

Graduate Student Handbook School of Earth Sciences

Guidelines for Graduate Students
Earth Sciences Graduate Degree Programs
Coordinated with the OSU Graduate Student Handbook

Updated December 21, 2024

Table of Contents

GOALS AND OBJECTIVES	1
1 ADMISSION CRITERIA.....	1
1.A ADMISSION EVALUATION (OHIO STATE GRADUATE SCHOOL HANDBOOK [GSH] SEC. 2)	1
1.B ADDITIONAL REQUIREMENTS FOR INTERNATIONAL STUDENTS	2
1.C ADMISSION TO CERTIFICATE PROGRAMS.....	2
2 FUNDING YOUR DEGREE	3
2.A GRADUATE TEACHING ASSOCIATES	3
2.B GRADUATE RESEARCH ASSOCIATES	3
2.C FELLOWSHIPS	4
2.D DURATION OF SUPPORT	4
2.E RECOMMENDATION RELATED TO OUTSIDE WORK	4
3 PROGRAM REQUIREMENTS	4
3.A ADVISORS AND THESIS/DISSERTATION ADVISORY COMMITTEES.....	5
3.a.1 <i>M.S. Program</i>	5
3.a.2 <i>Ph.D. Program</i>	5
3.a.3 <i>Membership of Committees</i>	5
3.a.4 <i>Meetings with Committees</i>	6
3.a.5 <i>Changing advisors</i>	6
3.B COURSE AND CREDIT-HOUR REQUIREMENTS	6
3.C THESIS OR DISSERTATION PROPOSAL.....	8
3.D CANDIDACY (PHD ONLY) GSH SEC. 7.3-7.5	8
3.d.1 <i>Ph.D. Candidacy Examination Format</i>	9
3.d.2 <i>Post-Candidacy Credit Hours and Continuous Enrollment</i>	9
3.E THESIS/DISSERTATION (GSH SEC 6.4 (M.S.); SEC. 7.8 (PH.D.))	9
3.F APPLICATION TO GRADUATE	10
3.G FINAL ORAL EXAMINATION	10
3.g.1 <i>Scheduling the Final Oral Examination</i>	10
3.g.2 <i>Conduct of Final Oral Examination</i>	11
3.g.3 <i>Final Approval</i>	12
3.g.4 <i>Good Standing and Reasonable Progress</i>	12
3.g.5 <i>Lack of Reasonable Progress (M.S. and Ph.D)</i>	13
4 TRANSFER BETWEEN MS AND PHD PROGRAMS.....	14
4.A WITHOUT COMPLETION OF THE M.S. DEGREE.....	14
4.B WITH COMPLETION OF THE M.S. DEGREE	15
5 ADDRESSING GRADUATE STUDENT CONCERNS.....	15
TERMS AND ACRONYMS REFERENCED IN THIS DOCUMENT.....	15
APPENDIX A. GUIDELINES FOR MASTER’S THESIS AND PH.D. DISSERTATION PROPOSALS	17
APPENDIX B: GUIDELINES FOR ENTERING THE PH.D. PROGRAM WITH COMPLETION OF THE SCHOOL OF EARTH SCIENCES M.S. PROGRAM	19
APPENDIX C: GUIDELINES FOR CANDIDACY FORMAT	20

Goals and Objectives

The goal of the Graduate Degree Program in the School of Earth Sciences is to provide students the opportunity to develop advanced professional skills in the Earth Sciences. The program includes providing students opportunities to participate in advanced classes and seminars and to conduct independent research on fundamental issues in the Earth Sciences. The product of both M.S. and Ph.D. research projects are expected to be suitable for publication in the refereed scientific literature, and after graduation a student should be prepared to begin a career in the Earth Sciences.

1 Admission Criteria

1.a Admission Evaluation (Ohio State Graduate School Handbook [GSH] Sec. 2)

A committee of faculty in the School of Earth Sciences evaluates all applicants for graduate study on their likelihood to succeed in their objectives and benefit from their time at The Ohio State University in the School of Earth Sciences. Students that are successful in the application process generally have:

1. A minimum of 3.0 cumulative point-hour ratio on the 4.0 scale in all previous undergraduate work, with a completed B.S., B.A., or M.S. at the time of matriculation.*
2. Demonstrated likelihood to succeed in the graduate program as communicated by the totality of the application package, including the applicant's coursework, letters of recommendation, GRE scores (only if included, not required by SES), resume or CV, and statement of purpose. A strong statement of purpose will address what the applicant wants to study, why they want to study that, what they hope to accomplish, how they hope to accomplish this, and how that will move the field forward. Personal experiences related to these aspects are welcome.
3. An identified faculty mentor who agrees to mentor and advise the applicant.

GRE scores are not required as part of the application. Submitted scores are considered only when submitted; applicants not submitting GRE scores are not penalized. As part of the admission decision, the Graduate Studies Committee (GSC) weighs and ranks students according to the availability of funding, so it is strongly recommended that students communicate with potential advisors prior to completing the application. See Section 2 for more on funding.

All Master's degree aspirants are expected to have a Bachelor's degree, and they normally will have a degree in an Earth science field. However, students with non-geology backgrounds commonly make significant contributions to the Earth sciences, and they also are encouraged to apply to the M.S. program.

Admission to the Ph.D. program does not require an M.S. degree. Students may enter the Ph.D. program in one of three ways: 1, with a completed M.S. degree from another

university; 2, directly from a completed B.A. or B.S. degree; or 3, as a transfer from the OSU-SES M.S. program to the Ph.D. Program (see Section 4).

A Ph.D. applicant who matriculates into the Ohio State program with an incomplete Master's degree may be admitted conditionally, but the M.S. degree must be completed within two semesters to remain in the Ph.D. program.

A student admitted to the M.S. program in Earth Sciences may transfer to the Ph.D. program in Earth Sciences with or without completing the M.S. following the procedures in Section 4.

* Prospective students who do not meet the GPA guidelines may be admitted to the graduate program when the totality of the application demonstrates the student has a high likelihood to be successful. For example, such circumstances might include extensive professional experience. Applicants whose undergraduate GPA is below 3.0 will need to work with their prospective faculty advisor and the Graduate Studies Chair for a petition to the Graduate School.

1.b Additional requirements for international students

International applicants whose first language is not English are required to establish English proficiency (GSH Sec. 2.7; additional information: <https://gpadmissions.osu.edu/intl/additional-requirements-to-apply.html>).

On arrival, an international student from a country in which English is not the first language must also take the ESL composition Placement Essay assessment and satisfy all provisions outlined in GSH Sec. 2.7.

Admission of international students whose first language is not English requires guaranteed support for the first twelve months of residence (including support for the summer semester).

Further requirements must be satisfied for GTA assignments (Section 2a).

1.c Admission to Certificate Programs

Certificates provide an opportunity to intentionally broaden coursework and knowledge gain, and to gain an additional credential that will appear on your degree. There are several certificates available to graduate students administered by SES, including (as of Autumn 2024): Hydrogeology; Marine Science; Natural History Museum Curation; and Petroleum Geology (<https://earthsciences.osu.edu/academics/certificate-program>).

Many times, certificate requirements may already be met by courses planned to be taken by SES graduate students.

It is critical that students treat these certificate programs as programs that must be enrolled in, prior to completing the coursework. In that sense, they are (to the university) something more like enrolling in a new graduate program, than a checklist which (if met) attains a credential on your terminal degree. If students apply in their last semester, additional paperwork is required to obtain the certificate. Students should apply to certificate programs early in their degree when laying out their coursework plan.

2 Funding Your Degree

Upon admission, graduate students may receive an offer of funding support, covering tuition and a stipend for living expenses. This support comes in the form of a Graduate Teaching Associateship (GTA), a Graduate Research Associateship (GRA), a fellowship, or a combination of these. All such appointments have minimum credit-hour enrollment criteria that the student must meet (Section 3b).

Some students may be funded by external fellowships or the sponsorship of their employer.

In addition to funds to cover tuition and living expenses (below), students are encouraged to apply for small grants (e.g., Friends of Orton, Sigma Xi, AAPG, GSA) to cover research expenses and conference travel in consultation with their research advisor. Students are responsible for watching their email for deadline announcements.

2.a Graduate Teaching Associates

Students with GTA support are expected to have mastery above and beyond the course material taught in the assigned course. Demonstration of mastery includes an undergraduate background in relevant course material, sitting in on the course in previous semesters, by examination, or holistic assessment. GTA duties include, but are not limited to, participation in annual GTA training and orientation, teaching laboratory and/or recitation sections, attending GTA meetings, grading homework and lab assignments, administration of grade books, proctoring exams, and holding weekly office hours.

There are a limited number of GTA positions available in the summer, awarded by separate application during the preceding spring semester.

An international student for whom English is not their first language may be offered GTA support, if the following conditions, in addition to those outlined in Section 1, are met:

1. The student has either achieved a score of 28 or higher on the speaking section of the TOEFL or has passed the Spoken English test (GSH Sec. 2.8) administered here at Ohio State by English as a Second Language (ESL). More information about the Spoken English test, including cost and possibility of taking the exam prior to coming to campus, can be found at <https://esl.ehe.osu.edu>.
2. The student has demonstrated a proven ability in writing, reading, and speaking the English language. This ability may be demonstrated through personal contact with faculty in the School of Earth Sciences or by having already obtained a degree (B.S., B.A., M.A. or M.S.) at another university in the U.S. or an English-speaking country.

2.b Graduate Research Associates

A GRA position is generally funded by a faculty member's grant, and the duties of a GRA are agreed upon between the advisor and student before awarding the GRA.

An international student may be admitted with Graduate Research Assistant (GRA) support if the applicant satisfies the criteria required for admission to the program. Such admission requires prior agreement with an individual faculty member. This support also must cover the first twelve months of residence for an international student.

2.c Fellowships

Some graduate students may be funded on a fellowship as awarded by Ohio State. All students whose applications for graduate study are complete prior to the fellowship deadline are eligible for fellowship consideration with no additional application needed. These fellowships may be 1, 2, or 3 years in length.

Students are also encouraged to apply to external fellowships to fund their graduate study.

2.d Duration of Support

Students who are offered support when first accepted into the graduate program, are conditionally assured support for four academic-year semesters (M.S.) or eight semesters (Ph.D. with prior M.S. degree) or ten semesters (Ph.D. with B.A./B.S. only). This support does not guarantee summer support. Support is conditional on maintaining reasonable progress (Section 3h), on maintaining good standing in the Graduate School (GSH Sec. 5.1), and satisfactory performance of GTA or GRA duties. Support is also conditional on availability of funds. Slightly longer time-to-degree may occur, at which point additional support is conditional upon availability and reasonable progress towards a degree (Section 3h).

2.e Recommendation Related to Outside Work

School support, in the form of GTA and GRA stipends, is intended to help graduate students complete their studies in a timely fashion, as described by reasonable progress. Thus, all students supported as GTAs and GRAs are expected to devote full time to the assigned duties of their associateship, their course work, and their thesis/dissertation research. SES strongly discourages graduate students from holding outside jobs, as this may pose a risk to making adequate progress and to completing a sufficient body of work to optimize obtaining jobs at the next career step. If students elect to hold another job, they should do so in discussion with their graduate adviser and the graduate chair.

Note that graduate fellowships require that students not hold any other job. Students must not violate this rule or will risk losing the fellowship.

3 Program Requirements

All students must meet credit hour requirements as defined by the Graduate School, graded credit/course requirements as defined by the School of Earth Sciences, complete a written thesis (M.S.) or dissertation (Ph.D.), and defend their work orally. Ph.D. students must also pass candidacy exams. A summary of all University degree

requirements, including credit hours, is provided in the Graduate School Handbook (GSH Sec. 6 (M.S.) or Sec. 7 (Ph.D.)).

3.a Advisors and Thesis/Dissertation Advisory Committees

3.a.1 M.S. Program

An M.S. student should seek an advisor during the first semester of residence and no later than the end of the second semester. Until the student has an advisor, a member of the GSC will act in that capacity. If necessary, the Chair of the Graduate Studies Committee will provide advice on coursework and help in the selection of a research area and an advisor.

The advisor and M.S. student will choose two additional faculty members to serve on the M.S. Advisory Committee (GSH Sec. 6.2). At least one committee member is recommended from outside the student's immediate area of research, as determined by the advisor and student. This committee is expected to serve in a capacity to advise and approve the thesis proposal, the thesis, and the final oral exam. Substitutions are permitted when it becomes necessary.

3.a.2 Ph.D. Program

A Ph.D. student will usually have identified an area of proposed research and contacted potential faculty advisors at the time of application to the program and no later than the time of initial registration. A student has until the end of the second semester of registration to select an area of research, by which time they also should have obtained the consent of a faculty member to serve as their Ph.D. advisor.

The student's Dissertation Advisory Committee should be established by the advisor and the student before the end of the second semester of registration. The student's Dissertation Advisory Committee is composed of at least four authorized Graduate Faculty members at Ohio State, who will also serve as the student's formal Candidacy Examination Committee as recognized by the Graduate School at Ohio State (GSH Sec. 7.3). It is recommended that the fourth member shall be from outside the student's immediate area of specialization (as determined by their research advisor). Note that the School of Earth Sciences requires an additional member not required by the Graduate School. This committee is expected to serve in a capacity to advise and approve the dissertation proposal, administer the candidacy exam, and advise and approve the dissertation. This committee, together with an external member as assigned by the Graduate School will administer the final oral exam. Substitutions are permitted when it becomes necessary.

3.a.3 Membership of Committees

Graduate Faculty Eligibility is determined by the Graduate School and may include tenure-track faculty and emeritus faculty who have retained Graduate Faculty status (GSH Sec. 12). Associated Faculty (e.g., adjuncts at Ohio State, or faculty at other universities) can serve on the Candidacy Examination Committee upon approval and petition to the GSC and Graduate School, but do not count as 1 of the 4 required Graduate Faculty members for the Candidacy Examination (GSH Sec. 7.3).

For Ph.D. committees, the Graduate School rules for the student's formal Dissertation Committee (GSH Sec. 7.8) requires only 3 members with Graduate Faculty status, and the 4th member may be an External Member (GSH 7.9) by approval of the Graduate School (adjunct appointments are not needed).

3.a.4 Meetings with Committees

The Graduate Studies Committee recommends that each student meet with their committee members individually prior to submission of the proposal. Annual committee meetings are recommended, and additional individual or committee meetings may be scheduled as appropriate, especially if the focus of the research proposal changes.

3.a.5 Changing advisors

When challenges arise between students and advisors, it sometimes becomes important to consider the possibility of changing advisors. While this is not always practical given the nature of research and the need to find an expert on the student's research topic, it is entirely possible logistically. If a student is considering changing advisors, they should contact the Graduate Studies Committee Chair.

3.b Course and Credit-hour Requirements

A minimum of 30 graduate semester credit hours is required for the Master's degree (GSH Sec. 6.1) and 80 graduate credit hours beyond the baccalaureate degree for the Ph.D. (GSH Sec. 7.1). Ph.D. students who have earned a M.S. degree at another institution may be able to transfer a total of 30 semester credits earned as part of a Master's degree toward the 80 hours, leaving a total of 50 credits needed (GSH Sec. 7.1).

Graded credit hour requirements: Of the Graduate School's credit hour requirements, the School of Earth Sciences requires that at least 20 credits be relevant graded coursework (not S/U). A Ph.D. student's coursework must include at least 4 graded credits of 8000-level seminars at Ohio State, counted as part of the 20-minimum graded hours.

Ph.D. students who have earned a M.S. degree at another institution may transfer a total of 10 graded credits earned as part of a Master's degree (included in the 30 total credits hours transferred; see above paragraph) toward the 20 graded hours, leaving a total of 10 graded graduate credits needed.

Under exceptional circumstances, the Graduate Studies Committee will consider petitions requesting modifications to the required number of graded credit hours.

In consultation with the student's advisor and the student's committee, a student will design a course of study appropriate to the field of specialization. An informal planning tool, *The Program Approval Form*, found on the GSC Carmen site, is recommended to help in this process. This will serve as a guide for the completion of the credit-hour requirements of the graduate program.

For graduate credit, courses must be listed at the 5000-level or above within the Earth Sciences, or 4000-level or above if the course is listed outside of the student's home

program and is taught by a faculty member. Note that courses numbered 4000-4999 must be approved before the student begins taking the course (GSH Sec. 4). *Courses numbered at the 3999-level or below, or courses offered at the 4000-4999 level in the student's own academic unit do NOT count as graduate credit*

Course loads for full-time graduate students (GHS Sec. 3.1):

Grad student status	Minimum per semester	Maximum per semester ^{&}
50% or greater GTA or GRA AND M.S. or pre-candidacy Ph.D.	8: Autumn and Spring 4: Summer; 0 if unfunded for the summer.	18*: Autumn and Spring 12*: Summer
Fellowship/trainee AND M.S. or pre-candidacy Ph.D.	12: Autumn and Spring 6: Summer	18*: Autumn and Spring 12*: Summer
International M.S. and pre-candidacy Ph.D. without GRA, GTA, Fellowship or Trainee Appointment	8: Autumn and Spring 4: Summer	18*: Autumn and Spring 12*: Summer
Students without GRA, GTA, Fellowship or Trainee Appointment during the semesters: of the General Exam, the Final Oral Examination, and expected graduation (GSH Sec. 6.2/7.1.6).	3: Autumn, Spring, Summer	18*: Autumn and Spring 12*: Summer
All post-candidacy Ph.D., including international, regardless of funding status	3: Autumn and Spring 3: Summer if on a GRA/ GTA	3**: Autumn and Spring 3**: Summer if on a GRA/ GTA

[&] We recommend all students enroll in the maximum number of credits each term to ensure they meet minimum credit hour requirements for graduation. When graded course credit are less than the maximum, students should enroll in additional credit of EARTHSC 7998 (M.S.) or 8998 (Ph.D.) prior to proposal approval or EARTHSC 7999 (M.S.) or 8999 (Ph.D.) once the proposal is approved.

*Graduate students may not enroll in more than 18 credit hours per semester (12 in the Summer semester) without Graduate School approval.

**Post-candidacy Ph.D. students may register for more than the minimum of 3 credit hours only if approved in advance by the advisor (if a GRA) or the Graduate Studies

Committee (if a GTA) because of the budgetary resource implications of higher tuition for enrolling in more than 3 credit hours.

3.c Thesis or Dissertation Proposal

All students must submit a written proposal of their thesis/dissertation research to be approved by their advisor, the members of their Advisory Committee, and the GSC. The proposal must briefly outline an original research problem (3 to 5 pages for the M.S.; 5-9 pages for the Ph.D. not including title page and references). The M.S. proposal is due before the end of the second semester. The Ph.D. proposal must be completed before the candidacy exam, which must be complete before the end of the second year of enrollment.

The proposal must include: (1) title page, *which includes the list of Advisory Committee members and their signature upon document approval*, (2) a statement on the nature and significance of the research and hypothesis statements to be tested, (3) description of the procedures to be employed, (4) projected timetable for completion of the project, and (5) estimated budget (including total stipend and tuition; fieldwork costs; analytical costs and technician time; computer hardware and software costs, etc.). Anticipated and/or potential sources of funds for the research must be identified for all budget categories. See “Guidelines for M.S. Thesis & Ph.D. Dissertation” in Appendix A.

It is normal for the student and their advisor to work together to develop a proposal and that the advisor approves the proposal for circulation to the remainder of the committee. Other members of the Thesis (M.S.)/Dissertation(Ph.D.) Committee will review and approve the proposal with their signature, and *the approved proposal will be submitted to the Graduate Coordinator via the GSC Carmen site*. One member of the GSC will review the proposal with respect to science plan, timetable, and budget, and if the proposal is acceptable to the GSC, then it will be included in the student’s advising file.

Significant changes to the approved proposed research should be approved by the Advisory Committee and the GSC.

3.d Candidacy (PhD only) GSH Sec. 7.3-7.5

Following approval of the Dissertation Proposal, a Ph.D. student must then pass a Candidacy Examination to be admitted to candidacy for the Doctoral degree. The Candidacy Examination is administered by the student’s Advisory Committee (Dissertation Committee) composed of at least four authorized Graduate Faculty members at Ohio State as described in Section 3a.

The Ph.D. Candidacy Examination includes both a preliminary written portion (GSH Sec. 7.4) and an oral part (GSH Sec. 7.5). The Ph.D. Candidacy Examination should be completed no later than the end of the second year of enrollment in the Ph.D. Program for students who earned an M.S. prior to doctoral studies (after approval of the Proposal). A student who entered the doctoral program directly from a Bachelor’s degree or transferred to the doctoral program before completion of the M.S. degree should also take the candidacy examination at the end of the second year, but this could potentially be delayed to the start of the 3rd year if the student has not yet

completed the required 20 graded credit hours. A part-time student should complete the Candidacy Examination once their graded credit hour requirements have been met.

The student must be in good standing during the semester of the Candidacy Exam, and the student becomes a Ph.D. candidate on successful completion of the oral Candidacy Examination (GSH Sec. 7.3).

3.d.1 Ph.D. Candidacy Examination Format

The Candidacy Examination shall test the student in the chosen field of dissertation research and related fields. The School of Earth Sciences process is as follows (GSH Sec. 7.3-7.5):

(1) A preliminary written Candidacy exam: The written portion of the Candidacy Examination is determined by the student's advisor in consultation with the Advisory Committee and can vary from open or closed book/note exams on campus (typically on the order of 4 hours in length) to take home exams. Typically, each member of the Advisory Committee will provide the student's advisor with a list of questions for the written exam and instructions for completing the exam.

(2) An oral exam. The oral Candidacy Examination adheres to the format, principles and policies those of the Graduate School as set out in the Graduate School Handbook (GSH Sec. 7.5). Note that the GSH specifies that the oral exam should be used only for oral questions posed by examiners to the students, not for presentation of research. Should the student wish to present their research proposal to their committee, they may do so immediately before the candidacy exam begins. For example, if the exam is scheduled with the graduate school to begin at 11 am, students could arrange to meet their committee at 10:30 am to present their research proposal.

While all candidacy exams must include a written and an oral portion, there is flexibility as to the format of both exams. Appendix C outlines several options for the candidacy exam and lays out a detailed timeline for each. Note that preparation for the candidacy exam begins well in advance of the exam itself.

If the written or oral portions of the Candidacy examination must be repeated, it should be retaken during the semester following the first examination.

3.d.2 Post-Candidacy Credit Hours and Continuous Enrollment

After advancing to Candidacy a student must maintain continuous enrollment of 3 credits each semester until graduation not including Summer (GSH Sec. 3.1.3 and 7.7.3). Note that this 3-credit requirement for full time student status is lower than pre-Candidacy minimums, and thus has the benefit of allowing the student, advisor, and/or unit to conserve budget resources used on tuition.

3.e Thesis/Dissertation (GSH Sec 6.4 (M.S.); Sec. 7.8 (Ph.D.))

Each M.S. student must complete a Master's thesis (GSH Sec. 6.4), that describes the results of an original research project. Each Ph.D. candidate must complete a dissertation that presents the results of an independent, original research project that is a scholarly contribution to the sciences (GSH Sec. 7.8).

The student must submit a draft of the completed dissertation to the student's Thesis/Dissertation Committee (GSH 7.9) for review at least two weeks before the final oral exam. Approval of the thesis/dissertation draft means that the members of the committee judge it to be of sufficient merit to warrant holding the Final Oral Examination. Committee members submit their approval via Gradforms (<http://gradforms.osu.edu/>).

The final document must be prepared according to the guidelines described in the "Graduate School Guidelines for Formatting Theses, Dissertations, and D.M.A. Documents".

3.f Application to Graduate

The Graduate School maintains a checklist of Final Semester Procedures (<https://gradsch.osu.edu/final-semester-procedures-and-timelines>). The *Application to Graduate* form, for example, must be submitted to the Graduate School using <http://gradforms.osu.edu/> by the Graduate School deadline, which is generally the third Friday of the semester in which a student wishes to graduate (GSH Sec. 6.5; 7.12). Submitting this application signals that the student plans to complete all degree requirements that semester or summer term. If requirements are not met, the form can be re-submitted in a subsequent semester. There is no penalty if a student submits the Application to Graduate but does not actually graduate; in other words, students should submit an Application to Graduate if there is a chance that they will graduate during a particular semester. The form must be submitted by the student and approved by the advisor and the Graduate Studies Committee Chair.

3.g Final Oral Examination

After completion of the M.S. thesis or Ph.D. dissertation, candidates must complete a Final Oral Examination, which may include questions on both the research and other aspects of the graduate training not related to the thesis (GSH Sec. 6.2). The Final Oral Examination Committee is made up of the candidate's Advisory committee (Sec 3.a). Ph.D. exams committees also include a Graduate Faculty Representative (GSH 7.9), as assigned by the Graduate School.

3.g.1 Scheduling the Final Oral Examination

Students are encouraged to schedule their exams with all members of their committee as soon as possible, usually several months before their anticipated defense. The student should meet with each committee member at that time to establish that the thesis/dissertation is far enough along to schedule the exam. To schedule your defense, you should contact your committee and propose several dates that would work for your defense. When you have identified a date, you should submit the proposed date through Gradforms (<http://gradforms.osu.edu/>). You also should book a room (a 3-hour block, starting half an hour before the scheduled time) in SES for your exam (<https://earthsciences.osu.edu/internal/room-reservation>).

Ph.D. Students only: The Graduate School requires that the Dissertation Advisory Committee has approved the dissertation document two weeks before the final oral

examination (GSH Sec. 7.9). Therefore, **members of the Dissertation Committee should ideally be given three weeks to read the thesis prior to the final oral examination.** The reading copy of the dissertation should be complete (i.e., with table of contents, illustrations, references, etc.). In addition, the Graduate Faculty Representative must receive a copy of the exam for review and approval no less than one week before the final oral examination (GSH Sec. 7.9).

Masters students only: Members **of the Advisory Committee must be given at least two weeks to read a final version of the thesis or dissertation prior to the final oral examination.** The reading copy should be complete (i.e., with table of contents, text, illustrations, references, etc.).

For all Graduate Students: Approximately one week before the Final Oral Examination, you (or your advisor) should send an open invitation for the public portion of your dissertation to all faculty and students of the School of Earth Sciences and other interested individuals. The announcement should include the time, place, the title and the abstract of the thesis/dissertation. Two days before the defense, you should remind your committee about the location, day, and time of your defense in an email.

3.g.2 Conduct of Final Oral Examination

The presentation of the research at the Final Oral Examination in the School of Earth Sciences is open to all faculty and students, but only the Final Oral Examination Committee is present for the formal examination, discussion of the student's performance, and the decision about the outcome of the exam. The advisor chairs the examination (GSH Sec. 6.2/7.9), and the duration of the final oral examination is no more than 2 hours (GSH Sec. 6.2/7.9).

The final oral exam enables the student to present research results and engage in discussion of these and other topics before an audience of mentors, teachers and the student's peer group, as well as responding to formal questioning by the Final Oral Examination Committee.

All members of the Final Oral Examination Committee must be present (in person or via video) during the entire examination. All committee members are expected to participate fully in questioning during the course of the examination and in the discussion of, and decision on, the result (GSH Sec. 6.2/7.9).

Format for the M.S./Ph.D. Final Oral Examination:

1. Brief introduction of the degree candidate; the candidate's committee; the Graduate School Representative (Ph.D. exams only); and a welcome to all other faculty, students, and guests. The introduction and welcome shall be conducted by the candidate's advisor.
2. A 20- to 30-minute *brief synopsis* of the thesis/dissertation research will be presented by the candidate.
3. Questions addressed to the candidate by non-committee members shall take no more than 15 minutes. All but the candidate, the Final Oral Examination Committee, and the Graduate School Representative (Ph.D. exams only) are excused at the conclusion

of this portion of the Final Oral Examination.

4. Questions are addressed to the M.S./Ph.D. candidate by the Exam Committee, including the Graduate School Representative (Ph.D. exams only). The candidate is excused at the completion of this portion of the exam (2 total hours from the start of introductions).

5. A brief meeting of the candidate's committee, with the Graduate School Representative (Ph.D. students only), to consider action on the Graduate School Final Oral Examination and Thesis/Dissertation forms. Decisions taken are then immediately announced to the candidate.

3.g.3 Final Approval

Each examiner indicates judgment by electronically signing the *Final Oral Examination Report* form using gradforms.osu.edu that must be submitted to the Graduate School no later than the posted deadline for the semester or summer session of graduation.

All students must submit an approved final copy of the thesis/dissertation to the Graduate School (GSH Sec. 6.4/7.11).

3.g.4 Good Standing and Reasonable Progress

Completion of the M.S. is expected within two years. A Ph.D. student is expected to complete all requirements for their degree within five years of the semester following successful completion of the Candidacy Examination (GSH Sec. 7.7). If the final oral exam is not taken within five years of admission to Candidacy, the Candidacy Examination must be retaken (GSH Sec. 7.7). Reasonable progress for completion of the Master's degree is two calendar years (six semesters including summers) after initial registration in the graduate program.

Reasonable progress and good standing include:

1. Maintaining a 3.0 grade point average.
2. Meeting the course load requirements of the Graduate School (GSH Sec. 3.1).
3. Having an M.S. thesis or Ph.D. dissertation proposal approved by the Advisory Committee and GSC by the end of the second semester (M.S.) or second calendar year (Ph.D.) of enrollment.
4. Submitting your annual report to the GSC.
5. (Ph.D. students only) Takes the Candidacy Examination within the prescribed time.
6. Making appropriate progress on the thesis/dissertation research. See the section "Reasonable Progress" in the Graduate School Handbook (GSH Sec. 5.4).

A student must remain in good standing and register for at least one credit hour (not including summer), to maintain office space and to use University facilities.

Monitoring Student Progress (M.S. and Ph.D.)

A student must submit an annual Student Activity Report to their advisor for approval. The form will be made available on the Graduate Student course on Carmen. The due date, generally late February, will be communicated annually by the Graduate Studies

Chair. This will give the GSC time to review reports prior to conclusion of the Spring Semester. Only students who have submitted a report by the deadline are eligible for Spring Banquet awards.

Leave of Absence:

Graduate students are eligible for a leave of absence without forfeiting their progress to degree should circumstances arise that a student requires time off. Please consult with the GSH (Appendix F), your advisor, and the Grad Studies Chair as soon as possible. There are technical differences in the types of leave of absence offered by the university, and there may be implications to pay, insurance coverage, etc. Please reach out when challenging circumstances arise, and leave of absence is being considered.

3.g.5 Lack of Reasonable Progress (M.S. and Ph.D)

3.g.5.1 Initial Letter (internal to SES)

Any graduate student who fails to meet a deadline for reasonable progress will receive a warning letter from the GSC after the deadline has passed. A copy of this letter will also be sent to the student's advisor. This letter will state the following:

1. The student is not making reasonable progress according to the guidelines.
2. The Graduate School may be notified that the student has failed to make reasonable progress.
3. The Chair of the GSC may request an immediate meeting with the student and the advisor to determine the reasons for lack of reasonable progress.

3.g.5.2 Formal Warning (involving Grad School) (GSH 5.4)

If the GSC determines that the student and advisor are unable to address the lack of reasonable progress, the GSC will issue a second letter to the student and the advisor. The purpose of this letter is to:

1. Issue a formal warning to the student that the student is not making reasonable progress according to the School's guidelines, and specify a definite deadline (usually the last day of that semester) by which the student must complete the required action (e.g., submit a thesis or dissertation proposal or take the Candidacy Examination).
2. Inform the student that a formal request will be made to the Graduate School to block further registration unless the student completes the required action by the specified deadline.

The Graduate School can place a hold on registrations of students who fail to make Reasonable Progress as defined by these guidelines (GSH Sec. 5.4). Under University Rules, a student denied registration cannot be employed as a GTA or a GRA. According to the rules of the School's Graduate Program, such students also may neither maintain office space nor use any facilities.

3.g.5.3 Reinstatement

Graduate School rules require that a student who has received formal warning about lack of reasonable progress, as described above, must apply to the GSC to be

reinstated in the graduate program after the requirements for reasonable progress have been met (GSH Sec. 5.6). The GSC further requires that such an application should include a formal letter from the student's advisor supporting the petition.

3.g.5.4 Variances and Exceptions

A student may have valid reasons for not making reasonable progress (e.g., serious medical or mental health disruptions, unexpected lengthy absence of the advisor from campus, pregnancy). A non-traditional student may not be able to take a normal course load for reasons of full-time work or other commitments outside the University. In such cases, students cannot be expected to meet the guidelines for reasonable progress, and the student should petition the GSC in writing for an extension of the deadlines. This petition should give the reasons why such an extension is needed. The petition must be accompanied by a planned timetable for completion and also be supported in writing by the student's advisor. Variances from the policies over which the graduate faculty in the School of Earth Sciences has control, may be granted by the GSC in response to a petition from a student and faculty advisor, as outlined in the GSH.

4 Transfer between MS and PhD programs

4.a Without completion of the M.S. Degree

Students who initially enroll as M.S. students in the School of Earth Sciences may petition the GSC committee to transfer to the Ph.D. program without completion of the M.S. degree. This process is reserved for students who make an exceptional start in their graduate research and can establish their ability to do Ph.D.-level research early in their time as a graduate student. A petition to the GSC must occur within 18 months of starting the M.S. program. The petition must include a letter from the student requesting the conversion, including a description of their research and a CV listing of their accomplishments (papers, meeting abstracts, awards). The petition must be accompanied by a letter of support written by the student's research advisor outlining the evidence for Ph.D.-level abilities, and letters from 1-2 additional faculty who can comment on their abilities.

Students granted a conversion from the M.S. to the Ph.D. program will be expected to submit a dissertation proposal on the same schedule as other Ph.D. students based on matriculation date, not their M.S. to Ph.D. conversion date. The qualifying examination should be taken when sufficient coursework is completed that a student can reasonably graduate if they adhere to the 3-credit post-candidacy minimum (more than 3 credits can be taken post-candidacy, but this must be approved after discussion with the advisor if a GRA and the GSC if a GTA).

If a student converted to the Ph.D. program or entered the Ph.D. program directly from the B.S. and either fails to take the candidacy examination or fails the candidacy examination, the student may reapply to the Graduate School to the M.S. program (GSH Sec. 7.6). A M.S. thesis will remain a requirement for the M.S. degree.

If a student converted to the Ph.D. program or entered the Ph.D. program directly from the B.S. and passed the candidacy examination but decides to terminate the doctoral course of study, they may petition the Graduate Studies Committee, as described in the Graduate School Handbook, to enter the M.S. program (GSH Sec. 7.6).

4.b With completion of the M.S. degree

Upon completion of the M.S. degree, a student is not automatically considered to be in the Ph.D. program. Application to enter the Ph.D. program in the School of Earth Sciences does not require re-application to the Graduate School for admission. Rather, application is made in the form of a formal letter to the Graduate Studies Committee by the student including a statement of progress in the M.S. program and plans for completion of the M.S. degree; a statement of goals and career objectives; identification of the anticipated area of Ph.D. research; and the name of the Earth Sciences Faculty member in that area who is willing to serve as the Ph.D. advisor. In addition, the student must submit three new letters of recommendation forwarded to the Graduate Studies Committee. The letters may be from either the same or different recommenders as the initial application and should comment on growth and achievements during the M.S. program. The Graduate Studies Committee may decide to hold the application until January/February when it will be judged along with other new applications for admission during the subsequent Autumn semester.

5 Addressing Graduate Student Concerns

Personal communication between the Graduate Studies Committee members, advisors, and students is strongly encouraged. Four graduate student representatives are non-voting members of the GSC. New ideas, concerns, and compliments can be transmitted to the GSC through the student representatives. Meetings between the Graduate Studies Committee members and graduate students will be held if requested. When such attempts at communication are not productive, students should seek advice from the Office of Ombuds Service, <https://ombuds.osu.edu/> and/or follow the Graduate School's Grievance review process (GSH Appendix D).

Terms and Acronyms Referenced in this Document

GRA: Graduate Research Assistant

GSH: Graduate Studies Handbook (gradsch.osu.edu/handbook). Applies to all graduate students at Ohio State.

GTA: Graduate Teaching Assistant

GSC: Graduate Studies Committee. The School of Earth Sciences graduate studies committee, made up of a Chair, 4 faculty members, and 4 graduate students

Course registration instructions: <https://gradsch.osu.edu/pursuing-your-degree/course-registration>.

Checklist of Final Semester Procedures: <https://gradsch.osu.edu/final-semester-procedures-and-timelines>.

Forms for candidacy, graduation, oral exams, petitions: <http://gradforms.osu.edu/>

Appendix A. Guidelines for Master's Thesis and Ph.D. Dissertation Proposals

Graduate students should begin investigating potential research areas and discussing the feasibility of possible topics with appropriate faculty as soon as is practical after beginning their graduate careers. The ideal situation would be for a student to have chosen the general research area and to have received an indication from a faculty member that they would be willing to serve as advisor to the student before the end of the first semester in residence. It is recognized that commonly this will not occur until the second quarter in residence.

Under the guidelines for "Normal Progress", a M.S. student has an approved Thesis Proposal completed by the end of the **second semester** or, for a Ph.D. student a completed Dissertation Proposal by the end of the **second year** (4 semesters) at OSU.

Only members of the Graduate Faculty (Status M (M.S.) or P (M.S. or Ph.D.)) can serve as advisors. All regular faculty in the School of Earth Sciences qualify, as well as Emeritus faculty who have petitioned to retain Graduate Faculty status. Associated faculty, including adjuncts, may serve on master's and doctoral examination committees upon petition by the Graduate Studies Committee of the student's program and approval by the Graduate School; however they do not count towards the Graduate School minimum requirements for Graduate Faculty (2 for the M.S. Examination Committee, 4 for the Ph.D. Candidacy Exam, and 3 for the Final Ph.D. Oral Examination).

To formalize this agreement between the student and faculty advisor, the School requires that a Thesis/Dissertation Proposal be submitted to the Graduate Studies Committee for its approval.

The procedure for preparing and submitting the proposal is given below. It is expected that the text of the M.S. proposal will be approximately 3 to 5 pages, not including references. The Ph.D. proposal is expected to be approximately 5 to 9 pages, not including references.

1. The student develops a proposal that meets the approval of their advisor and addresses the following points:

- a. nature and significance of the problem;
- b. hypotheses to be tested
- c. description of the procedures the student will use to test the hypothesis;
- d. timetable for the work; and
- e. estimated budget which shall include; i) stipend, tuition and its duration and anticipated source of funds (GRA, GTA); ii) analytical costs and technician time; iii) computer hardware and software costs; iv) fieldwork costs; v) conference costs etc.

2. The student in conjunction with their advisor selects two additional faculty members for an M.S. (note that this minimum of 3 Committee members is 1 greater than the Graduate School minimum of 2), or three additional faculty members for a Ph.D., who

are willing to serve on the committee and who approve the written proposal. *All faculty committee members must approve the proposal by either (i) signing the cover page of the proposal or (ii) indicating approval on the Graduate Student course page on Carmen.* The student submits the proposal on the Grad Studies Carmen site for the Graduate Studies Committee to approve.

3. The Graduate Studies Committee will review the proposal, after which they may a) return the proposal to the student for clarification, amplification, or rewriting, or b) approve the proposal as written. Approval of the proposal is accompanied by filing of the proposal in the student's folder in the School's Graduate Records Drive, and notification of the student of these actions. It shall be incumbent upon the Graduate Studies Committee to take action on Thesis/Dissertation Proposals as quickly as possible when they are submitted during the regular academic year.

For a student in the M.S. program, the committee will serve as the Master's Examination committee. The Ph.D. student's committee will serve as the Ph.D. Candidacy Examination committee, and typically the Ph.D. Final Examination committee (although changes can be made between candidacy and the final thesis defense). If a member of such a committee cannot be present for any Examination, the Chair of the Graduate Studies Committee should be informed and in consultation with the student's advisor, a substitute for the Examination will be appointed.

Appendix B: Guidelines for Entering the Ph.D. Program with completion of the School of Earth Sciences M.S. Program

Except for “special” and “non-degree” graduate students (who do not intend to pursue a graduate degree), students admitted to the Graduate School have graduate standing in a particular degree program of an academic unit. In the School of Earth Sciences, this means either the M.S. or the Ph.D. degree program. In its review of new applications for graduate study in the School of Earth Sciences, the Graduate Studies Committee considers the stated degree program before making a recommendation on admission.

A graduate student admitted to the Master’s degree program in the School of Earth Sciences is expected to work towards the M.S. degree. Upon completion of the M.S. degree, a student is not automatically considered to be in the Ph.D. program even though continued course registration is permitted by the Graduate School. Program status is changed by notification of the Graduate School by the Graduate Studies Committee that the student has been admitted to the Ph.D. program. Requests for admission to the Ph.D. program in the School of Earth Sciences must be made through the Graduate Studies Committee, as described below.

Application to enter the Ph.D. program in the School of Earth Sciences does not require re-application to the Graduate School for admission. Rather, application is made in the form of:

1. a formal letter to the Graduate Studies Committee by the student. The letter also should include: a statement of progress in the M.S. program and plans for completion of the M.S. degree; a statement of goals and career objectives; identification of the anticipated area of Ph.D. research; and the name of the Earth Sciences Faculty member in that area who is willing to serve as the Ph.D. advisor.
2. new letters of recommendation forwarded to the Graduate Studies Committee which should comment on growth and achievements during the M.S. program. The applicant must request recommendation letters from three School of Earth Sciences Graduate Faculty, one of whom is the potential Ph.D. advisor.

In its evaluation, the Graduate Studies Committee will consider these new materials and the applicant’s graduate work and performance in this school, along with the other credentials required of all applicants (e.g., prior or updated GRE scores if submitted, undergraduate transcripts) previously submitted for entrance into the M.S. program. The Graduate Studies Committee may decide to review the student’s application in December/January along with all other new Ph.D. applications for Autumn semester. This is because the M.S. student from SES may wish to be considered for GTA support just like the other applicants.

After review of the application, the Graduate Studies Committee will inform the applicant by letter of its decision to recommend, or not to recommend, admission to the Ph.D. program. In the former case the Committee will recommend by letter to the Graduate School that the student be recognized as a Ph.D. student. This letter may indicate certain “conditions” to be satisfied, such as successful completion of the M.S. before

admission into the Ph.D. program or other requirements, as is done for all “external” applications. Additionally, this letter will inform the Graduate School whether credits earned as a Master’s student should be counted toward the Ph.D. credit-hour requirements.

It is inappropriate to apply for entrance to the Ph.D. program until significant progress has been made toward completion of the M.S. requirements (e.g., coursework and progress on thesis research).

Appendix C: Guidelines for Candidacy Format

The candidacy exam format guideline is outlined via the following options. Note that all specific below are to be treated as guidelines, not rules. Communication is essential: a good starting point for Advisory committees is communicating how your exam may differ from these options provided below. “O” below is the day of the oral exam, and e.g. O-3 mo is “oral exam minus three months”, with abbreviations “mo” for month and “wk” for week.

In summary, Option 1 below focuses on evaluating the student on content from past coursework and may be advantageous for students in fields where mastery of this content is the most important aspect to focus on in preparation for future work. Option 2 focuses on a written exam administered in the form of evaluation of a full-length research proposal, and may be advantageous for students in fields where proposal writing is the most important aspect to focus on. For Option 3, the student works together with the committee to design the exam and may be advantageous for students who want more interaction with their committees and have engaged committees. Options 1 and 3 share many similarities, with Option 3 emphasizing interaction with committee.

Note that these schedules do not implicitly suggest that students e.g. should be studying for three months straight for the candidacy exam. The amount a student prepares and the topics and level of expertise required to pass candidacy are still to be worked out between students and committees. Instead, these schedules emphasize that plans for candidacy should begin to be prepared far ahead of time, with interaction between students and committees to clarify expectations.

Note that these schedules do not imply that a student spend a year crafting a dissertation proposal document. Rather, students should begin approximately a year ahead of time working to identify a meaningful topic, begin to research it, with the goal of a proposal being prepared as indicated in the Options below.

OPTION 1

This option is an exam where the candidate answers one question from each of four committee members, where each question is designed to take four hours.

- O-12 mo: Candidate begins writing dissertation proposal
- O-5mo: Candidate submits finalized dissertation proposal to SES Graduate Committee, including signatures from all committee members

- O-4mo: Candidate discusses exam with PhD adviser, and each committee member. The format of each written exam is settled on. Candidate and committee discuss each aspect of exam, including:
 - Accommodations from the office of Student Life Disability Services
 - Whether each part of the exam will be open or closed book
 - How long each part of the exam will take
 - What types of questions will be asked
- O-3mo: Candidate schedules time and place for the oral exam. Candidate completes application for candidacy on GradForms
- O-3mo: Candidate receives from each committee member a specific written exam topic to prepare for and begins preparation for written exam. Typically, these are topics that are intermediate in scope: they would not be expected to span an entire course's material, nor would they be as specific as a single PhD dissertation. Note it is not expected that students would focus exclusively on candidacy exam preparation for three months! Instead, we note here that the format is clear some time ahead.
- O-3 wk: Candidate takes written exam for Committee Members 1 and 2. Each is an open-book exam to be completed within 4 hours. The first takes place Monday, and the second takes place Wednesday.
- O-2 wk: Candidate takes written exam for Committee Members 3 and 4. Each is an open-book exam to be completed within 4 hours. The first takes place Monday, and the second takes place Wednesday.
- O: Candidate takes oral exam.
 - During the exam (typically not before), candidate will receive feedback in oral form.
 - Candidate has the option to have their written exam with them.
 - Exam is open book: Students can have access to textbooks and their laptop to consult with during exam. Students should not spend more than about a minute looking up answers to any question: it is appropriate e.g. to briefly review an equation to be able to write it on the board and explain to committee

A slight modification of this Option is to compress the written exams into one week, with the candidate taking written exams from Committee members 1, 2, 3 and 4 on Monday, Tuesday, Thursday and Friday, respectively, with a rest day on Wednesday.

OPTION 2

This option is an exam where a 15-page research proposal constitutes the written exam. A "pre proposal" is submitted to the GSC as usual, but is then expanded into a 15 page proposal as the basis of the candidacy exam.

- O-14 mo: During first year, candidate and committee meet and determine that the proposal will be treated as the written part of the candidacy exam

- O-12 mo: Candidate begins writing five-page dissertation proposal
- O-7mo: Candidate submits five-page draft dissertation proposal to committee, receives any needed feedback in order to finalize dissertation proposal.
- O-5mo: Candidate submits five-page finalized dissertation proposal to SES Graduate Committee, including signatures from all committee members.
- O-4mo: Candidate holds a committee meeting and discusses:
 - Weaknesses with proposal and areas to improve
 - Accommodations from the office of Student Life Disability Services
 - Whether oral exam will be open or closed book
 - How long each part of the exam will take
 - What types of questions will be asked
- O-3mo: Candidate schedules time and place for the oral exam. Candidate completes application for candidacy
- O-1mo: Candidate submits 15-page dissertation proposal to committee
- O: Candidate +takes oral exam.
 - During the exam (typically not before), candidate will receive feedback in oral form.
 - Candidate has the option to have their written exam with them.
 - Exam is open book: Students can have access to textbooks and their laptop to consult with during exam. Students should not spend more than about a minute looking up answers to any question: it is appropriate e.g. to briefly review an equation to be able to write it on the board and explain to committee

OPTION 3

This option is modified version of Option 1, in which students spend the semester before their exams designing qualifying exam questions with individual committee members.

- O-12 mo: Candidate begins writing dissertation proposal
- O-12 mo: Candidate meets with each committee member. Each exam question emerges via a conversation between the committee member and the candidate. Candidate and committee members meet monthly hereafter.
- O-5mo: Candidate submits finalized dissertation proposal to SES Graduate Committee, including signatures from all committee members
- O-4mo: The format of each written exam is settled on in writing. Candidate and committee discuss each aspect of exam, including:
 - Accommodations from the office of Student Life Disability Services
 - Whether each part of the exam will be open or closed book
 - How long each part of the exam will take
 - What types of questions will be asked
- O-3mo: Candidate schedules time and place for the oral exam. Candidate completes application for candidacy on GradForms

- O-3mo: Candidate receives from each committee member a specific written exam topic to prepare for and begins preparation for written exam. Typically, these are topics that are intermediate in scope: they would not be expected to span an entire course's material, nor would they be as specific as a single PhD dissertation
- O-3 wk: Candidate takes written exam for Committee Members 1 and 2. Each is an open-book exam to be completed within 4 hours. The first takes place Monday, and the second takes place Wednesday.
- O-2 wk: Candidate takes written exam for Committee Members 3 and 4. Each is an open-book exam to be completed within 4 hours. The first takes place Monday, and the second takes place Wednesday.
- O: Candidate takes oral exam.
 - During the exam (typically not before), candidate will receive feedback in oral form.
 - Candidate has the option to have their written exam with them.
 - Exam is open book: Students can have access to textbooks and their laptop to consult with during exam. Students should not spend more than about a minute looking up answers to any question: it is appropriate e.g. to briefly review an equation to be able to write it on the board and explain to committee