

PHD HANDBOOK

www.geo.arizona.edu

This handbook is intended to help you meet all Departmental and Graduate College requirements for the Ph.D. degree in Geosciences. It is important that you acquaint yourself with these requirements and deadlines and remain informed throughout your academic career.

Geosciences Graduate Policy Committee

The Geosciences Graduate Policy Committee, composed of five Geosciences faculty members, formulates and monitors departmental policy governing your graduate studies. This committee is responsible for evaluating your academic progress and administering financial support throughout your academic career.

Geosciences Graduate Office

The Geosciences Graduate Office is responsible for monitoring your academic progress and assisting you in meeting all departmental and Graduate College degree requirements. This office is your primary contact. All paperwork towards your degree must be submitted to the Geosciences Graduate Office for approval.

Graduate Degree Certification Office, Graduate College

The Graduate Degree Certification Office in the Graduate College is responsible for overseeing all Graduate College degree requirements and for the final posting of your degree.

General Information

Information on general requirements for the Ph.D. degree is available on-line through the Graduate College (<http://grad.arizona.edu/>) and Geosciences (http://www.geo.arizona.edu/academics/grad_phd.html). The Graduate College sets basic degree requirements, and there are additional Geosciences requirements which are outlined in this handbook.

Minimum GPA Requirement

Geosciences students must maintain a minimum cumulative GPA of 3.0. Should a student's cumulative GPA fall below 3.0, the student will be placed on academic probation. If at the end of the following semester the student has not raised her or his GPA to 3.0 or higher, the department will convert the student to non-degree seeking status. No student on academic probation may hold a scholarship, fellowship, or assistantship.

Deficiencies

A deficiency is a lack of coursework or knowledge in a basic area which may be critical to a student's graduate and professional work. A student's advisor may require that she/he satisfy these deficiencies through further coursework. A grade of C or better will satisfy deficiency requirements, but no deficiency will be eliminated on a pass/fail basis.

PhD Course Units and Time Limitation

A minimum of 63 units of graduate-level courses (500 or above) are required for the Ph.D. degree. These include 36 coursework units in the Major, 9 coursework units in the Minor (students may minor in Geosciences), and 18 dissertation units (GEOS 920, taken after comps). At least 23 units of the 45 coursework units (major plus minor) must be graded units. Ph.D. students may transfer in up to 15 units from a MS degree earned at another university. The *Doctoral Plan of Study* (filed in the third semester) will detail your 45 coursework units. First-year Geosciences students are required to take two semesters of GEOS 595a, Colloquium.

All requirements for the degree of Doctor of Philosophy must be completed within 5 years of passing the Comprehensive Exam. Should a student not finish within that time period, she or he will be required by the department to re-take the Comprehensive Exam before proceeding to complete other requirements, e.g., the dissertation. ***It is expected that a Ph.D. degree will take four to five years to complete.***

Minimum Enrollment Requirement

All students on scholarship, fellowship, or assistantship support must register for a minimum of 9 graduate units per semester.

Continuous Enrollment Requirement

Ph.D. students are required to be enrolled each fall and spring semester for a minimum of 3 graduate units (9 graduate units if on scholarship, fellowship or assistantship) from original matriculation until the completion of all course work requirements, written and oral comprehensive exams, and 18 dissertation units. When these requirements are met, students must register for a minimum of 1 unit (9 graduate units if on scholarship, fellowship or assistantship) each semester until the final copy of the dissertation is submitted to the Graduate College. If degree requirements are to be completed in the summer, students must register for a minimum of 1 unit of graduate credit during that term.

Unless excused by an official Leave of Absence (which may not exceed one year throughout the student's degree program), all graduate students are subject to the Continuous Enrollment Policy and must pay in-state and out-of-state tuition and fees in order to remain in the program. If the student fails to obtain a Leave of Absence or maintain continuous enrollment, he or she will be required to apply for re-admission to the program, pay the Graduate College Application fee, and pay all overdue tuition and fees, including cumulative late penalties. No tuition or registration waivers will be applied retroactively.

Academic Progress

Satisfactory academic progress consists of maintaining full-time graduate status, maintaining a minimum grade point average of 3.0, submitting annual progress reports, and making adequate progress in taking exams and completing other requirements for the degree. *Students not making satisfactory academic progress are not eligible for departmental support or departmental office space, and continued unsatisfactory progress will result in conversion to non-degree seeking status.*

Dismissal and Appeal Policy

Students may be dismissed from the Geosciences degree program due to insufficient progress towards completion of the degree. The Graduate Policy Committee (GPC) monitors student progress and periodically notifies students who are not making satisfactory or timely progress. This notification is a written warning and may require the student to propose a schedule for degree completion which has been approved by the student's advisor. Once the GPC accepts the schedule, noncompliance prompts a written notification that the student will be converted to graduate non-degree status at the start of the next semester. The student may appeal this status conversion in writing to the GPC chairperson, but this appeal must be received *before* the date of the status conversion. The student may appeal the GPC chairperson's decision to the Geosciences Department Head.

Degree Requirements

Ph.D. Qualifying Meeting

The Department of Geosciences requires that during your first semester you meet with a committee of three faculty members, including your advisor. Your two additional committee members will be selected by your advisor in consultation with you. At least two members of this committee must be full or joint members of the Department of Geosciences. After you and your advisor select the two additional committee members, you will schedule your Ph.D. Qualifying Meeting with them. **You must file the Qualifying Committee Meeting form on or before October 15th of your first semester** (March 15th for spring semester). The actual meeting may occur after October 15th.

This qualifying meeting will evaluate your prior knowledge in your general research area, and assess your preparation to conduct Ph.D. level research. This meeting will consist of a brief (10-15 minute) presentation by you outlining your general goals for your Ph.D. research and your background. Your presentation will be followed by questions from the committee, to last in total no more than 2 hours. The qualifying meeting committee may then specify those courses that will be required for your program.

PhD Committee

In your second semester you will have the opportunity to formally select a Major Advisor and four additional members to form your Ph.D. Committee. This committee is responsible for guiding your academic program, conducting your Comprehensive Exam, advising you during the research and writing of your dissertation, and conducting your Final

Defense. Three members, including your Major Advisor, will serve on the **Major Committee** and two members will serve on the **Minor Committee** (you may minor in Geosciences). The majority of your committee must be tenured or tenure-track faculty in the Department of Geosciences. Tenure-track faculty in Geosciences must direct or co-direct all committees. At least two members of the Major Committee must hold tenure-track appointments at the University of Arizona. At least one member of the Minor Committee must hold a tenure-track appointment at the University of Arizona. If approved by special petition to the Graduate Policy Committee and the Graduate College, up to two members of the Committee may be non tenure-track, or non-University of Arizona faculty. You may not modify the membership of your Committee between beginning your Written Comprehensive Exams and completing your Oral Comprehensive Exam and you may not change your Minor department after your Comprehensive Exam.

Meeting with Advisory Committee

The Geosciences department requires that you meet with your advisory committee (Ph.D. committee) at least once a year. In preparation for that meeting you are required to prepare a brief (no more than one page) written report that summarizes your progress during the past year and outlines your goals for the coming year. The advisory committee meeting is not supposed to be a mini-oral exam; your advisory committee should benefit you by providing advice and support. The meeting (30-60 minimum) is an opportunity to discuss progress and goals as a group, identify relevant courses, provide advice, schedule events such as prelims and defenses, and consider funding opportunities. Your prepared progress report should be signed by each member of the committee and a copy is due in the Geosciences Academic Affairs office (GLD-S 210) on May 1 of each year that you are enrolled in a Geosciences graduate degree program. You should contact the members of your advisory committee to schedule a meeting and prepare your progress report in advance of the meeting. Students without committees should plan to meet with their advisor to discuss choosing a committee before the May 1 deadline.

Comprehensive Examination

The Comprehensive Exam is the major examination that must be passed before admission to formal candidacy for the doctoral degree and enrollment in the required 18 units of GEOS 920. The Comprehensive Exam consists of a written part and an oral part. If any of the parts are failed, you may retake that part a second time before the end of the following semester *with the approval of your committee*.

Part 1. Written Exam: You must prepare a research proposal in a format following NSF's Current Grant Proposal Guide (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg). The proposal topic is to be decided by you in consultation with your major advisor and your dissertation committee. The proposal should include the following sections:

1. A 1-page Project Summary
2. A 15-page Project Description that includes: (A) an introduction to the scientific questions to be addressed, (B) background information and summary of relevant previous work, (C) proposed research and work plan, (D) broader implications of the project, (E) bibliography, and (F) curriculum vitae.

The primary goals of the proposal part are to encourage you to explore potential research topics and their methods of solution during the early stages of your residence and to give your dissertation committee an opportunity to assess your ability to define and address scientific questions. Your actual dissertation research will evolve and may change following the comprehensive exam.

Your proposal must be provided to the Geosciences Academic Affairs Office at the same time it is provided to your committee. The dissertation committee will evaluate your proposal and provide a pass or fail recommendation along with constructive feedback. Each committee member must also contact the Geosciences Graduate Office with his or her result for the proposal (pass/fail.) This part of the exam must be successfully completed prior to taking the oral exam.

Part 2. Oral Exam: You must print out a *Results of the Oral Comprehensive Examination for Doctoral Candidacy* and bring it to the Geosciences Academic Affairs office (GLD-S 210) at least seven business days prior to the date of your oral exam for department head signature. You will then bring the *Results of the Oral Comprehensive Examination* form to your exam. The Oral Exam is taken before the full dissertation committee and must last at least 2 hours but no longer than 3 hours. At the beginning of the exam, you will be asked to provide a 30 minute presentation that summarizes your academic background and research interests and goals. This will be followed by a questioning period during which you

will be questioned about your broad knowledge in your chosen field of study and your depth of understanding in your areas of specialization. The committee will record the results of your exam on the *Results of the Oral Comprehensive Examination* form, sign it, and bring it to the Geosciences Academic Affairs immediately after your exam.

The two parts of the Comprehensive Exam must be completed by the end of your fourth semester. At least three months must elapse between passing the Oral Exam and taking the Final Dissertation Defense.

Dissertation and Defense

Quality of the Research

The Ph.D. in Geosciences is awarded chiefly for original research of significance. The research must involve the discovery of new principles, of new applications of principles already known, or of new ideas derived in the coordination of previously known facts and principles. A research report that presents an excellent description of the facts, or describes a field area that essentially duplicates one already reported, would not constitute an adequate dissertation. The dissertation must be a contribution to science. It should be based on your own observations and thinking, modified only by a reasonable amount of suggestion and criticism from your committee and colleagues.

Doctoral Defense

The final examination is an oral defense of all elements of your dissertation. The *Announcement of Oral Defense Examination* must be filed with the Graduate College at least seven working days before the date of the exam. In the minimum three tenured, or tenure-track, Geosciences professors must attend your defense as your committee. If a defense committee has only three members, all must approve the dissertation. If four or five members of your committee attend your defense, there may be one dissenting vote. The examination is closed to the public, except for an initial seminar portion during which the student presents the dissertation and entertains questions. There is no minimum time limit for the Final Oral Examination, but the entire proceedings may not exceed three hours. Attending members of the committee must be present for the entire examination.

Dissertation Format

There are certain features of format which every dissertation must conform to. General format guidelines are outlined in the *Manual for Theses and Dissertations* (see <http://grad.arizona.edu/current-students/manuals>, and <http://grad.arizona.edu/degrecert/submitted-now-what>) and must be strictly followed. The format check will be performed by your Dissertation Director, who must be given sufficient time to complete the format check and return the manuscript to you for any corrections.

Submission of Dissertation

To the Graduate College: one copy is submitted electronically (<http://dissertations.umi.com/arizona/>), and two original, signed Final Examining Committee Approval Forms (dissertation “page 2”) are taken in person to the Graduate College by the posted deadline.

To the Geosciences Department: one CD containing a PDF of your dissertation and a PDF or JPG of your signed Final Examining Committee Approval Forms (dissertation “page 2”), and a change of grade form for any GEOS 920 units (signed by your advisor) are submitted to the Geosciences Graduate Office by the posted deadline. The copy submitted to the Department will be made available to the public in the Antevs Library.

Mentoring Policy

The Department of Geosciences is committed to the concept of building, supporting, and encouraging an active mentoring program between faculty and graduate students. To that end, the Department supports the definition of mentoring provided in the January 1991 Graduate Council position paper on mentoring:

Mentors are *advisors*, people with career experience willing to share their knowledge; *supporters*, people who give emotional and moral encouragement; *tutors*, people who give specific feedback on one's performance; *masters*, in the sense of employers to whom one is apprenticed; *sponsors*, sources of information about aid in obtaining opportunities; *models*, of identity, of the kind of person one should be to be an academic." Zelditch, M., 1990, "Mentor Roles", Proceedings of the 32nd Annual Meeting Western Association of Graduate Schools.

The Department understands that the relationship between mentor and student is a very personal one, but recognizes that it is important to develop appropriate departmental infrastructure to support mentoring relationships. Thus, the Department adopts, as a definable graduate Mentoring Program, the following guidelines and expectations:

- The Department will provide clear indications of the requirements for graduation from the program, including all examinations and foreign language requirements, Graduate College requirements, and expected time to complete each step toward the degree. Much of this information will be made available through the departmental Graduate Academic Advisor.
- Evaluation of student progress and performance will be provided by the departmental Graduate Policy Committee and Graduate Academic Advisor, which will provide at least annual written documentation of student progress. The Graduate Policy Committee will set a clear and reasonable policy regarding the norms for time-to-degree and student progress and will take appropriate action on the basis of this policy to assure that students meet these requirements. The Graduate Policy Committee will formulate explicit, well-publicized dismissal and appeal procedures.
- Advisors (mentors) are expected to help students develop their writing skills, both for scholarly publications and grant writing. In addition, from time to time, the Department will offer special courses or seminars on technical and grant-writing skills.
- The Department encourages timely initiation of research by making an initial assignment of a temporary faculty advisor for each graduate student. Thus, even during the first semesters here, students are encouraged and enabled to initiate research.
- The Department actively encourages graduate student involvement in Departmental affairs in terms of committee representation wherever appropriate.
- It is the expectation that students will participate in professional meetings. To this end, the Department has a long-established annual Geoscience Symposium organized by graduate students that provides the opportunity for student (graduate and undergraduate) presentations in the format used in national meetings. It is also a departmental degree requirement that graduate students will give a public presentation of their research, supported to the extent possible by research and departmental resources. Numerous (typically several per week) brown-bag seminars are offered, with the expectation of active student participation.
- The Department encourages student teaching opportunities. The Department offers interested students, to the extent possible under funding limitations, the opportunity to teach laboratory sections under carefully supervised and structured conditions. Each GTA is evaluated at the end of the semester by both students and a faculty supervisor. The Department is committed to promoting interest in, and proficiency at, teaching.
- The Department recognizes that the graduate student body represents a diverse and changing population in terms of ethnicity and gender. The Department is committed to supporting diversity, and actively recruits minority and under-represented students.
- The Department endeavors to create an atmosphere of collegiality that values and supports graduate students. To that end, the Department encourages graduate student organizations within the Department, sponsors social events that allow students, faculty and staff to interact as a community, and provides common student work space to the extent possible.

The Department acknowledges that effective mentoring (advising) is a consideration in performance and promotion/tenure evaluations of faculty. Further, the Department recognizes that a departmental commitment, and individual commitment on the part of each faculty member/advisor/mentor, is necessary for a successful mentoring program.

FINANCIAL SUPPORT POLICY

•This Financial Support Policy is provided for students to inform them of departmental policy regarding graduate support. The policies outlined below are intended to be consistent with four semesters in residence (two years) for an MS degree and eight semesters in residence (four years) for a Ph.D. degree.

1. Period of Eligibility

Contingent upon availability of state funds, students admitted with support will be eligible for departmental support at the half-time level for four *consecutive* semesters (MS program) or eight *consecutive* semesters (Ph.D. program).

2. Support Commitment from Department

Departmental support may be in the form of a Teaching Assistantship (TA), Research Assistantship (RA), scholarship, or some combination thereof. Departmental RA and scholarship support will be provided if academic progress is satisfactory. Departmental TA support will be provided if both teaching performance and academic progress are satisfactory.

3. Student Without or Beyond Support

Students who are admitted to the program without support, or who have exhausted their period of eligibility, may be considered later for departmental support on a semester-by-semester basis, with no commitment for additional consecutive support.

4. Declining Departmental Support

If departmental support is not desired during the period of eligibility, a written notice must be filed with the Graduate Office. Failure to do so in a timely fashion may result in the cancellation of future support. *Eligibility for committed support lasts for the periods stipulated above, regardless of whether the support is declined or accepted.* Extensions to support eligibility are not given for semesters during which departmental support is declined, with the exception of semesters when students are on official Leave of Absence.

5. Additional Support During the Eligibility Period

During the period of eligibility, departmental support of less than the half-time level may be augmented by other forms of support such as scholarships, or fellowships (e.g., support may consist of a quarter-time TA plus a quarter-time scholarship). Students do not forfeit support by accepting external forms of aid (e.g., NSF or DOD Fellowships), unless their total value equals or exceeds the equivalent of a half-time assistantship.

6. Change of Status

Change in status from the MS program to Ph.D. program, without completion of the MS, does not automatically increase the period of aid commitment. Extensions may be granted at the discretion of the Graduate Admissions Committee. However, the total period of commitment may not exceed eight semesters from the original date of admission. Students who have completed their MS here and have been accepted into the Ph.D. program will be re-evaluated for support along with other incoming graduate students that year. Change in status from a Ph.D. program to an M.S. program may affect a student's eligibility period for department support.

7. Satisfactory Performance and Progress

Satisfactory progress is defined by maintaining full-time status, maintaining a 3.0 GPA or better, and making timely progress in taking exams and completing other requirements for the degree program. MS students who have not filed their Proposed Research by the end of their second semester in residence will be ineligible for departmental support. PhD students who have not taken their Preliminary Oral Exam by the end of their fourth semester will be ineligible for departmental support. TAs and RAs must be on campus by the starting date of their contracts unless written permission to arrive late has been given by their supervising professor. Failure to obtain previous permission for absences may result in cancellation of TA or RA support.

**TAs/RAs are eligible for a salary increase upon completion of the following:
Ph.D. - Preliminary Comprehensive Exam**

Ph.D. DEGREE CHECKLIST

All paperwork, including Graduate College forms, must be submitted to the Geosciences Graduate Office for approval. Ph.D. degrees are expected to take four to five years to complete. Students not following this schedule are at risk of making unsatisfactory academic progress.

WHAT	WHEN
<p>Ph.D. Qualifying Meeting File <i>Qualifying Committee Meeting</i> form. Meet with Temporary Advisor and two committee members; plan program of study.</p>	<p>1st semester</p>
<p>Form Ph.D. Committee Choose Major Advisor and four Ph.D. Committee members. File <i>Ph.D. Committee</i> form.</p>	<p>2nd semester</p>
<p>Plan of Study Submit <i>Doctoral Plan of Study</i> form. List 45 units of course work.</p>	<p>3rd semester</p>
<p>Written and Oral Comprehensive Exam Prepare 15-page research proposal, to be read and reviewed by your committee.</p> <p>Schedule Oral Exam. Upon passing Written exam, bring <i>Results of the Oral Comprehensive Examination for Doctoral Candidacy</i> form to GLD-S 210 at least seven working days before exam.</p> <ul style="list-style-type: none"> • Those students with TA/RA appointments will receive a salary increase in the semester following the completion of the comps. 	<p>4th semester</p>
<p>Proposed Dissertation Research Formulate dissertation research proposal. Submit <i>Proposed Dissertation Research</i> form.</p>	<p>Semester following Comprehensive Exam</p>
<p>Committee Appointment Choose Final Defense Committee. Submit <i>Committee Appointment</i> form.</p>	<p>At least 6 months prior to Oral Defense</p>
<p>Final Oral Defense Schedule Final Oral Defense and submit <i>Announcement of Final Oral Examination</i> form at least seven working days before the defense.</p>	<p>posted deadline</p>

**DEPARTMENT OF GEOSCIENCES
PHD PROGRAM**

PHD COMMITTEE

• SUBMIT BY END OF SECOND SEMESTER

The Ph.D. Committee consists of five members: three representing the Major and two representing the Minor. The majority of the committee must be tenure-track faculty in the Department of Geosciences. Tenure-track faculty in the Department of Geosciences must direct or co-direct all committees. For other committee requirements, refer to the Ph.D. Committee Policy in the Geosciences Graduate Handbook.

Name: _____

Major Subject Area and Department: _____

Major Advisor _____
print name signature date

Major Committee _____
print name signature date

Major Committee _____
print name signature date

Minor Subject Area and Department: _____

Minor Committee _____
print name signature date

Minor Committee _____
print name signature date

This page marks the place of the PHD PLAN OF STUDY form, available from the Graduate College website (<https://grad.arizona.edu/gc/>). It should be filed in your 3rd semester.

This page marks the place of the APPLICATION FOR ORAL COMPREHENSIVE EXAM form, available from the Graduate College website (<https://grad.arizona.edu/gc/>). It should be filed in your 4th semester, at least seven business days before your Oral Exam.

**DEPARTMENT OF GEOSCIENCES
PHD PROGRAM**

PROPOSED DISSERTATION RESEARCH

• **SUBMIT WITHIN ONE SEMESTER OF COMPLETING COMPREHENSIVE EXAM**

Name: _____

Title of Dissertation: _____

Statement of Problem: (attach separate page)

Major Advisor _____
print name signature date

Major Committee _____
print name signature date

Major Committee _____
print name signature date

Minor Committee _____
print name signature date

Minor Committee _____
print name signature date

This page marks the place of the COMMITTEE APPOINTMENT form, available from the Graduate College website (<https://grad.arizona.edu/gc/>). It should be filed at least six months before your Final Oral Defense.

This page marks the place of the ANNOUNCEMENT OF ORAL DEFENSE EXAM form, available from the Graduate College website (<https://grad.arizona.edu/gc/>). It should be filed at least seven working days prior to your final defense.