

Guidelines for graduate students in Aerosol-Climate Interactions research group

Welcome to graduate school and our research group! I am delighted that you have decided to join our research team and to pursue a graduate degree at UCLA.

This document outlines guidelines and expectations for conducting research in our group and for the successful completion of your PhD degree. In addition, this document discusses what you can expect of me as an advisor. Please read this document carefully and let me know if you have any questions.

Responsibilities – mine and yours

I have two roles in our relationship. As your thesis advisor, my main role is to provide direction and advice to you in completing your PhD (more on that below). My other role is to serve as the project manager for each of the projects ongoing in our research group. In this capacity, I am responsible for making sure that our projects are completed within budgetary constraints and on time. In this role, I serve as your direct supervisor. These two roles are generally complementary.

Your primary responsibility is to make sure that your research project gets done. As a member of my group, it is your responsibility to conscientiously conduct and report on research in a timely manner. I also expect that you will contribute to a positive and collaborative working environment in our research group. Through formal reviews and informal discussions, we help each other develop as scientists as well as expand our scientific skill base. Occasionally, I will require work from you that does not contribute directly to your thesis but will contribute to the success of the overall project and the success of our group, for instance through obtaining or maintaining research funding.

A less formal responsibility is for you to ask questions about anything you do not understand. Ask questions of me, your other professors, your fellow graduate students, and other members of the group. All science starts with asking questions, so it is important that you are/become comfortable with that. It's the best way to learn!

Your presence in my research group is funded by taxpayer dollars and is therefore conditional upon satisfactory progress in your research and degree program. Should your progress be unsatisfactory, then I would communicate this to you at as early a stage as possible, such that you have plenty of opportunities to address the problem.

Mentoring, individual meetings, and group meetings

Your professional goals will affect how we tailor your degree program and I will do my best to help you meet your overall goals. The main part of my role is to act as a mentor and provide direction and advice on your research project. I will strive to provide guidance with the design of your dissertation project, literature searches, the scientific method, numerical and theoretical methods, data analysis and interpretation, and oral and written scientific communication. I will also advise you on your curriculum, and career goals. The objective is to teach you how to do great science in addition to how to do your specific project. To help ensure as productive and constructive of a mentoring relationship as possible, we will normally co-write a mentoring compact in which we outline the expectations we have of each other in our mentoring

relationship. This can also help prevent misunderstandings. Additionally, I will ask for your feedback on my mentoring at approximately yearly intervals to help make sure that I support your development and progress to the best of my abilities.

At the beginning of each quarter, we will set up a regular time to meet which, as a rule of thumb, will be once a week. We might meet more often in the beginning of your time here, and less often when you are nearing graduation. Whatever our meeting frequency is, it's up to you to let me know if you need more or less time than that. It's also up to you to come to me to schedule any extra times. At these meetings, we'll talk about your research and anything else that you have concerns about. Please bring your notebook and daily planner to our meetings, so you can take notes. At the first meeting of each quarter, we will identify reasonable goals to be completed by the end of that quarter.

If you run into a problem that requires my attention in between our individual meetings, then I encourage you to send me an email or stop by my office in the afternoon. I generally block off the mornings as uninterrupted work time, which I need to effectively conduct my research, obtain grants to fund you and the rest of the group, and write papers. I also will generally not respond to emails on the weekends or evenings, unless we are on a tight deadline or it's an emergency.

You will likely benefit from receiving mentorship from other group members, in addition to me. I will therefore normally ask you to meet regularly with a more senior group member, such as a graduate student or postdoctoral researcher. And when you are more senior yourself, I will likely ask you to provide such mentoring to a more junior graduate student. Additionally, you will have opportunities to take on and supervise undergraduate researchers, which can be a great experience.

I will ask you to continuously write up your work throughout your time here, as research shows that regular writing enhances (y)our productivity (see more below). I will strive to provide feedback on any written products you send me in a timely manner. To respect my time, make sure that any work you send me has been carefully proofread and polished, unless we specifically agree otherwise.

We will normally have a group meeting every few weeks in which we normally work on building skill sets (e.g., writing, coding, reading papers, etc), give research updates or discuss a scientific paper (journal club). Group meetings are a great way for all group members to keep track of what everyone is doing, learn from each other, and get different perspectives. During these meetings, I expect you to be actively engaged, ask questions when you don't understand something, and provide comments and contribute to discussions. For paper discussions during group meetings, everyone is expected to have carefully read the paper to be discussed. If you are leading the paper discussion, see the brief guidelines in the "Journal club" folder on the group Dropbox.

Time expectations

The time commitment to research tends to be one of the more important issues for graduate students and advisors. I expect you to regard graduate school as a full time job, with room for both vacation and overtime. I expect each course to take up about 12 hours/week, a TAship about 15-20 hours/week, and that the rest of your time is devoted to research. As long as I see

progress towards your goals at a reasonable pace, I will not give much oversight on how you spend your time.

I expect that you will take off all holidays (Thanksgiving, Memorial day, etc.) and the week between Christmas and New Year's, which adds up to ~3 weeks per year. In addition, I encourage you to take a few (~2-4) weeks of vacation a year, as time away from work is critical to recharge! I ask that you let me know about any vacation plans at least a month in advance. Note that the period between quarters includes weeks when there are no classes, but during which you are normally expected to work.

Getting a PhD is very hard. At times, you will likely feel lonely, frustrated, or stupid. In fact, many students suffer from "[imposter phenomenon](#)" – the feeling that you might not belong in a PhD program. This feeling is entirely normal - I also struggled with this during my own PhD program and sometimes I still do –and unfortunately it can sometimes be emphasized by the academic environment (see [here](#)). I will try my best to help you through such times. Persevering through difficult times is easier if you strive for a healthy work-life balance, such that if your work is not going well, you can recharge your energies through friends, family, sports, or other hobbies. Therefore, while I expect you to work hard and with enthusiasm, I encourage you to strive for an active and rewarding life outside of your PhD program. See [here](#) for a useful list of twenty things many students wished they'd known when starting their PhD.

Time management

At the beginning of your graduate program, you may find yourself with free time. If you feel like you don't know what you should be doing with your time, please mention that during our meetings. Towards the end of your program you may feel that there are not enough hours in the day to complete all the work that needs to be done. This is the typical experience of a graduate student, although it does not occur for everyone. Continual progression towards your dissertation will help eliminate this last minute (and usually unnecessary) frenzy that some graduating PhD students experience.

Time management is thus a vital skill in graduate school and beyond but takes time and effort to learn. I have a selection of books available in my office that can help you learn effective time management skills. I can also provide guidance on effective time management and we will also discuss this in group meetings. Below, I will share some of the most important habits shown to increase productivity and maintain motivation.

First, I recommend you use a planner. I recommend that, at the beginning of every day or week, you make a prioritized list of tasks to accomplish. For many PhD students, it is difficult to link their day-to-day activities to their broader goals of their specific project and degree program, occasionally resulting in a lack of motivation and/or a surplus of procrastination. To help bridge the gap between your long-term goals and the short-term items on your to-do list, it is important that you also make a list of tasks for intermediate time scales. I will aid in that by discussing your objectives for each quarter. I also recommend that, at the beginning of every week, you write down a prioritized list of tasks to accomplish that week, based on the longer-term objectives for the quarter. Similarly, your daily tasks should be based on your list of tasks for that week.

Second, I expect you to write a little bit every day, especially after your first quarter or two in the graduate program. Regular writing has been shown to be drastically more efficient than 'binge' writing. Just take 20 – 30 minutes every day, preferably in the morning when most people are best capable of creative work, and do nothing but write. Don't worry about the quality of your writing; you can edit and polish it later. Regularly writing in this manner prevents writer's block, which is a problem for most academics (including, occasionally, myself). Furthermore, since writing is a form of structured thinking, it will help organize your thoughts about a project. A great resource to develop your writing skills is the [UCLA Graduate Writing Center](#), which also has online writing workshops.



Selecting and developing your thesis project

If funding permits, I will give you the option to choose among several different projects. You also have the option to apply for your own funding, for instance through the NASA or NSF graduate fellowships, which I highly encourage and which will give you additional academic freedom. When starting on your chosen project, I will strive to closely supervise you, and become more hands-off as you demonstrate competency in independent scientific research.

Your aim should be to advance to candidacy during the course of your third year, or by the end of your second year here if you came in with a Master's degree. This involves passing a series of exams (see <http://www.atmos.ucla.edu/students/graduate/phd-program>), culminating in the oral qualifying exam, in which you propose a detailed research plan for the rest of your PhD. Advancing to candidacy early is especially important if you are an international student, because it substantially reduces your tuition and increases your salary!

Expectations for degree completion

Our research funding is provided by government agencies that require our group to produce and disseminate research results. Therefore, while your thesis is a valuable result for us, it is (to be blunt) generally irrelevant to the funding organization. From their perspective, the support is not for your thesis, but for results and conclusions that move the science forward. And the work you have done will have no impact on science unless you publish it in the scientific literature.

Therefore, the common standard for a dissertation is that it must normally contain at least three publishable scientific articles. This means at least two articles that have been submitted or accepted, and one that is almost ready for submission. Each manuscript should contain a substantive contribution to the science. We will do our best to scope the projects according to these targets.

The expectation is that you will be first author on these three articles, meaning that you have taken the lead in both the research and the writing of the article. I will ask you to complete these articles throughout your PhD, rather than only at the very end, which will hopefully make your graduation relatively low stress.

Miscellaneous

Copies: My research code for the copy machines is 24596. You may use this to do any research-related copying, but you are responsible to pay for any personal and coursework-related copies yourself.

Books: I have a small library of textbooks that you are welcome to borrow at any time.

Travel: I will generally have travel money available to attend professional conferences. After you advance to candidacy, I will strive for you to present at a professional meeting at least once a year. Of course, this is subject to appropriate progression of your work. There are often opportunities to apply for travel grants through the professional organization conducting the meeting, as well as through the university (see p. 43 of <https://grad.ucla.edu/asis/stusup/gradsupport.pdf>). I prefer that we try to obtain external money to avoid depleting the travel budget from a grant too quickly. Similarly, please book your travel well ahead of time – at least two months and more if feasible – to avoid overpaying for hotel rooms and flights.

Intellectual property: Since the research we conduct is primarily funded by taxpayer dollars, it is ultimately public intellectual property. However, until the work is published, please consider the research you generate to be the intellectual property of this research group and UCLA. Of course, I highly encourage you to engage in intellectual discussions about your research with faculty, other researchers, and fellow students. However, please consult me before sharing data, models, and unpublished results or ideas that are easily replicable by others.

Communication: Any constructive relationship requires communication to remain strong. My relationship with you is no different. If you're having problems, or if you need help, please come talk to me. I won't know if something's wrong with the way we're running things unless you let me know.

Dropbox: You will have a folder in the group's dropbox (remind me of this if I haven't already added you). Please see the guidelines in the root folder of the Dropbox for what you should store there.

Coding best practices: You will likely generate code during your dissertation. It is important that your code is readable and usable by others. Please see the guidelines on best practices on coding in the root folder of the dropbox.

Conferences: Disseminating your research findings at conferences is a normal part of doing a PhD, and I expect you will attend several conferences. Because this requires substantial travel funding on one of my research grants, having a nearly-complete research product (paper draft) is normally a prerequisite to attending a conference.

Computing cluster: Our group has a small computing cluster for which the link is climate.atmos.ucla.edu. This cluster can be used to run computationally intensive programs, for instance in Matlab, python, or NCL. You can contact our IT support to obtain an account. We also have a depository of code from past projects from our group at /data2/code_depository

Backing up your work: Please make sure that you regularly back up your work to prevent a computer malfunction from wiping out weeks or months of work. An ideal solution is to use a Box or Dropbox account (my grant can usually pay the subscription fee) to keep a constant backup of your files in the cloud. You can also use the computer cluster to back up your work on a regular basis.

Professionalism:

During your time here, I hope that you will develop as a professional. This means:

- Always treating others and their scientific ideas with respect and tolerance, even if you disagree.
- Taking responsibility for your own actions and duties.
- Being willing to ask questions when you don't know the answer.
- Helping other students when they ask for it.
- I will try to provide you with constructive criticism and feedback. A willingness to learn from this is really a prerequisite for getting a PhD.
- Communications should be respectful of others at all times. Should a difference of views arise, communications should avoid attacks on another person's character or intentions.
- We all carry subconscious biases towards people of different groups, myself included. It is critical that you become aware of such biases so that you can reduce them and consciously counteract them. I therefore ask that all group members measure their own biases based on race and gender by using the Harvard implicit bias test at <https://implicit.harvard.edu/implicit/takeatest.html>. At a minimum, please take the Race IAT and Gender-Science IAT to become aware of your own subconscious biases. We also will periodically have group meetings discussing bias in academia.
- If you witness that another student or group member is being treated disrespectfully, or is the subject of bias or discrimination, please speak up and/or report the incident in consultation with the person being treated disrespectfully. I also encourage you to alert me to such instances so I can take appropriate actions as needed.

Although you are ultimately responsible for the timely and successful completion of your dissertation, trying to help you achieve this goal is a one of my highest priorities. I expect that you will do an excellent job and I hope that the process will be fun and intellectually rewarding for you. Everyone here wants to see you succeed. Good luck!