Earning your PhD in the Turner Lab

Monica's informal summary of milestones and what to expect
[*Updated 9 January 2012, but always subject to additions and changes!*]

First year – Classes, TA and research planning

Fall semester, yr 1:
Take classes, TA, form your committee, submit fellowship applications, if appropriate.

Turner lab students typically TA early during their graduate training; your time is already fragmented by classes, and so teaching can be less intrusive than when you are farther along. Zoology requires at least one year of TA as part of your professional training. Your initial classes will be determined in consultation with Monica, but ultimately your PhD advisory committee will approve your overall program of study.

Time management is important, even this early! The TA demands are not trivial, and you should be very conscious about how you manage your time – this skill is absolutely critical to success in science. And, now that you're in grad school, read through the WHAT THEY DIDN'T TEACH YOU IN GRAD SCHOOL book at least once (it will be helpful to read it again later).

Ongoing expectations that begin during year 1 include: attend and contribute your thoughts and ideas to our weekly lab meetings; lead lab meeting at least once, possibly twice per year (includes summarizing what you did previously or last field season; status of analyses/interpretations; proposal ideas; etc.) Expect to meet "formally" with Monica at the beginning of each year to review your status/accomplishments to date, look at the big-picture plans for what you will accomplish during the year, and review your CV. There are also lots of opportunities to talk informally (e.g., while eating lunch in the lab) and to meet with her as needed. Also, be prepared to submit an annual grad student progress report to the department each spring.

Forming a committee – think about the areas of expertise you'd like represented among the 5 members, discuss ideas with Monica, and talk to other students about which faculty are really good on committees. You may ask faculty from all over campus (in Zoology, only your advisor must be from the department). After you and Monica agree on the list, put together a one-page brief prospectus on your research ideas and your CV, and include these when you ask faculty to serve on your committee. Note – it may also be a good idea to have Monica (or others in the lab) review your CV for format, groupings, etc., as now is the time to make sure you have a professional-looking CV and are tracking things correctly.

Spring semester, yr 1:
Plan your first field season or summer research effort; schedule and hold a committee and certification meeting, and possibly take your qualifying exam. (That must be completed by your 3rd semester, but it is a diagnostic exam that informs coursework selection).

There is a standing joke that finding a time that works for all of your committee members to meet on the same date, time and place is a larger hurdle than either the exams themselves or the research. There is good reason for this amusement, as UW faculty members are active scientists who have very busy schedules. Therefore, SCHEDULE EARLY! It is easy to cancel a meeting if it is not needed, but if you know you want to meet in March, send the email to find a date/time in January! Don't wait until the last minute, as it is much better to have the slots on faculty calendars. Check your schedule and Monica's first, then offer a range of windows that work for us to the others. (Using a Doodle poll is fine, but be careful not to make it infinite in length…)

The first committee meeting – this is where we have the first "official" discussion of your research directions and program of study (i.e., courses) with the committee, and you complete the PhD Certification Form. Typically, this would be a 1-hr meeting (unless it is combined with your Qualifier.) There are several items that you will prepare ahead of time, and distribute to the committee: current CV; short research prospectus; draft version of the Certification Form, with an extra blank signature page; summary of your prior coursework (undergrad, grad, and UW) and intended courses, categorized by general topic (e.g., ecology classes, quantitative classes, general science, etc.). Note that you must have at least 4 of your 5 committee members lined up for the PhD certification and for the qualifying exam; if you know all 5, it is best to have them all present. If there is some uncertainty about what expertise will be best for the 5th member, then proceeding with just 4 is fine.

The Qualifying Exam – Zoology uses this as a diagnostic (is the student prepared/qualified to undertake their doctoral studies?) rather than an exam to determine mastery. It should be taken early (typically during the 1st year, and definitely by the 3rd semester) and is an oral exam of about 2 hrs. It is sometimes combined with the Certification meeting. How much should you study? Not excessively, but you should review enough to feel somewhat comfortable with ecology. TA experience is excellent preparation, as is reviewing general ecology books, Foundations of Ecology, etc. Ask your committee members what they expect of you ahead of time. NOTE: bring the qualifier form (departmental) to the exam.

Summer, yr 1:
Full-time research!

Second year – Classes, TA, research

Fall semester, yr 2:
Take classes, TA, analyze data from first field season, continue planning your research; submit any appropriate graduate fellowship applications.

This is likely when you have real or preliminary data to work with, and when the remaining components of your PhD study begin to be take shape. You begin to draft your prelim proposal, and (if you've not done this previously) read examples of other excellent PhD proposals (more

info under Prelim Exam, below). You will also be analyzing your data, and (depending on what you accomplished in year 1) thinking about the first manuscript that you will lead. Publishing early and often is a habit you want to establish (though you really aren't pressured to do this yet!)

Turner Lab Bucky Awards -- Remember to give Bucky (in our lab) a new tag whenever you submit a manuscript! You then get to consume or share whatever is under Bucky (and replace with another beverage that will go to the next person who submits his/her paper). Rationale – no paper ever gets published unless it is submitted, and that's the big hurdle. (For every good study, there is home – even if it's not the first journal you tried.)

Spring semester, yr 2:
This will generally be your final semester of classes, although many students will take seminars subsequently, and possibly Delta classes or seminars (focused on teaching); write your prelim proposal and complete your prelim exam.

The Prelim Exam – This exam is focused on your research and is a defense of your proposal. It cannot be taken before the student has completed required coursework, or is in the final semester of taking required classes. You will develop a well-crafted research proposal, at the level that would be expected for a typical NSF proposal. Monica will work closely with you in developing the questions (harder than it sounds!) and learning how to write a good proposal. This is an iterative process, and the proposal won't go to your committee until it is in excellent shape—and this task definitely falls in the "learning by doing" category. There are numerous examples from the previous PhD students in the lab to give you a sense of what is expected. You are typically aiming toward 3-5 scientific papers from your PhD, which you'll target for submission to appropriate (and often highly ranked) journals. Lengthwise, the proposal should not exceed 15 pp (single spaced) excluding references, but including any figures, tables, preliminary data, etc. This is the length is typical for standard federal proposals, and thus you will have to write to this length when you are out in the real world of science. You will give the proposal to your committee members 2 weeks before your oral exam; in practice, this means you are working with Monica on the proposal for a couple of months before that date. The oral exam is usually blocked out for 3 hours, and you will give a presentation of your proposal (usually ~25-30 min total), and then you answer questions from the committee. Plan to practice your presentation at lab meeting a week prior to your proposal. NOTE: You must request the Prelim Warrant in advance from the Graduate School, and then remember to bring it to your prelim!

The proposal and prelim are really important components of graduate training. When you finish your PhD, you are expected to know how to write good (and fundable) proposals, and this is not a skill that is taught in classes. Also, this is when you seek and benefit tremendously from the input/expertise of your committee members. Always remember that you want the input early, and you want to be challenged here (among your friendly, supportive colleagues!), so that your science is as compelling and rigorous as possible, and you are prepared for questions/criticisms from the outside. Once you finish your prelim, you are officially a dissertator--that means all that remains is to finish your research and write your papers (dissertation)!

Summer, yr 2:
Full-time research!

Years 3, 4 (and maybe 5) – Research!

All semesters, summer, etc.
Research (i.e., data collection, analysis and writing), professional meetings, publication; meet with committee annually for progress report, update, soliciting input. Minimal classwork, lots of professional development. Consider submitting NSF DIG proposal or seek other opportunities (feathers in your cap are always good!)

This time is primarily devoted to research and communication. Your funding will likely be some combination of TA, RA and/or fellowship, depending on your particular situation. You will continue to be learning a lot about the practice of science, i.e., professional development associated with data analysis, reading and synthesizing literature, giving oral presentations, writing, reviewing, responding to reviews, and starting to develop your own publication record. You also become an experienced leader among the cohort of graduate students, and sometimes have opportunities to assume leadership responsibilities on campus (e.g., graduate student rep to Wisconsin Ecology, or rep within the department, or perhaps even student member of a faculty search committee) or off campus (several of our alums have been elected grad student reps to US-IALE, some students have been active in LTER network activities). Presenting your work at professional meetings should be worked into your planning horizon (e.g., US-IALE, ESA, AGU or others), and you should be considered for any student presentation awards, and actively network at meetings. Submitting papers should be a priority during this time. And always keep your committee up to date, circulating your manuscripts for comment prior to submission, and sending them PDFs of the publications.

For many students, this period is challenging. Without the structure of courses, your schedule is much more open ended, and your time, your productivity, etc. depends on YOU. Research is open-ended and happens over a longer time frame, and the process is relatively new. Again, time management, self-motivation and organization are key to success. So is perseverance. Things don't always work as expected, data are often messy, and writing can be intimidating to some; that's when you really need to keep your nose to the grindstone. Read widely, think creatively, share ideas/syntheses with other students and faculty, but keep at it! And, as is often repeated, "Do not let perfection be the enemy of the good." Share your work early, don't expect it to be perfect, and don't cringe when you get constructive (even if critical) suggestions—this is how science works.

Also think about what types of added experiences you wish to gain while in grad school. For some students, this is more formal training in pedagogy (e.g., Delta program, mentoring undergrad research projects, etc.). For others, it is the chance to be a leader in some capacity in a professional organization, or a desire to conduct a study in a different type of system, or take advantage of a key short course (Bayesian models, isotope analyses, etc.)

As you near the end of the PhD, you'll also begin applying for postdocs or other positions. Your productivity in grad school is the best indicator of your success at the next step, so it is important

to be getting those papers submitted! Again, strive for high-quality science that is published in a timely way; this is everyone's best interest (but mostly your own!)

The Exit Colloquium – Zoology PhD students are expected to give a public seminar of their doctoral work in the weekly colloquium. Schedule early once you know when you want to give your seminar, as the schedule fills quickly!

The Dissertation Defense – This is the collection of papers from your PhD work, and you must be the lead (though not the sole) author on each paper in the dissertation. Typically, there are 3-5 papers in a dissertation (with 3 being the minimum—but perfectly acceptable—number). Very often, at the actual defense, students have a paper that is already published, one or two that are in press or in review, and a final one that was written most recently and still to be submitted. The Dissertation also includes introductory and significance chapters (these are brief). The committee receives the full dissertation two weeks before the defense. The defense is oral, with a presentation by the student, and questions from the committee. NOTE: Your Defense Warrant must be requested in advance from the Graduate School, and then remember to bring it to your defense.

"Walking" at graduation – After all is done and deposited (or even if it's still planned for summer), you can attend the Friday night PhD graduation ceremony at the Kohl Center!

Lab Legacy – These are on the People Page of our lab website, and were started at the suggestion of students who came before you. You probably read through these when you were deciding where to apply for graduate school. This is your chance to speak to students who will follow you, sharing advice, reflections, jokes, or whatever. These are fun for prospective lab members to read, and they give current students the flavor of your era in the lab. So, please do it!