a high-quality publication that will benefit the scientific community, contribute to your personal CV, and make your advisor proud. If your work appears only in your thesis, it will collect dust in the university library. Further, there is no better way to learn scientific thinking and writing than to write a manuscript, and receive reviews from experts in the field. Accordingly, I require all my students to write their thesis in manuscript format targeted for submission to peer-reviewed journals or equivalent (e.g. special publication). You will likely submit a manuscript about the time you graduate (this might be the first manuscript for a masters student, and the 3rd or 4th for a PhD student), which means that revision and resubmission will continue for a time beyond your formal commitment in the graduate program.

(2) A great deal of time and money (typically \$70-100K per year) are invested in your thesis research, and this requires follow-through with publication of results. One reason is very practical: I must demonstrate results from funded research, or funding agencies will deny future funding. Furthermore, research is expensive, and someone – whether taxpayers (all of us), private corporations/donors, or scientific societies – commonly helps us pay for it. Hence, it is incumbent upon us to demonstrate appreciation for these funds via publication. Papers resulting directly from your thesis work are yours, and you will likely (and preferably) be first author on them. If I (and/or others) have a substantial role in producing the idea, designing the project, and/or writing the manuscript, then I (and/or others) will be a co-author. First authorship means that you have performed the majority of the intellectual and physical effort, completed the project, and *conducted the majority of the writing*. If you cannot complete your work in a timely

fashion, you forfeit your right to be first author.

Writing well is a key skill that you should develop and hone during graduate school. I will help you with your writing by requiring multiple drafts of outlines, proposals, abstracts and manuscripts, and providing you with prodigious feedback on these drafts. I teach ESS 418, *Geoscience Communication*, and share the best tips in our group meetings. I strive to be constructive in my comments; if, however, you ever feel put off by something, please let me know... repetitive stress injury in my hands can keep my comments terse and I don't do enough to commend the good work.

I suggest that you start writing up your thesis project papers before you are “ready” and “write as you go”, getting into the habit of always working on some aspect of writing. We can discuss the expectations for you in terms of #'s of published papers for your degree in more detail individually. Number of papers will likely vary from person to person and from project to project, but the minimum requirement is three publications for a PhD and one publication for an MS.

Proposal writing is an important skill that you will develop during your time as a graduate student at UW. Sometimes I will suggest a specific grant that I would like you to submit (i.e. NSF graduate research fellowship) but other times I expect you to find and pursue funding sources of your own accord. (see Student Research Grants below).

We will need to discuss carefully who is included as author on your papers and presentations. Please do not submit your work (proposals, abstracts, papers) before it has been properly edited and approved by me. I expect that you will give me and coauthors a reasonable amount of time to give feedback on drafts (two weeks or more for papers and proposals and one week or more for abstracts). Whether you are a MS or PhD student, please keep in mind that when you move on to your next position, if you continue to do research, you should move on from my working group with your own ideas, not just a continuation of the work we did together.

Professionalism

Part of your higher education includes developing or honing skills of “professionalism”. Professionalism includes (1) taking responsibility for one's own actions and duties, (2) maintaining reasonable respect for and tolerance of other views, (3) a willingness to make reasonable compromises to meet shared goals, (4) a pleasant demeanor (genuine or projected), (5) a focus on accomplishing tasks as expeditiously as possible, and (6) an ability to escape, avoid, or ignore petty arguments and gossip. You should also strive to project a professional demeanor in appropriate circumstances (e.g. mock or professional presentations, interviews, etc.). Note that a professional relationship does not require friendship, but should allow you to work reasonably well even with people you personally detest, or who detest you (although we all hope it never comes to that!).

A professional manner carries us through periods of disagreement and difficulty with minimal stress. It allows one to become displeased or angry with another, yet avoid furious denunciation and accusation. It should allow one to calmly consider a situation and discuss it with others

involved as a problem to be solved. It should allow one to invite and accept reasonable criticism as constructive rather than destructive. As a mentor, I expect to offer honest judgments about professional abilities, and to ignore issues that are irrelevant from a professional view (e.g., political or religious views).

Professional Enrichment

You should take advantage of opportunities for professional enrichment during your graduate-school tenure, as long as it does not keep you from progressing towards the successful completion of your thesis and other duties. Some ideas for both networking and non-traditional learning:

- **Professional Societies**

Student membership fees for most societies are minimal, and you receive perks such as meeting registration discounts. Some that you should consider joining include the American Geophysical Union (www.agu.org), Geochemical Society (<http://www.geochemsoc.org/>), Geological Society of America (www.geosociety.org), and Mineralogical Society of America (<http://www.minsocam.org/>). Check their websites for information on meetings, student grant opportunities, publications, etc. Don't forget internet listservs and societies as well.

- **Professional Meetings and Workshops**

Attending the national (or sectional/regional) meetings of professional societies is a fantastic opportunity for networking and developing interview and presentation skills, in addition to learning cutting-edge science. Each student should strive to present results of his/her research at a professional meeting at least once before departing graduate school. I will always do my best to help locate funding to enable you to attend a meeting at which you are presenting research I have supervised; in return, I expect you to do your best to be as reasonable as possible in expenses (e.g. choosing economical lodging, sharing hotel rooms, seeking good airfares, etc.). There are also many opportunities for travel grants, and reduced registration fees for fieldtrips and short courses, and our department is supportive of student attendance. Other sources for aid include the University and professional societies.

- **Student Research Grants**

Many of the professional societies offer student grants-in-aid of research, and I will strongly encourage you to apply for these, especially if other funding is unavailable. Preparing these grant applications provides a great opportunity for you to clarify your project in your own head, hone persuasive writing skills, and critically consider the resources you need to conduct the research. Awards also look great on your CV, and proposal-writing skills will serve you extremely well in many future jobs. The GSA, AAPG, SEPM, Sigma Xi, Evolving Earth and the like regularly host student grant competitions, and many of the regional sections do as well. Furthermore, students can (and should) apply for the competitive NSF Graduate Research Fellowship.

- **Internships**

We academics will teach you academia, but internships teach you about industry employment. Accordingly, you might consider participating in an internship during your schooling, if scheduling and your desires allow. Keep in mind that some companies now hire for full-time

positions from their intern pools, which means that internships could be critical for your future employment opportunities.

- **Seminar Attendance**

We have a weekly colloquium (Thursdays 3:30 pm) to which we invite off-campus speakers to present their research and expertise. **I expect you to attend the colloquium.** Attendance bolsters student-student and student-faculty interaction, and offers the opportunity to learn something new. I view students who regularly attend colloquium as “good” students (as opposed to apathetic ones), and I want all of mine to be good. At its best, the colloquium exposes you to new ideas and good camaraderie; at its worst, you learn how NOT to give a presentation. Bring a notepad to doodle about your research in the event that seminar is boring. I also encourage you to meet with visiting seminar speakers and/or attend lunch or dinner events with them.

- **Other Opportunities**

Other opportunities you should be aware of include occasional seminars, workshops, and fieldtrips that crop up periodically here on campus and/or nearby. Keep your eyes open and participate as often as possible. If you are interested in a career in education, taking advantage of outreach opportunities or mentoring undergraduates can be a rewarding experience that also bolsters your CV.

Rewards

Research is hard work, and you need to be largely *self-motivated*. There are, however, rewards—both tangible and intangible. The tangible rewards include such “perks” as pay for doing something you enjoy and that is related to your chosen field, as well as buttressing your resume/CV with a TA or RA position and all publications (abstracts, papers) that represent the formal fruits of your labor. Publications are absolutely critical for any student who thinks s/he might be interested in an ultimate position in academia. Traveling to meetings to present something new is another enjoyable by-product of research, as is travel for fieldwork or lab work. Intangibles include the intellectual reward of discovering something new. I hope you enjoy your research experience, and learn from it.

General Lab Rules

You may access the lab at any time for research, quiet study space, computer use (including email), or research work requiring the lab (equipment or meeting space). Please obtain instructions before using any equipment. You are welcome to take over one of the drawers that is not already in use – please place your name on the drawer. Be respectful in use of lab space and equipment. Keep work areas clean, and compartmentalize your workspace. If there’s an issue, tell me. *Whether you’re using a lab computer or personal computer, it is essential that you regularly back up your computer at least once per month, preferably once per week.* Please do not loan out your lab key/code or remove any equipment from the lab without consent from me. If a piece of equipment needs attention, let me know. Despite all of our best efforts at keeping the lab reasonably organized, it will need cleaning and organization now and then, so we’ll hold a lab cleaning “party” every so often.

Note Taking and Research Notebook

Note taking is a critical skill that you should take seriously. You would never dream of making

observations or having thoughts in the field or lab without recording them in your field or lab book, so don't waste your efforts searching and reading the literature, plotting data, or working on a Matlab code by failing to take careful notes on what you are doing. All students must keep a research notebook. It doesn't have to be pretty (take a look at one of my notebooks!). Date every entry. Staple loose papers and plots into the notebook at the end of each day. Bring your notebook and your planner to every meeting so you can (1) update me on your progress and questions, (2) take notes on our discussions, and (3) record the list of deliverables for our subsequent meeting so we can refer back to it next time. Recording your work in one place keeps you efficient, helps us communicate, and makes your hard work and accomplishments tangible. If you'd rather blog or keep a comprehensive electronic notebook, I'm certainly open to suggestions.... While electronic notes can be very effective for some things, most scientists also keep a physical research notebook. Many people find that the physical act of writing or pasting figures in a notebook aids in comprehension and thinking and creates a sense of accomplishment.

Weekly Group Meetings

My research group holds a weekly group meeting (register for ESS 595, Research Methods each quarter) at a time when students are able to attend. These meetings are extremely important for our research group, and so I ask you to make every effort to attend all of them. The objectives of these meetings are several: (1) to give me a chance to hear how you are progressing; (2) to provide an opportunity for students to discuss any issues/problems; (3) to give students ample opportunity to make presentations during their tenure as graduate students; (4) to allow us to build on our knowledge of group and outside cutting-edge research; (5) to build a sense of community within our lab group and related faculty and students in ESS. I hope that you find them as useful as I do.

Safety

Safety is a big deal. Ask before attempting anything that might cause you or others harm. See the "Facilities" page on my research website for lab safety information links. Be sure you know the rules before handling any type of chemical (in various states—liquids, gases, etc.), and apprise me of what you are dealing with so that we both know the procedures. Wear appropriate personal protective equipment (PPE) any time you are working with chemicals or hazardous materials, and let me know if special PPE is necessary so we can acquire it. When performing fieldwork, you should let me know your plans and whereabouts and have a field assistant if at all possible; I will try to recruit others to help you in the field if you are having trouble securing an assistant. Please practice common-sense safety such as always wearing seat belts, taking a phone with you, maintaining a healthy respect for wildlife, and not eating the moldy yak jerky or climbing the cliff with the death grass growing on it. If something bad happens or you get hurt in the field when I am not there, TELL ME. Don't worry that I will worry; it's my job. I will not get mad at you, and hopefully I will be able to help.

Resources

Be resourceful in Graduate School. If you don't know something, ask your peers, your advisor, your committee members, or whomever. Be curious and ask questions! I have posted many resources on the "Resources" page of my website. Please forward me any

links you think I should add/share. Other internet sources offer some places to start:

- The National Academies (<http://nationalacademies.org/careerguides.html>) has links to online versions of its several useful publications dealing with career planning, mentoring, ethics, women in science, etc.
- The American Association for the Advancement of Science (<http://www.aaas.org/careercenter/>)
- The National Association of Colleges and Employers (<http://www.naceweb.org/>).

Also check the professional society web pages that are immediately relevant to your work.

Final Important Point – Your success and positive experience at UW are of the utmost importance to me! Please communicate with me (early and often) about any concerns that you have regarding your graduate studies. You can reach me by email or cell.

[Thanks to Lynn Soreghan (OU, Norman, OK) for sharing this summary of expectations and Heideman (2000) for inspiring much of the content. Thanks to Janneke Hille Ris Lambers, (U of Washington), Alison Duvall (U of Washington) and Jim Watkins (U of Oregon) for contributions. Please provide feedback. – Kate Huntington]