

**GUIDE TO
GRADUATE STUDY

DEPARTMENT OF
GEOLOGICAL SCIENCES**

**University of Oregon
Eugene, Oregon 97403-1272**

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PURPOSE OF THIS GUIDE

This guide provides a description of policies and procedures, established by the faculty of the Department of Geological Sciences and includes in part policies and requirements of the Graduate School. The guide is made available to aid students in familiarizing themselves with the regulations of the department and the university but it is not considered a contract between the Department of Geological Sciences and the student, **and it does not relieve the student of the responsibility of consulting the Graduate School regulations printed in the University of Oregon Catalog.** In general, students previously enrolled under rules that differ from any of the following have the option of continuing to operate under the previous rules if they prefer.

ADMISSION TO THE GRADUATE PROGRAM

Graduate students who enter the department are granted either full M.S. or Ph.D. status, or conditional M.S. or Ph.D. status. Conditional admission is usually given to persons who have an undergraduate degree in some field other than geology or to applicants whose academic qualifications appear to be below standard. Conditional admission is changed to full admission when basic undergraduate work is completed or when a person with marginal qualifications has demonstrated his or her ability to perform satisfactorily in the department's graduate program. **Students initially admitted to study in the M.S. program must apply to the Graduate Admissions and Awards Committee to change to the Ph.D. program.** Such applications should be accompanied by at least two letters of recommendation from University of Oregon faculty members, one of whom must be the proposed dissertation advisor. A decision will be made by the end of the Spring quarter of the student's first year, after discussion by the full faculty with input from the student's advisor, guidance committee, and Admissions and Awards Committee.

The Graduate Admissions and Awards committee is responsible for maintaining high admission standards for entering graduate students. Admission to the graduate program is competitive and is based on academic records, letters of recommendation, and scores on the Graduate Record Examination General Test. International students whose native language is not English must also submit scores on the Test of English as a Foreign Language (TOEFL) (minimum score of 575 on the paper-based test and 88 on the internet-based test) and Test of Spoken English (TSE) if they wish to be considered for an appointment as a Graduate Teaching Fellow.

MASTER'S DEGREE

The master's degree provides students with experience and training in all aspects of scientific research, including the formulation and testing of hypotheses, acquiring skills needed for their chosen project, collection and interpretation of original data, and writing up the results in thesis or publication format. The student's advisor typically plays a lead role in defining the scale, scope, and objectives of a Master's thesis.

REQUIREMENTS

"Nuts and Bolts"

Coursework

24 graded classroom credits	<i>Optional:</i> up to 15 credits in related sciences (with advisor approval)
9 credits at 600-699 level	May be taken graded or pass/no pass, but only graded courses would apply to 24 credits above.
9 thesis credits	GEOL 503, minimum of 3 credits must be taken in last term.
remaining credits	Can include research, readings, and seminars. <i>Required:</i> 1 credit of GEOL 507 each term
45 credits total	

Thesis

- (1) Decide on your thesis project and write a thesis proposal.
- (2) Form your thesis committee (requires department head's approval).
- (3) Submit the thesis proposal to your committee for approval. Submit one copy of the approved proposal to the graduate secretary for your file.
- (4) Perform your thesis research while taking thesis credits (GEOL 503) and write the complete thesis draft.
- (5) Apply for the degree with the Graduate School by the end of the second week in your final term.
- (6) Submit the thesis draft to your committee and allow them at least two weeks to read the draft.
- (7) Once the draft is approved, schedule the oral presentation at least two weeks later.

- (8) Hold the presentation.
- (9) Once the thesis is successfully presented and approved by the thesis committee, turn in two final copies of thesis and three copies of the abstract to the Graduate School and pay fees.

Oral Presentations

Give a departmental seminar or present a talk or poster at a scientific meeting (such as AGU, GSA, or similar) at least once every 2 years; more often is preferred. Presentations for classes do not count toward this requirement.

Committees

- (1) *Guidance committee* - Three Geological Sciences faculty members appointed by department head
- (2) *Thesis committee* - Three faculty members (at least two from Geological Sciences) chosen by the student, approved by the department head; assembled once your thesis topic is chosen.

In More Detail...

Guidance Committee

A guidance committee of three faculty members will be assigned to each incoming student to: (1) provide initial academic advising on coursework, requirements, and thesis topics; and (2) document student progress until that student assembles a thesis committee. At least one member of the guidance committee will be someone in the student's research field, and the committee coordinator shall be someone who is unlikely to serve as thesis advisor for the student. It is mandatory that faculty committee members attend guidance committee meetings or arrange for a substitute faculty member with the same general academic specialty.

The guidance committee is to meet with the student at least once shortly after the student arrives on campus and before he/she registers. At this first meeting, the committee will review the student's academic record, try to identify and point out gaps in the student's preparation or potential difficulties with departmental requirements and regulations, and plan jointly with the student his/her first term's work. If the student appears to be well prepared and reasonably knowledgeable about his or her aims, further meetings of the student with the guidance committee may be scheduled infrequently. In any case, *at least one committee*

meeting must be held each academic year to provide advice to the student and to examine his or her progress. Usually, this meeting will be held near the end of spring term. After a committee meeting is held, the coordinator will write up the minutes and make a copy for the student and the student's file. Once a year, the coordinator of the guidance committee presents a report to the faculty of the department, outlining the student's progress.

M.S. students are expected to choose a thesis topic and form their thesis committee by the end of their fourth term in residence. *Once this has been accomplished, the thesis committee will take over all advising functions for the student, and the student's guidance committee ceases to exist.*

Coursework

A master's degree candidate has to earn a minimum of 45 credits at the graduate level and complete a thesis approved by his/her thesis committee. Of the 45 credits, 24 credits must be earned in graded classroom courses. Nine credits must be in courses numbered 600-699, which may be graded or pass/no pass. You are urged to take "real" courses when offered if they are appropriate for your sub-discipline, but these 600 level credits may also be earned through, for example, 601 Research, 605 Reading and Conference, 607 Seminar. You may NOT register for 603, which is reserved for doctoral students. Up to 15 credits may, *with the approval of the graduate advisor*, be taken in related sciences. As part of the total credits for the degree, nine credits of Thesis (GEOL 503) are required. The remaining credits may include independent work, such as reading and research, and/or the departmental seminar. The seminar, in which outside speakers, faculty, or graduate students speak on some topic of general interest, is held once weekly in the afternoon during fall, winter, and spring terms. *All students are required to register for one hour of seminar (GEOL 507) credit each term.* Students may transfer up to 6 hours of graduate work from another institution. A form must be filed with the Graduate School requesting transfer of these credits.

Graduate students are expected to maintain a GPA of 3.0 or better in their course work, and a grade of D will not be counted toward fulfilling the 24 hour requirement for Master's degree students. If a student's GPA falls below 3.0 or they fail to show satisfactory progress toward completion of their degree, they are subject to disqualification. Incompletes (grade = I) must be converted into passing grades within one calendar year of the assignment of the Incomplete. Students may request added time for the removal of

the I by submitting a petition, signed by the instructor, to the Dean of the Graduate School for approval. This time limit does not apply to Incompletes in Research or Thesis.

A minimum of 33 credit hours, over a minimum of two terms, must be taken on the Eugene campus. Students must complete all work for the master's degree within 7 years, including transferred credit, thesis, and all examinations. Graduate students must register continuously, except for summers, until all of the program requirements have been completed, unless on-leave status (maximum time of one calendar year) has been approved. In the term in which the degree is to be received, all graduate students must register for at least three graduate credits.

Graduate students at the university may, with adviser and departmental approval, take graduate courses at any of the other institutions in the Oregon University System. A student registers for these courses with the University of Oregon registrar, who records each grade on the academic record under Joint-Campus Course (JC 610). The student must be a matriculated UO graduate student in an advanced degree program and registered for UO courses the same term the JC 610 course is taken. A maximum of 15 JC credits may be applied toward a graduate degree program. Forms are available in the Office of the Registrar.

Thesis

Committee: Students should choose a thesis committee by the end of their fourth term of residence. A thesis committee consists of three faculty members, at least two of whom are from the Department of Geological Sciences. *The makeup of the thesis committee must be approved by the department head, who also appoints the coordinator of the committee. Although the student's principal research advisor is part of the committee, he/she will not be the coordinator.*

The responsibility of this committee is to: (1) evaluate and approve the student's thesis proposal, (2) provide academic advice and monitor student progress toward completion of the degree, (3) provide feedback and advice to the student concerning the student's research project, (4) read the thesis draft, (5) examine the student at his/her thesis defense, and (6) read and approve the final thesis. *The thesis committee must meet with the student at least 2 times each year, during fall and spring terms.* It is the responsibility of the student and the committee coordinator to ensure that these meetings are held. Students should come to the meeting prepared

to update the committee on research progress. After each meeting, the coordinator of the committee will prepare the minutes, give one copy to the student, and put another copy in the student's file.

Proposal: *The student must submit a thesis proposal to his/her thesis committee for approval as soon as possible after the committee is formed. No formal credit or recognition for thesis work will be given until the thesis proposal has been circulated to each member of the thesis committee for review. After the thesis proposal has been distributed, the committee will meet to: (1) approve or request revision of the research proposal, (2) ensure that the student has obtained, or is in the process of obtaining, the academic background needed to complete the work, and (3) help the student make plans for completing the project. The student should submit a copy of the approved proposal to the Graduate Secretary for inclusion in their file.*

Credits: Registration for a minimum of 9 credit hours of Thesis (GEOL 503) is required by the Graduate School. A student may earn as many as 15 hours of thesis credit, but only 9 will apply towards the 45 hours required for the degree. The Graduate School expects that the student will register for thesis credits during their last 2 terms before completion of the degree. The grade given for GEOL 503 will be an incomplete (I) until the thesis is completed and approved by the Graduate School.

Degree Application: Early in the term in which the student plans to graduate, he/she must apply for the degree online at <http://gradschool.uoregon.edu/?page=graduation>. *Check the deadline schedule online at:* <http://gradschool.uoregon.edu/?page=deadlines>.

Defense: *A complete draft of the thesis must be circulated to thesis committee members at least 4 weeks before the thesis defense is held (the draft includes text, figures, tables, references, etc.). Committee members are allowed 2 weeks to read the thesis before they are required to give approval (or disapproval) to schedule the defense and the defense cannot be scheduled until 2 weeks after the committee gives approval. During this public defense (or "final oral examination"), the student will present the major ideas, findings, and results of their research, and be subject to questioning by members of their committee and the general public.*

Final Product: When the student has successfully defended his/her thesis, he/she is required to submit two final copies of the thesis to the Graduate School, along with three copies of an abstract (150 word maximum). *Copies of the thesis will not*

be accepted unless they meet Graduate School standards of form and style. The student should refer to the Graduate School's *Theses and Dissertation Manual & Writing Resources* web page that defines these standards (available online at <http://gradschool.uoregon.edu/?page=thesisDissertationResources>). The Graduate School allows published papers to be submitted in lieu of the standard thesis; however, these papers may need to be reformatted into the standard Graduate School style. To avoid potential problems, students are cautioned to first check with the Graduate School before adopting this approach. The university Archives retains copies of all theses on microfilm. You may choose to have your manuscript remain on campus and be locally microfilmed (no charge), or you may choose to have your thesis submitted to ProQuest (formerly University Microfilm International – UMI) at a cost of \$60 for microfilming and \$45 additional if you choose to copyright.

Oral Presentation Requirement

In order to give graduate students more experience speaking in front of large, formal audiences, *every graduate student is required to give a scientific presentation at least once during each 2-year period of residency in the department.* Oral or poster presentations at scientific meetings (e.g., AGU, GSA, AAPG, etc.) are encouraged as a means of meeting the requirement. If such a talk or poster is given, documentation (e.g., the published abstract) must be provided to the department graduate secretary. Alternatively, student seminars may be presented during a departmental seminar time slot if space is available in the schedule. Otherwise, students may present their seminar at a different time. Such a presentation must be scheduled and advertised a minimum of one week in advance and will meet the requirement only if at least three faculty are able to attend. Lunchtime slots, when informal seminar series may already be scheduled (e.g., soft rock seminar series), may be appropriate. Students who are judged by the faculty to have presented an unsatisfactory seminar will be advised how the seminar can be improved and will be required to give another (satisfactory) seminar soon after.

Ph.D. DEGREE

In addition to the training and experience obtained in the Master's degree program, Ph.D. students are expected to design and carry out original and independent research. At the Ph.D. level, the advisor provides guidance and input, but the student is expected to take the lead in designing, executing, and writing up the results of the work. This requires a reliable work ethic, intellectual and emotional maturity, and commitment to (“ownership of”) the chosen research project.

REQUIREMENTS

"Nuts and Bolts"

Coursework

15 credits in related sciences	Can be taken Pass/No Pass
18 dissertation credits	GEOL 603
48 additional credits	3+ years of full-time study (9 credits/term) (includes research or reading credits).
81 credits total	

Comprehensive Exams

- (1) Propose your oral examination committee to the department head no later than the fall of your second year.
- (2) Obtain previous versions of exams from grad student representative or graduate secretary no later than fall of your second year.
- (3) Consult your committee to decide on two sufficiently different topics for your research project proposals, accomplished through abstracts submitted to your committee.
- (4) Write two research project proposals and distribute them to your examination committee.
- (5) Study hard for your written exam, reviewing all the geology/geophysics material you have ever learned and examining old versions of the written exam.
- (6) Take the written exam in February of your second year.
- (7) Within three weeks of the written exam, take your oral exam and defend your two research project proposals.
- (8) Take a break! Regardless of the outcome of your exams, you deserve it!!
- (9) If you passed unconditionally, you are advanced to candidacy and can continue your studies (this means a pay raise, among other things!). If you did not pass, or passed conditionally, it's time to get some advice on how to proceed next.

Dissertation

- (1) Once you have advanced to candidacy, write up your dissertation project proposal.
- (2) Form a dissertation committee (requires approval of the department head and the Dean of the Graduate School).
- (3) Submit your dissertation proposal to the committee.

- (4) Perform your thesis research while taking dissertation credits (GEOL 603) and write the complete dissertation draft.
- (5) Apply for the degree with the Graduate School by the end of the second week in your final term.
- (6) Submit the dissertation draft to your committee and allow them at least two weeks to read it.
- (7) Give four copies of your dissertation abstract and apply for the Final Oral Defense at the Graduate school at least three weeks before the date of the public defense.
- (8) Once approval is obtained from your committee, schedule the oral defense to be held at least two weeks later.
- (9) Hold the defense.
- (10) Once the dissertation is successfully defended, obtain unanimous approval of the final form of the dissertation from your committee.
- (11) Turn in two final copies of the dissertation to the Graduate School and pay fees.

Oral Presentations

Give a seminar or meeting talk or poster at least once every two years; more often is preferred. Presentations for classes do not count toward this requirement.

Committees

- (1) *Guidance committee* - Three Geological Sciences faculty members appointed by department head.
- (2) *Oral examination committee* - Four faculty members chosen by the student, approved by the department chair. One may be from another UO department and two should have research interests outside the student's primary field.
- (3) *Dissertation committee* - Four faculty members with professional rank (i.e. not instructor or senior instructor) (Three from Geological Sciences and one from another UO department) chosen by the student, approved by the department head and the Dean of the Graduate School.

In More Detail...

Guidance Committee

A guidance committee of three faculty members will be assigned to each incoming student to (1) provide initial academic advising on coursework, requirements, and research topics and (2) document student progress until that student passes his/her

comprehensive exams and chooses a dissertation committee. At least one member of the guidance committee will be someone in the student's research field, and the committee coordinator shall be someone who is unlikely to serve as thesis advisor for the student. It is mandatory that faculty committee members attend guidance committee meetings or arrange for a substitute faculty member with the same general academic specialty.

The guidance committee is to meet with the student at least once shortly after the student arrives on campus and before he/she registers. At this first meeting, the committee will review the student's academic record, try to identify gaps in the student's preparation or potential difficulties with departmental requirements and regulations, and plan jointly with the student his or her first term's work. If the student appears to be well prepared and reasonably knowledgeable about his/her aims, further meetings of the student with the guidance committee may be scheduled infrequently. In any case, *at least one committee meeting must be held each academic year* to provide advice to the student and to examine his or her progress. Usually, this meeting will be held near the end of spring term. After a committee meeting is held, the coordinator will write up the minutes and make a copy for the student and the student's file. Once a year, the coordinator of the guidance committee presents a report to the faculty of the department, outlining the student's progress.

Ph.D. students should form their dissertation committee within one month after passing the comprehensive examination and being advanced to candidacy. A student may (but is not required to) use comprehensive exam committee members as dissertation committee members. At any rate, students should be thinking about outside members during their first year of study. *Once this has been accomplished, the dissertation committee will take over all advising functions for the student, and the student's guidance committee ceases to exist.*

Coursework

Ph.D. students are required to take 15 hours of graduate-level work in related sciences and/or mathematics (some Geological Science classes may qualify; see below), appropriate to their research interests. This related science work may be taken on a graded or pass/no pass (P/N) basis. *He/she must also take 18 hours of dissertation credit (GEOL 603).* The department does not set any further specific coursework requirements for Ph.D. students. However, students are expected to acquire the graduate geoscience

background necessary to successfully complete the comprehensive examination and effectively carry out proposed dissertation research. If the student does not have a strong background in geoscience, substantial geology/geophysics coursework is recommended in order to prepare adequately for the comprehensive exams. Undergraduate courses may, with the guidance committee's recommendation, be used to fill in the student's geoscience background, but the majority of the work should be in graduate level courses.

Graduate students at the university may, with adviser and departmental approval, take graduate courses at any of the other institutions in the Oregon University System. A student registers for these courses with the University of Oregon registrar, who records each grade on the academic record under Joint-Campus Course (JC 610). The student must be a matriculated UO graduate student in an advanced degree program and registered for UO courses the same term the JC 610 course is taken. A maximum of 15 JC credits may be applied toward a graduate degree program. Forms are available in the Office of the Registrar.

Students are expected to maintain a GPA of 3.0 or better in their course work. If their GPA falls below 3.0 or they fail to show satisfactory progress toward completion of their degree, they are subject to disqualification. Incompletes (grade = I) must be converted into passing grades within one calendar year of the assignment of the Incomplete. Students may request added time for the removal of the I by submitting a petition, signed by the instructor, to the Dean of the Graduate School for approval. This time limit does not apply to Incompletes in Research or Dissertation.

At least 3 years of full-time work beyond the bachelors degree are required, of which at least one academic year (3 consecutive terms of full time study, with a minimum of 9 credit hours per term) must be spent in residence on the Eugene campus. A doctoral candidate may fulfill the residency requirement during the period that he or she works toward a master's degree on the University campus as long as the doctoral program immediately follows the master's degree program and both the master's degree and doctoral degree are in the same major.

The one year of residency required on the Eugene campus, the passing of the coursework, comprehensive examinations, and the completion of the dissertation must all be accomplished within a 7-year period. Graduate students must attend the University

continuously, except for summers, until all of the program requirements have been completed, unless on-leave status (maximum time of one calendar year) has been approved. Beyond one year of leave, doctoral students (only) may register *in absentia* (for a reduced term fee) when the student is doing no work toward the degree and is using no University or faculty facilities. In the term in which the degree is received, all graduate students must register for at least 3 credits of dissertation (GEOL 603).

Related Sciences Requirement: The purpose of the related sciences requirement is to ensure that Ph.D. students have an adequate science and mathematics background to pursue a rigorous research program in their chosen fields of interest. A wide variety of acceptable graduate courses are offered in the mathematics and science departments of the University. In addition, a small number of Geological Sciences courses may satisfy the spirit of this requirement (see below). Students may also register concurrently for science courses at other institutions such as Oregon State University. The following general guidelines for selecting courses to meet the outside science requirement are offered; however, *students should seek approval of their guidance committees before enrolling in any outside science courses.*

(1) Most 400/500 level courses in mathematics, chemistry, physics, and physical geography are acceptable. Most biology courses are also acceptable, but some biology courses are so narrowly specialized that they may not provide useful background for geologic research. Other biology courses, and some geography courses, may be oriented so strongly toward geological subjects (paleontology, palynology, biostratigraphy) that they may not qualify as an outside science.

(2) Certain 300 level courses in chemistry, and physics (as well as some 200 level mathematics courses) may be acceptable if the faculty believes that these courses satisfy the spirit or intent of the 15 hour outside science requirement. Remember that these courses do not carry graduate credit. (Lower division mathematics courses that have counted toward the related sciences requirement include MATH 256, 281, 282, and most 300 level math courses.)

(3) Certain reading, conference, and seminar courses (numbered 507, 607, and 610) in related science/math departments may be acceptable if the topics covered in these courses are important to your program and are not otherwise available in a regularly scheduled course.

(4) A small number of Geological Sciences courses may satisfy the spirit of the outside science requirement. The student is advised to discuss this with his or her dissertation committee, and must petition the department head to have any geology courses counted toward this requirement.

(5) Courses taken concurrently at other Institutions or courses that a student seeks to transfer from other institutions must meet the guidelines stated in parts 1, 2, 3, and 4 above.

Comprehensive Examination

The purpose of this examination is to evaluate a Ph.D. student's academic background and preparation in his/her field of research. Specifically, the exam is designed to test the student's ability to:

- (1) Identify, define, and clearly state a scientific problem.
- (2) Understand and summarize literature relevant to the problem.
- (3) Understand the underlying processes and fundamental concepts in their field.
- (4) Concisely state the significance of the problem, with reference to the literature and basic principles.
- (5) Become skilled in the techniques and methods needed to solve the problem.
- (6) Explain how the data to be collected will enable testing of competing hypotheses.

Once the comprehensive exam is passed, the student advances to Ph.D. candidacy, resulting in permission to continue in the Ph.D. program and a pay raise for GTFs. The comprehensive examination includes both written and oral components. The written examination is taken on the first Friday in February each year. Students are encouraged to schedule their oral exam as soon afterward as possible, but definitely before the end of Winter term. *Ph.D. students should be prepared to take this exam early in the winter term of their second year in the program (their fifth term in-residence).*

Oral Examination Committee: The student must choose an oral examination committee no later than October 15 (or next week day if on weekend) in the fall term of the student's second year (the fourth term in residence). Consultation with the prospective research advisor and either the department head or graduate advisor about the choice of committee members is required. This committee must then be approved by the department head. The

student's prospective research advisor can serve on the examination committee but cannot be coordinator of the committee. The committee has four members, one of whom may be from another department. At least two members of the committee should be faculty whose research interests are outside the student's primary research field. The role of the committee is to evaluate the student's research project proposals and to examine the student orally to determine whether or not his/her preparation is sufficient to warrant advancement to Ph.D. candidacy. Students must meet at least once with each member of their oral exam committee to: 1) discuss their ideas for proposals; 2) receive guidance about whether proposals are sufficiently different; and 3) discuss individual faculty member's expectations on the oral exam. Students are also encouraged to seek the advice of senior graduate students throughout the process.

Research Proposals: The student must write two research project proposals in two different areas. The proposals should explain the scientific problem to be addressed, the tools to be used, hypotheses to be tested, and the background and significance of the research. Often, one or both of the proposals becomes incorporated into the student's dissertation proposal, but neither project need be completed after the comprehensive exams or become the dissertation topic if the student and dissertation committee decide otherwise. The idea is for the student to show that they can design a scientific study and demonstrate breadth of knowledge.

One-page abstracts summarizing the key elements of each proposal should be submitted to the graduate secretary no later than November 7 (or next week day if on a weekend) of the fall term preceding the exam. The graduate secretary will distribute the abstracts to the oral examination committee so that they can decide, by November 20, whether or not they are appropriate and sufficiently different from each other. If the committee concludes that an abstract is unacceptable, the student must meet with the committee as a whole to discuss the reasons for this decision and submit a modified or new abstract that is acceptable within one week of this meeting. Committee decisions on the new abstract are required within a week of the date it was submitted to the graduate secretary.

Each proposal should be no more than 10 pages long (double-spaced), and it should be written in scientific style with figures, captions, and references. Examples of old proposals are available from the graduate student representative. Copies of the research proposals must be submitted to the graduate secretary (who will

distribute them to committee members) at least five business days prior to the scheduled date of the oral examination. The student is advised to consult with their committee members about the proposals well in advance of this time. The proposals will be judged on the quality of writing, the imagination and innovation reflected in the design of the proposals, rigor of hypothesis tests, and the student's ability to synthesize relevant information.

Written Exam: For the written examination, each faculty member contributes two questions concerning their own area of geoscience. The 26+ exam questions are then divided into three broad subdisciplines: (1) sedimentology-stratigraphy-paleontology-geobiology, (2) mineralogy-petrology-geochemistry, and (3) geophysics-tectonics-structural geology-hydrogeology-geomorphology. Old exams are made available each fall to students taking their comprehensive exams (see graduate secretary for copies). Each student must answer six questions of his/her choice, with no more than four questions coming from a single subdiscipline. The exam lasts approximately three hours, so students should expect to spend about 30 minutes per question. Faculty members will grade the answers to their own questions, giving each a rating on a scale of 0 to 5, where 5 is the top grade. The examination coordinator will tabulate the results for each student and furnish these results to the oral examination committee.

Oral Exam: Students are encouraged to schedule their oral examination within three weeks after the written exam, faculty schedules permitting. The orals generally last at least 2-3 hours and focus on questions related to the student's two research proposals, although general questioning into the student's academic background is allowed as well. The oral exam is private, and only the oral examination committee and the student are present. The student will be given about 15 minutes to present each proposal using visual aids (typically a PowerPoint presentation). Usually the student presents the first proposal and answers questions from the committee then presents the second proposal followed by a second round of questions.

After the oral examination, the oral examination committee will evaluate the student's performance on both the written and oral examinations as well as the student's performance in class work. On the basis of total performance, the oral examination committee will decide if the student should be given a pass, fail, or conditional pass. A pass means that the student will be advanced to Ph.D. candidacy. If a conditional pass is granted, the committee

will require some additional effort, usually appropriate course work or rewriting of a proposal, to remedy the perceived deficiency in the student's performance. If a student is judged to fail the examination, the committee will decide if the student is to be terminated from the program or be given an opportunity to retake the examination.

Dissertation

Dissertation Committee: A four-person dissertation committee is chosen by the student after he/she is advanced to Ph.D. candidacy. It must include at least three members of the Department of Geological Sciences and one additional member of the University of Oregon faculty. The four core committee members must hold the rank of assistant, associate, or full professor. The student's dissertation advisor is on the committee and is designated as chair for Graduate School records, but he/she is not the coordinator of the committee. *The committee must be approved by the department head and the Dean of the Graduate School.* Membership of the committee should be proposed to the department head as soon as possible after advancement to candidacy and no later than six months before the expected date of the dissertation defense. Once the committee has been approved by the Graduate School, changes must be petitioned in writing, so the student should carefully consider his/her choice of advisor(s) and committee members.

The responsibilities of the dissertation committee are to: (1) evaluate and approve the student's dissertation proposal, (2) provide academic advice and monitor student progress toward completion of the degree, (3) provide feedback and advice to the student concerning the student's research project, (4) read the dissertation draft, (5) examine the student at his/her dissertation defense, and (6) read and approve the final dissertation. *The dissertation committee should strive to meet with the student at least 2 times each year, during fall and spring terms, but the spring term meeting is required.* It is the responsibility of the student and his/her coordinator to ensure that these meetings are held. At the annual committee meeting, the student will give a well organized, semi-formal, 10 to 15 minute PowerPoint presentation of their project, research objectives, data, and emerging results, to be followed by an open-ended informal discussion about the science and the student's progress. This format allows committee members to provide substantive input to the student's research, and helps to ensure that the student makes good progress and stays on track. After a committee meeting is held the coordinator will write up the

minutes and send them to the graduate secretary, who will distribute a copy to the student and put a copy in the student's file.

Dissertation Proposal: Within one term of advancement to candidacy, students are expected to furnish a copy of their dissertation proposal to each member of their dissertation committee. The proposal should be similar in form, although not necessarily in content, to the research project proposals written for the oral examination. After the dissertation proposal has been distributed to members of the committee, the committee will meet to: (1) approve or request revision of the research proposal, (2) ensure that the student has obtained, or is in the process of obtaining, the academic background needed to complete the work, and (3) help the student make plans for completing the project.

Dissertation Credits: After the student has advanced to Ph.D. candidacy, he/she may register for dissertation credit (GEOL 603). At least 18 hours of dissertation credit must be earned in order to obtain the Ph.D. The Graduate School requires the student to register for GEOL 603 during the last 2 terms before completion of the degree. The grade given for GEOL 603 will be an incomplete (I) until the dissertation is completed and approved by the Graduate School.

Degree Application: Early in the term in which the student plans to graduate, he/she must apply for the degree online at <http://gradschool.uoregon.edu/?page=graduation>. *Check the deadline schedule online at:* <http://gradschool.uoregon.edu/?page=deadlines>.

Defense: *A complete draft of the dissertation must be circulated to dissertation committee members at least three weeks before the defense is held* (the draft includes text, figures, tables, references, etc.). Scheduling your defense could well be your biggest challenge in graduate school. Frequent communication regarding schedules is advised. Committee members are allowed two weeks to read the dissertation before they are required to give approval (or disapproval) to schedule the defense, no later than one week before the defense date. *At least three weeks before the date of the public defense, the student must file with the Graduate School (1) an application for the Final Oral Defense and (2) four copies of an abstract (not longer than 350 words, and (3) Confirmation of Agreement to Attend).* A formal public defense of the dissertation on the Eugene campus is mandatory. During this public defense, the candidate will present the major ideas, findings, and results of the dissertation research, and be subject to questions by members of the dissertation committee and the general public. The

candidate's dissertation committee must attend the oral defense, and the dissertation advisor must certify to the Graduate School that the defense occurred as scheduled.

Final Product: Following the dissertation defense, but before the dissertation is submitted to the Graduate School, each member of the dissertation committee must confirm in writing that he or she approves or disapproves of the final version of the dissertation. Formal approval of the dissertation requires a unanimous vote. In the event that the dissertation fails to gain unanimous approval of the dissertation committee, it becomes the responsibility of the Dean of the Graduate School, after consultation with the student, the department head, and the committee, to determine the review procedure.

Once the dissertation has been approved, the student is required to submit two final copies of the dissertation to the Graduate School. *Copies of the dissertation will not be accepted unless they meet Graduate School standards of form and style.* The student should refer to the Graduate School's *Theses and Dissertation Manual & Writing Resources* web page that defines these standards (available online at <http://gradschool.uoregon.edu/?page=thesisDissertationResources>). Two styles of dissertation are acceptable; a narrative focused on a single problem or group of problems related to one idea; or a "journal"-style dissertation where each chapter stands alone and addresses separate problems. The Graduate School allows published papers to be submitted in lieu of the standard thesis; however, these papers may have to be reformatted into the standard Graduate School style. To avoid potential problems, students are cautioned to first check with the Graduate School before adopting this approach. The university Archives retains copies of all dissertations on microfilm. Microfilming will be done by ProQuest (formerly University Microfilm International – UMI) in Ann Arbor, Michigan. The cost to the doctoral student is \$70 and \$45 additional if the thesis is copyrighted.

ORAL PRESENTATION REQUIREMENT

In order to give graduate students more experience speaking in front of large, formal audiences, *every graduate student is required to give a scientific presentation at least once during each 2-year period of residency in the department.* Oral or poster presentations at scientific meetings (e.g., AGU, GSA, AAPG, etc.) are encouraged as a means of meeting the requirement. If such a talk or poster is given, documentation (e.g., the published abstract) must be provided to the graduate secretary for inclusion in the

student's file. Alternatively, student seminars may be presented during a departmental seminar time slot if space is available in the schedule. Otherwise, students may present their seminar at different time. Such a presentation must be scheduled and advertised a minimum of one week in advance and will meet the requirement only if at least 3 faculty are able to attend. Lunch time slots, when informal seminar series may already be scheduled (e.g., soft rock seminar series), may be appropriate. Students who are judged by the faculty to have presented an unsatisfactory seminar will be advised how the seminar can be improved and will be required to give another (satisfactory) seminar soon after.

EMPLOYMENT AND FUNDING

Teaching

The Union: Graduate student teaching and research assistants at the UO are known as Graduate Teaching Fellows, or GTFs. They are represented on campus by a union, the GTF Federation (GTFF), which negotiates pay, insurance benefits, and rules concerning workloads, handling of grievances, etc. Membership in the GTFF is not mandatory, but all GTFs pay a small percentage of their salary to the GTFF in return for representation.

How Awards are Made: Recipients of GTF teaching appointments in the Department of Geological Sciences are selected by the Admissions and Awards Committee primarily on the basis of scholarship and academic promise. The process of selection begins during the winter quarter and continues until all positions have been filled. Currently enrolled graduate students who are unsupported and who wish to be considered for a teaching position must submit a formal application for support. Recipients are notified in writing as soon as a final decision is made. Persons who are not chosen for an award in the first round of selection remain candidates should vacancies occur through declination of offers or resignations, but they cannot be guaranteed a position.

Appointments and Workloads: Most graduate teaching fellowships awarded for the academic year carry a full stipend (0.40-0.49 FTE = 40-49% of full time employment). These positions require service to the department of about 13 to 14 hours per week or 150 hours in an average term, but may in some terms require service up to 175 hours (see the Graduate Duties and Responsibilities document for more detailed information). The

dollar amount of the stipend depends upon the rank of the student: (1) GTF I - regularly enrolled students admitted to a master's degree program or doctoral students not eligible for a GTF II or GTF III appointment, (2) GTF II - regularly enrolled students pursuing a doctoral degree who either have (a) a master's degree in the same or cognate field or (b) completed 45 credit hours toward the degree and have written recommendation of the head of their major department, (3) GTF III - regularly enrolled doctoral students who have passed their comprehensive exams and been advanced to candidacy. Some academic year awards carry a half stipend (0.20 FTE) and require only half service to the department. Both levels of award include remission of tuition and most fees, but GTFs are required to pay approximately \$230 in fees each term. The appendix gives workload standards and reappointment criteria for GTFs.

GTFs are usually assigned to assist with one class per term. In rare cases, a GTF may be assigned to 2 different classes in order to meet the workload requirement for their appointment. Class assignments for all geoscience GTFs are handled by a single faculty member (see committee assignment sheet to find out who has this responsibility for the current year). GTFs can request to be assigned to a particular class, but there is no guarantee that they will receive the exact assignment they want.

Teaching Responsibilities: Duties of GTFs can include teaching lab and/or discussion sections, preparing materials for lecture and lab classes, attending class lectures, running slide projectors or other equipment during class, giving an occasional lecture if the professor cannot attend class, etc. GTFs with a certain level of experience may arrange to teach a course entirely on their own (see below), but taking on this level of teaching activity is entirely voluntary.

Teacher Training: *Every new GTF is strongly recommended to attend a teacher training session the week before fall term begins.* These sessions are usually provided entirely or in part by the Teaching Effectiveness Program (TEP) on campus. TEP is part of Academic Learning Services in the basement of the PLC building and provides free support to all UO teachers and GTFs. In addition to new GTF workshops, they offer a variety of services including private consultations, videotaping, class interviews, courses to support new teachers, topical workshops, technology house calls, etc. You are strongly encouraged to look over their website <http://www.uoregon.edu/~tep/> for more information and to consult TEP whenever you feel you need advice to improve your teaching.

Teaching Evaluations: GTFs receive a written evaluation of their performance each term by the professor for whom they taught. They are also evaluated by the students in their lab(s) at the end of the term. At any time, a GTF can also arrange to give their students a mid-term analysis of teaching (MAT) with the assistance of the Teaching Effectiveness Program (TEP). See the TEP website for more information <http://www.uoregon.edu/~tep/>.

Teaching Your Own Course: The department encourages doctoral students who are interested in pursuing an academic career, to consider setting aside time to teach their own course at some point in their studies. Teaching experience beyond the teaching assistant level can be a very important component of a successful job application. Students are expected to take the initiative in arranging a teaching opportunity for themselves within the department and to plan ahead so that conflict with research goals does not occur.

The opportunity to teach a full course can sometimes be extended to graduate students who (1) have earned a masters degree or equivalent OR have passed their comprehensive exams for the Ph.D., (2) have at least one year (3 classes) of experience as a GTF, (3) have earned good teacher evaluations as a GTF, and (4) are recommended by one or more professors for whom they were a teaching assistant. If two students are interested in team-teaching a course, they may do so, provided that both students meet these criteria. The courses that graduate students are eligible to teach are usually limited to introductory level, non-major, and/or elective courses for majors (not core courses). These include primarily the 300-level courses such as Geology of Oregon and the Pacific Northwest, Geology of National Parks, The Fossil Record, and Earthquakes and Volcanoes. Students are also welcome to design a new course or revive an old course, most likely to be assigned a GEOL 199 designation. In extraordinary cases, students may teach upper division (4/500) level courses in their specialty.

In order to get courses taught by graduate students into the regular class schedule, advance planning is important. *Course schedules are usually decided at least two terms in advance*, so interested students should begin talking to the department head and office manager as much as a year in advance of the term in which they would like to teach. Keep in mind that professors have first priority in choosing the classes they wish to teach, so there may not be a course available for a graduate student to teach during every term.

Once a class has been scheduled, adequate preparation time should be set aside to get course materials and plans together before the

course begins. Professors in the department, other GTFs, and/or the Teaching Effectiveness Program should all be consulted for advice if needed. The student-teacher is encouraged to enroll in an ALS 609 course (offered by the Teaching Effectiveness Program on campus) concurrently with the teaching assignment to ensure adequate support. Alternatively, they could choose a teaching mentor from among the faculty who can provide advice, guidance, and evaluation during the term.

Changing from TA to RA Status: Students who are awarded teaching assistantships, are sometimes offered a research assistantship by a department faculty member after the academic year has begun. In such cases, the student must receive the approval of the department head before making the change from TA to RA. If the department head has reason to believe that such a change will impair the teaching function of the department, he/she may refuse to grant the change. In any case, a student who begins a term as a teaching assistant must complete the term before resigning their TA appointment and accepting an appointment as a research assistant.

Research

Research Assistantships: Many graduate students are offered a research assistantship (usually 0.20-0.49 FTE) by a department faculty member at some point in their studies. These positions are essentially the same as GTF positions except that the source of stipend and tuition money is the faculty member's grant, rather than the department. Workloads and responsibilities vary widely, so each student should make sure they have a clear understanding of their faculty sponsor's expectations. The student may or may not be expected to work on research projects other than their own.

Fellowships: Students are encouraged to apply for graduate fellowships from outside organizations to support one or more years of their graduate studies. There are many positive aspects to fellowships, including formal recognition of academic achievement, release from teaching and research assistantship duties, and potentially higher pay. Students on fellowships awarded by organizations other than UO are no longer GTFs, however, so they lose GTF benefits and union membership. Under COBRA, former GTFs can continue on the health insurance plan for up to 18 months, although they must pay the full cost by themselves.

Grants and Awards: The department has limited funds with which to assist graduate students in their research, but certain special scholarships are awarded in the spring of each year (Baldwin, Stovall, Condon, Staples, and Weiser awards). Most awards are earmarked for students working in a particular research area (soft rock, hard rock, etc.) or at a particular stage in their studies. Before deciding on award recipients, the faculty solicit student proposals and/or research budgets for the internal awards that require them.

Students are also encouraged to apply for financial support from outside agencies. Grants are made directly to graduate students by organizations such as the Geological Society of America, Clay Minerals Society, Sigma Xi, AAPG, National Science Foundation, Environmental Protection Agency, etc. (see <http://gradschool.uoregon.edu> or <http://orsa.uoregon.edu/> for ideas on additional funding sources). Students should check with their research advisor or committee for further information about proposal procedures.

ADDITIONAL INFORMATION

People You Should Know

Kathy Cashman: (cashman@uoregon.edu) Department Head. Kathy oversees the running of the department and approves all committee assignments for grad students.

Becky Dorsey: (dorsey@uoregon.edu) Associate Department Head. Becky oversees all curriculum and teaching-related activities. Ask Becky about any GTF and teaching-related issues.

Shari Douglas: (sharid@uoregon.edu) Graduate Secretary and Department Receptionist. She handles the paperwork concerning graduate students. If you have questions concerning your degree, she either knows the answer or knows how to find out about it. Also, if you need supplies, AV equipment, access to the departmental email list, etc., see Shari. She also pre-authorizes open-end course registration and updates student progress reports.

Dave Stemple: (stempld@uoregon.edu) Department Accountant. Dave handles all the accounting on grants, travel, purchase orders, etc., so see him about any financial matters. If in doubt, ask!

Vicki Arbeiter: (arbeiter@uoregon.edu) Department Office Manager. Vicki oversees the running of the DoGS office. See Vicki about payroll issues or concerns and room scheduling.

DoGSci Graduate Student Representative: A different graduate student is elected to this position each year (usually someone who has passed their comprehensive exams but is not planning to finish in the current year). The official duties of the representative are to (1) attend all departmental faculty meetings to represent grad student interests, (2) run semi-regular grad student meetings to report on happenings at faculty meetings and any other relevant news, (3) keep an eye on the grad student funds, including selling department T-shirts to anyone who wants them, and (4) organize or delegate organization of a fun field trip for the department just before fall term begins. The representative may also coordinate other fun/informative grad-student-related events or projects.

Lab Technicians:

[Dennis Fletcher \(fletcher@uoregon.edu\)](mailto:fletcher@uoregon.edu) - website and department computers, vehicles, and equipment

[Pat Ryan \(cpat@uoregon.edu\)](mailto:cpat@uoregon.edu) - geophysics computer equipment

[John Donovan \(donovan@uoregon.edu\)](mailto:donovan@uoregon.edu) - technician for the microprobe/SEM lab.

Student Info

Student Offices: Graduate Teaching Fellows in Geological Sciences will be assigned shared, lockable office space in Cascade Hall, Cascade Annex, or Volcanology. GTF offices contain one or more desks for GTF use. In offices that include shelving and partitions, the shelving and partitions will be properly and securely installed; furnishings in GTF offices will be appropriate and safe. GTFs may use their offices for private discussions with students or faculty. Easy and reasonable access to telephones will be provided either in labs or in the main office to carry out GTF work assignments. See the office manager if you have any questions about your office assignment. When you leave the department you will be responsible for removing all of your materials and for cleaning your area. Any materials left behind will be discarded.

Student Records: A record of items relating to the student's progress toward the degree (minutes of committee meetings, documentation of talks/posters that fill the oral presentation requirement, teaching evaluations by students and professors, notices of awards and honors, etc.) is kept on file. Student files are kept in the departmental office, and a student may examine his or her file upon request. (See graduate secretary)

Driver Certification: In order to drive on field trips or use state vehicles for field work, you must be a UO certified driver. *Graduate students are permitted to drive vehicles from the motor pool only after they are*

certified by the Office of Public Safety. Students should see the graduate secretary to arrange for certification.

Van Training: In addition to becoming a UO certified driver, if you will be driving a van for field trips, you must also complete van training. *Students are permitted to drive vans from the motor pool only after they have completed a van driving class with Environmental Health and Safety and are UO certified drivers.* For more information about van training or to sign up for a class, call Environmental Health and Safety at 346-3192.

Keys: Keys for your office, outside building doors, labs, TA rooms, and other rooms to which you need access can be obtained by talking to the office manager or the graduate secretary. Once the key request has been input online, there is a 48-hour waiting period. You then take the request form to the Office of Public Safety (in Straub Hall, 15th Street entrance) where you will receive your key(s). A refundable deposit is required (usually \$10 per key). Remember: *keys must be turned in before you leave the University of Oregon.* Your deposit will be refunded upon return of your keys.

Copy Facilities: Facilities for copying are available in the Geology Office. To make copies for courses that you're TAing, use the department's copy code. For any personal copying (including copying for courses in which you are enrolled), you cannot use the departmental copiers. Copiers are available in all campus libraries, the EMU, and the University Bookstore. GTFs will be provided with desk copies of all required course texts.

Office Supplies and Postage: The department furnishes necessary supplies (pencils, pens, paper, etc.) to enable teaching fellows to carry out their duties. *Please ask for supplies at the front desk.* The department cannot furnish supplies of any kind to students or faculty for personal use. Letterhead paper and envelopes will be furnished only when a student's correspondence involves departmental business. In general, the department will not pay postage costs for students.

Departmental Equipment

Audio/Visual Equipment: Overhead and slide projectors, laptops and a TV/VCR may be checked out in the department office.

Microscopes: A graduate student whose research requires the use of a polarizing microscope or binocular microscope may check out one for use in his or her office during the time that the microscopes are not needed for classes. A student assumes the responsibility for security of the microscope while it is in his or her possession. When a microscope is needed for short period of time in a class in which microscopes are not

routinely used, the student should get a note from the instructor and then check out the microscope. Microscopes may not be removed from the department and taken to a student's home for use.

Stereoscopes, Brunton Compasses, GPS Units: These may be checked out for short periods of time from the department office. See the graduate secretary.

Field Equipment: Arrangements for use of field equipment for field trips and field work by students and faculty can be made by contacting Dr. Marli Miller. Field equipment must not be removed from the field camp storage room in the basement of Columbia Hall without permission. Damaged or lost equipment will need to be repaired or replaced by the user.

TOTAL Station and Surveying Equipment: The Neotectonics group has surveying equipment that can be checked out by students for field work (for a fee) when it is not otherwise in use. You must be trained to use this equipment. See Ray Weldon for more information.

Field Vehicles: A few faculty members in the department own field vehicles (Beluga and Orca) that may sometimes be available for student field work (for a fee) when not otherwise in use. Use of these vehicles is subject to approval of their owner, so individual arrangements must be made. You must be a certified van driver to use these vehicles. See Dennis Fletcher for more information. Vehicles can also be obtained from the State Motor Pool (3233 Franklin Boulevard). Call 686-7706 for details.

Department Facilities

It is common courtesy as well as the responsibility of the user to report any problems with equipment. Equipment that is broken or not working properly is a hazard to other users.

Thin Section Lab: Columbia 56. This lab contains cutoff saws, laps, and polishing equipment and is completely equipped to prepare petrographic thin sections for reflected light microscopy or electron microprobe analysis. Students who make their own sections must buy their materials (primarily slides and epoxy) but are not charged for use of the lab.

Saw Room: Columbia 42. This room contains a kerosene-cooled, 16" diamond saw for large rocks, 8" diamond cutoff saw, laps to prepare samples for thin sections, a sieve shaker, and a Frantz isodynamic separator to separate samples by magnetic properties. See Graduate Secretary to obtain a key to this room.

Rock Crushing Lab: Columbia 40. This room contains a rock splitter and anvil, 3 jaw crushers to crush and pulverize large samples, sample splitters, and a Spex shatterbox with tungsten carbide grinding container to reduce samples to fine powder for XRF, XRD, or other types of analysis. Instructions for use of the shatterbox are located on the wall inside the room. The door to this room can be opened with a TA key.

X-ray Diffraction Lab: Columbia 147. The department's Rigaku Miniflex CN2005 X-ray diffractometer is user-friendly and functional. You must be trained to use this machine. See Mark Reed (mhreed@oregon.edu) for more information.

Scanning Electron Microscope (SEM): Room 83C of the Lorey Lokey Lab in Huestis Hall. The department's FEI Quanta-FEG has basic abilities to image secondary electrons and backscattered electrons under low or high vacuum conditions, as well as a quantitative EDX X-ray system and cathodoluminescence detector. It will soon also have EBSD capabilities. You must be trained to use this machine. See John Donovan for more information.

Electron Microprobe: Room 87 of the Lorey Lokey Lab in Huestis Hall. The department's CAMECA SX-100 microprobe has quantitative X-ray capabilities, SEM and BSEM imaging modes, TV imaging of transmitted and reflected light, digital image analysis, and capabilities for unattended operation. You must be trained to use this machine (this usually entails taking GEOL 619: Electron Beam Analysis). See John Donovan for more information.

PC Computer Lab: 218 Volcanology. GTFs may use computers in 218 Volcanology at no cost to support GTF assignments. The department maintains its own network of personal computers connected to a server called Wacke. Currently there is no fee, but a small fee is being considered to cover printing costs, however, no fee is currently charged for projects associated with GTF assignments. Other computer equipment such as a flat-bed color scanner, slide scanner, etc. are also available.

Facilities outside the Department

Map Library: Documents Section of Knight Library. The University Map Library contains an excellent collection of topographic and geologic reference maps, air photographs, some ERTS imagery, and a complete collection of Lunar Orbiter photographs. These materials may be consulted in the Map Library or checked out for short periods of time; however, students planning to use maps or photos extensively in the field should buy their own. See <http://libweb.uoregon.edu/map/> for more information.

Science Stores: The UO operates Science Stores in Cascade Annex (alleyway between Pacific & Annex). Chem/Science Stores carries chemicals, glassware, lab safety equipment, and much more. For purchase of department or research-related supplies, talk to the accountant to obtain the proper account number. Students may obtain a personal card for purchasing materials from Science stores from the Office of the Cashier in the Business Office.

Science Services Student Machine Shop: Pacific Hall. The shop contains tools, metal lathes, milling machines, etc. Machine Shop staff can provide expert help and instruction if needed. A well-stocked storeroom is available, or you can supply your own materials.

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