

Senior Thesis Policies and Timeline

A senior honors thesis in Earth and Ocean Sciences is a project and a process that allows students to delve deeply into a scientific problem. The goals of this experience are to

- expand knowledge of our science, both for the student and the scientific community,
- encourage self-discipline and self-reliance,
- develop problem-solving and critical reasoning skills,
- strengthen writing and presentation skills.

A thesis requires clear-eyed commitment of substantial time and energy for the last year of a student's undergraduate career - always much more commitment than the student expects going into the project.

This document sets out the guidelines for preparation of a senior honors thesis in the Department of Earth and Ocean Sciences. In addition to the School's requirements for thesis work (e.g. Dean's list standing for at least 2 semesters before the senior year), these policies will ensure timely progress on the research. See the *Bulletin* and Student Services website for additional information on A&S requirements for honors theses.

Besides data collection, a high-quality thesis requires sufficient time for thoughtful conversations with faculty and peers, and for conscientious revision of the manuscript, often multiple times. These policies and procedures provide unambiguous mileposts for progress.

Policies

Thesis advisor and committee:

Prior to the beginning of a student's senior year they must find an EOS faculty member who agrees to serve as the advisor and discuss potential thesis ideas. No later than the first week of the senior year the student also needs to find a second faculty person willing to serve on the thesis committee with their advisor. The thesis committee will review the thesis and monitor the student's progress.

Thesis proposal: The student must have developed the ideas for the thesis work in the spring of their junior year or during the summer before senior year. In any case, a formal proposal no longer than 2 double-spaced pages must be prepared and approved by early in the fall of the senior year. A&S rules require that students apply for the senior honors thesis by the end of their junior year, so this EOS requirement is aligned with the school's requirement.

Overall time structure: The overall framework of these EOS guidelines encourages data collection in the fall semester and writing in the spring semester.

Student commitment: In order for the thesis to receive the care and attention it needs, EOS requires that students take no more than 3 additional courses (preferably 2 or 2.5) each semester in the senior year, beyond EOS 193/194. The fall semester is when many students are preparing applications to graduate schools and visiting potential schools, which takes a great deal of time and effort. This should be factored into the student's schedule. Because of these other commitments, we also strongly urge students to refrain from **any** extracurricular activities that are very time-consuming (e.g. theater productions, Marathon participation, certain sports, Eco-rep, etc.). Not only does lack of time commitment cause a poorer quality thesis, it is unfair to the advisory committee to ask them to spend time reading and commenting on a thesis that has been controlled by time rather than science.

Library research: Students will schedule a meeting no later than September of their senior year with the Tisch Science Research and Instruction Librarian for instruction on how to use online resources, perform online research, and assembling references. Ideally, if more than one student is doing a thesis, they will jointly schedule this session. Here is a link to the web site on research in EOS prepared by the department's librarian: <http://researchguides.library.tufts.edu/Geology>. Students should refer to the *Geological Society of America Bulletin* (or other respected journal) and its author instructions online for the format of author/year references in the text of the thesis and the listing of references at the end of a document.

Peer review: In addition, if there is more than one EOS student doing a thesis or a research project that will culminate in a written report, we encourage as much peer review of writing as possible. The advisors will coordinate this process, but the timeline provided below will assist in ensuring that students will benefit from interactions with each other over a time frame that precludes rushed work.

Presentations: Students will present a thesis defense in April to the department, and will also prepare a poster or oral presentation for the Undergraduate Research Symposium in April.

Missing deadlines: If a student misses more than 2 deadlines (see below) the thesis will revert to a Geological Research (EOS 91 or 92) course or else will be dropped totally. In the event of exceptional circumstances, the advisory committee may agree to extend a deadline but they are under no obligation to do so.

Grading

A written proposal (no more than 2 double-spaced pages not including figures or the reference list) describing the intended research must be submitted no later than 2 days before the Drop/Add date in September (which is generally ~12 days after classes start). As noted above, we strongly urge this to be done in the previous spring or during the summer. The proposal must include a title, statement of the problem and significance, methods, and bibliography (at least 10 relevant references from the primary literature). It is understood that the scope of the project might vary somewhat from the proposal as the work progresses, but it should not substantively change. If this proposal is not delivered to

the advisory committee by this deadline, the thesis will not be allowed. The accepted proposal will receive a grade.

During the fall semester the student must submit biweekly reports of progress to the advisor. The form of these reports will depend on the nature of the research. They will be graded, and verbal or written feedback will be provided to the student. These grades will figure into the final grade for the 2-semester thesis credits.

In the spring semester, the student will focus on writing the thesis. The advisor (and the committee, if appropriate) will grade drafts that are submitted.

The final thesis and the thesis defense will constitute the basis for the rest of the grade. Grading of senior honors theses involves two evaluations: 1) an overall letter grade that the student receives for the two semester project (EOS 193 and 194 combined), and 2) a distinction for their diploma and at graduation of thesis honors, high thesis honors, or highest thesis honors.

Timeline

- Mid-September (2 days before the Drop/Add deadline) – thesis proposal due. If the proposal is not acceptable, the advisory committee and student may mutually agree to change the Thesis credits (EOS 193/194) to a Geological Research project for 1 or 2 semesters (EOS 91/92), without requirement of a defense, but a written paper on the research will be required.
- End of September - the session with the research librarian must be completed.
- November 15 – The *Introduction* and *Methods* sections must be submitted to the advisor, along with additional references that have been assembled. If there is more than 1 student working on a thesis in the department, the students will also submit copies to their peers for review.
- December 1 – Data collection should be complete, or nearly so. These data must be presented to the advisory committee with preliminary notes or a brief summary of the results. It is understood that a discussion of the results and their significance is not necessarily part of this submission. A meeting of the committee will be called to discuss strategies for analysis, if needed.
- February 15 – The first draft of the thesis is due to the advisor. This must be in the format of a scientific paper, and include an Abstract, Introduction, Methods, Results, Discussion, Conclusions, and References Cited. Figures and tables must have captions. Peer review will be conducted if there is more than one student preparing a thesis in the department. This draft will be graded.
- February 28 – the first draft must be returned to the student
- March 15 – the second draft must be submitted to the advisor.
- March 30 – the second draft must be returned to the student
- April 1 (approx.) – register for the Undergraduate Research Symposium
- April 7 – the revised second draft must be submitted to the advisory committee
- April 15 – comments from the committee are due to the student
- April 15 (approx.) – abstract due for the Undergraduate Research Symposium

- Last 2 weeks in April – the defense must be scheduled, at least 4 days before the date the thesis is due to Digital Archives
- End of April – the student must present a talk or a poster at the Undergraduate Research Symposium

A senior honors thesis can be one of the most transformative and educational mileposts in a student's career - or a frustrating, stressful debacle. This document is intended to increase the odds that a student will have the former experience and produce a thesis of which they can be proud.