

PhD Requirements, Process Notes and Recommended Timeline

Summary

4 classes by 4 different profs (**4 x 4 course requirement**)

Qualify/Advance to Candidacy (by **end of 7 quarters...** a **formal requirement**)

Thesis & Thesis Defense (within 5 years is the target)

n.b. Grad. Div. = Graduate Division (<http://graduate.ucr.edu/>). "Chair" = qualifying committee chair or thesis chair depending on context - not department chair.

4x4 Course Requirement

Use the current academic year's course catalog and work out which classes you want to take. The 2020-2021 catalog is here: https://studentdocs.ucr.edu/registrar/UCR_Catalog_2021-22.pdf. Discuss course options with your Advisor. You may even inquire with individual faculty as to when a relevant class is likely to be taught, so you can plan in advance. Note that technically this is a 4x4x4 requirement, since each class must be 4 credits.

Upper division (course numbers 1XX) undergrad classes can count towards 4x4; talk with advisor & grad advisor.

If you did a MS at UCR, your 4x4 is already done.

Take GEO 201A (training on research talks; 2 credits) and GEO 201B (proposal writing; 2 credits). GEO 201A should be taken during Winter Quarter if Year 1; GEO 201B should be taken in Spring Quarter of Year 1.

After you have signed up for classes, fill up to 12 credits with 299P form. 299P (Research for Dissertation) form must contain your research goals for the quarter. This is filled out in consultation with your advisor on a quarter by quarter basis. The new DocuSign form should be used, which is located here: https://epsci.ucr.edu/forms#academic_forms

Hewett Club & GEO 250: both are compulsory but only 250s count as credits. Neither counts towards 4x4.

Qualifying Exams / Advancing to Candidacy (aim to be complete by end of Year 2)

Do this *early* so that you can benefit from it, i.e. aim to submit first round of proposals by end of 2nd Year Fall Quarter and certainly by the end of Year 2. All students must pass Candidacy exams by end of 7th quarter = 2 years and one quarter. Must be enrolled as a full time graduate student the quarter that you qualify. A recommended timeline is outlined below.

Step 1. Write two short (up to 2 page) proposal abstracts including references, talking with advisor.

These must demonstrate breadth (e.g. $\leq 10\%$ of references overlap) and don't have to be your thesis but should be thesis-worthy (i.e. an appropriate amount of work for a PhD thesis). Try and get these done by end of Year 1 or by end of Year 2 Fall quarter.

Proposal Abstract Distinctions

We encourage both the scientific questions and methods of the two projects to be quite different from each other. This will give you the most breadth in your scientific training, which is better for your future career. However, some similarities might be unavoidable.

Some *informal* (i.e., subject to interpretation and re-evaluation) rules of thumb are the following:

- 1) If your two projects are addressing the same basic issue, that may be OK as long as the methods are quite distinct. For example, one being observational and the other being laboratory or numerical.
- 2) If your two projects are using similar methodologies, then the two scientific questions should be quite different from each other.
- 3) The reference list for the two projects should not overlap by more than 10-20% at maximum.

For example, a student working on trilobites for a primary proposal can have a secondary proposal also on trilobites but it must be asking a fundamentally different question.

Please remember that the purpose of this stage of the process is to make sure that the two topics are significant, achievable, and distinct enough from each other to provide the student with breadth in his/her training.

These proposal topics should have been developed in conjunction with (and the approval of) your advisor. You should probably start chatting with your advisor about potential topics in the first or second quarter of your **first year**. The basic idea for at least one of the proposals is often suggested by your advisor, but the further development of both topics/proposals should be done primarily by you, the student.

For most students, these two proposals consist of the student's planned dissertation project and something else that the student finds interesting. However, you are under no obligation to actually do either of the projects for your dissertation. The reality, however, is that it is likely in your best interest for one of the proposed projects to be your dissertation.

Step 2. Set up committee (thesis advisor + chair + 2 in department + 1 external faculty). Talk with advisor and email potential people, suggest these to Grad Advisor who actually forms the committee and assigns chair. It is your responsibility with the help of your faculty advisor.

Step 3. Submit proposal abstracts to committee chair. Email John Herring and Grad Advisor after you have your abstracts approved. It is AFTER the abstracts approval stage that your committee has to be formally approved by Grad Division.

Step 4. Given OK by committee, proceed to write proposals with advisor's feedback (you can give

them drafts but they shouldn't write anything/no line edits). You should get advisor's approval before submitting to committee chair. Proposals are NSF-style, i.e. ~15 pages not including references (don't need budget, broader impacts or intellectual merit). It's good to ask other grad students for examples. You don't have to have preliminary results but these can often help establish proof-of-concept.

Proposal Structure

- Proposals should be less than or equal to 15 pages. But probably not too much shorter than the maximum of 15 pages. In general, if one submits a proposal to a funding agency with less than the maximum number of pages, a reviewer may be inclined to criticize for lack of more comprehensive descriptions/explanations, etc. If, however, the proposal is maximum length (e.g., 15 pages for NSF), the reviewer may be more forgiving with such a criticism.
- Required proposal style/format should generally follow NSF guidelines, but this can be adjusted (e.g., NASA format) based on consultation with the Committee Chair.
- Broader Impacts and Intellectual Merit sections (required for NSF) are NOT required for our proposals.
- We recommend a formal consultation with the Committee Chair (at the beginning of the proposal writing process) to discuss specific proposal requirements, including the format (e.g., NSF/NASA/Other). Prior confusion can be alleviated via consultation with the Committee Chair prior to the initial submission of the proposals. A work schedule, for example, is probably something that all proposals need, even if not formally required. There will likely be some proposal components that will be dependent on the Committee Chair—and maybe even the student. As previously mentioned, if a student wants to write a NASA style proposal, as opposed to NSF-style, this is allowed (but please discuss with your Committee Chair).

Step 5. Submit proposals to committee chair and John Herring. This is the preliminary (informal) review with the exam committee (minus the research advisor). Committee has up to 4 weeks to review. Follow-up with chair if it takes longer. Note: Four week limit doesn't include summer/breaks.

Step 6. Committee chair shares reviews with you. Revise proposals through committee's suggestions, no feedback from advisor at this point - all questions go through committee chair.

Step 7. Resubmit proposals to committee chair for either pass/no-pass rating. This is the formal review. Committee again has up to 4 weeks to evaluate the proposals. If one does not pass, there is another round of revisions possible. If one passes, then one can go on to the Oral exam.

Failing unanimity, a committee report which contains only one negative vote will be deemed a pass and a committee report which contains two (or more) negative votes will be considered a failure.

Student receives two (formal review) opportunities to pass written exam. A third examination is not permitted.

For strong proposals, the typical outcome of the informal review is a set of recommended revisions that can be made easily within the general outline of the submitted proposals. Appropriately undertaken, such revisions can be expected to lead to acceptance of the proposal in the subsequent formal round of review. For weak proposals, the recommendation may be to reconsider the whole structure of the proposal; then it is probable that two formal rounds of review will follow. Two rounds are the limit. **So, the whole process often takes up to 8 weeks, perhaps even longer.**

For oral defense, prepare a relatively short 15-20 minute presentation. Set date for oral defense and book a time/venue. **Grad Division has to formally approve your committee...so make sure your Committee Chair emails John Herring and Grad Advisor when your proposals have been approved.** Ask committee members if you could meet with them, ask in general if there are weaker topics you should read up on prior to defense. Ask other grad students about their experience.

Step 8. Oral defense (in principle, committee has up to 3 hours, reserve a room through John Herring, make sure committee OKs date, time, & location).

Questions are meant to test how you think on your feet and how much you know about your proposal topics and your general chosen field. Be prepared for a formal grilling. You're not going to be able to "answer" all of the questions, just explain how you might go about figuring it out from first principles. If you're stumped by a question, instead of panicking, ask for clarification. Take advantage of having the undivided attention of 5 experts! Please see "[Additional Information on the PhD oral exam](#)" link for more information on the oral exam.

Step 9. Submit a "Report on Qualifying Examination Results and Nomination of the Dissertation Committee" form to Grad. Div. within 48 hours of orals. John Herring will help with this.

Thesis and Thesis Defense

Must be enrolled as a student (full time or on "Filing Fees") the quarter that you defend/file your thesis. It's better to not let your student status lapse and have to re-enroll.

1. Establish dissertation committee (advisor + 2 others) which can but doesn't have to be from Qualifying Committee. Can have 4 people total (need Grad Division approval) but logistically easier to have 3. Establishing your dissertation committee is done after passing the qualifying exam (if you neglect to do this, you will likely be put on a registration hold!).
2. Submit your thesis to your dissertation committee. Please allow at least 2 weeks (with 3-4 being preferable), so that your committee can thoroughly read your dissertation.
3. Thesis Defense: hour-long talk at GEO 250 level to department + public, with public Q&A session followed by closed-door thesis committee Q&A.

Talk should represent scope of whole thesis but can talk with committee about details. Questions will be different from Quals, i.e. more about how your work fits into broader literature.

4. Submit "Report of Final Exam" to Grad. Div. Have to file thesis within 120 days of defense. If that 120 days extends into another quarter you have to either be enrolled or on filing fees for that quarter.

PROGRESS BENCHMARKS

The following is our recommended timelines for PhD students:

PhD program:

- 2nd qtr: complete course in giving research presentations, GEO 201A
- 3rd quarter: submit written research topic abstracts
- 3rd quarter: complete course in proposal writing, GEO 201B
- 3rd qtr: present research proposal in graduate seminar (first 250 seminar)
- 4-5th qtr: complete four elective graduate courses
- 4-6th qtr: submit two complete research proposals
- 6-7th qtr: complete oral qualifying examination
- 5, 9, 13th qtrs: present research progress in graduate seminar (later 250 seminars)
- 15th qtr: defend dissertation

Additional Steps (Graduation Procedures)

In general, please see the Graduate Division webpages, including:

<https://graduate.ucr.edu/dissertation-and-thesis-submission>

Below is a summary of the most important steps:

1. Review your degree audit via R'Web (see Degree Audit icon under your authorized applications menu). Confirm all requirements have been or will be completed by the end of the quarter you wish to graduate. Discuss any discrepancies with John Herring.
2. Apply to graduate via R'Web. The application will be available once registration begins for the quarter you wish to graduate. **The deadline to apply is typically the Monday of week 4.**
3. Written thesis formatting available through Grad Div. Every student planning to file and graduate must submit a dissertation/thesis for format review **at least two weeks** prior to the final filing deadline. This includes a LaTeX template which does all pagination etc. for you. LaTeX is not too hard to learn and other grad students can probably help if you have questions. The Graduate Academic Affairs office holds workshops each quarter (in person and online) to help students understand the requirements. The workshops are typically held in week 5 but be sure to check your R'Mail for announcements. NOTE: **The last day to complete all degree requirements is typically the last day of finals week at Noon PST.**

Additional Considerations

Residency

Out of state students need to establish residency. In order to avoid very high out of state fees, be sure to establish residency in California as soon as possible. You can do this by: registering to vote in CA, getting a CA driver's license, and opening a CA bank account.

TAships versus GSR

Grad Advisor assigns TAships for various undergrad classes taking faculty and student preferences into account. So, talk to advisor / class prof / Grad Advisor if you have strong preferences about TAing.

Has to be worked out quarter-by-quarter because Grad Advisor doesn't immediately know funding situation. Depends on your faculty advisor deciding on whether they will put you on GSR or TA. Then a list of all the grad student requiring a TA can be drawn up and best fits for particular classes worked out.

If you TA, sign up for GEO 301 (Teaching of Geosciences at the College Level)/302 (Teaching Practicum). 1 and 1-4 units, respectively.