

The EPS Senior Thesis Guide

A Note to Students:

Completing a senior thesis will likely be the most challenging and rewarding experience of your undergraduate career. Students undertake thesis research and writing for various reasons—to see if they want to pursue research opportunities post-graduation, because they are excited about studying a question that has never been answered, or simply because it is a requirement for a joint concentration! Regardless of the motivation, you should carefully consider your investment and commitment to conducting research and writing during your senior year (and likely the preceding summer).

A Note to Faculty:

Thank you for your willingness to advise a senior thesis student during the most challenging and rewarding experience they will have as an undergraduate at Harvard. Your role is absolutely critical in ensuring that the senior thesis is a positive educational experience for all parties. This document/handbook includes information about the thesis procedures and the expectations of both the students and faculty advisors.

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What are the expectations of a senior thesis student?

1. Work with a faculty advisor to define a research question that can be reasonably addressed within the time frame and physical constraints (available funding, lab equipment, etc.).
2. Become familiar with the literature necessary to address the research question.
3. Address the research question under the direction of the faculty advisor to the best of the student's ability. This may involve sample collection, laboratory analysis, data collection, coding, creating models, conducting statistical tests, etc.
4. Meet with the faculty advisor regularly (preferably weekly), beginning the summer before the senior year and continuing through the oral presentation in May.
5. Work with the advisor to create a timeline of research tasks and thesis writing.
6. Ideally, complete most of the research project during the summer, fall, and January term, leaving the spring semester to focus on writing.
7. Enroll and participate in EPS 99A and/or EPS 99B (both semesters strongly recommended).
8. Submit the registration form, thesis description, mid-year progress report, thesis draft and final thesis according to the deadlines set by the UCC (see timeline in this document).
9. Present research findings at a mid-year (December) and final (May) oral presentation.

The successful completion of a senior thesis makes a student eligible to be considered for English honors from the department.

What are the expectations of a faculty advisor?

1. Assist the student in defining a reasonable research question.
2. Provide the student the tools necessary to answer the research question. This includes getting the student started with literature, contacts (e.g. grad students and postdocs), equipment and office space, procedures, etc. that they will need.
3. Meet with the student regularly (preferably weekly), beginning the summer before the student's senior year and continuing through the oral presentation in May.
4. Work with the student to adhere to a timeline of research tasks and thesis writing, modifying deadlines as needed.
5. Assist the student to (ideally) complete most of the research project during the summer, fall, and January term, leaving the spring semester to focus on writing.
6. Ensure that the student has collected data and completed their analysis no later than the 5th Monday of Spring term, ensuring their ability to complete the thesis by the final deadline.
7. Provide timely and reasonable feedback on the student's writing and thesis draft. At a minimum, the advisor should provide written feedback on the full thesis draft due just before spring break. Feedback on this draft should be provided to students by the end of spring break to allow for ample time for students to make revisions before turning in the final thesis.
8. Serve as a reader for the final thesis and provide comments and a grade recommendation to the UCC.
9. Attend the mid-year (December) and final (May) oral presentations of the student's work and as of the 2019/20 academic year, introduce the student at the final oral presentation.

Given the heavy time commitment involved in advising a senior thesis student, faculty are strongly advised to carefully consider their availability to advise more than one or two senior thesis students

in a given academic year. Please carefully review the timeline for advisors in this document and refer to it frequently throughout the year.

What is the purpose of EPS 99A and B?

- EPS 99A (fall) and 99B (spring) are courses available to seniors to assist them in the research and writing process. The courses also serve as place holders in the student's schedule to make sure they have time for research and writing.
 - Senior thesis students are required to take either 99A or 99B, though it is very strongly recommended that students enroll in both courses.
 - The instructor(s) of record for these courses is(are) the (co-)Head Tutor. The preceptors provide the students with workshops teaching skills related to organizing and communicating their research, provide a support system, and help students and their advisors put together a timeline to complete the thesis. The preceptors help students stick to the timeline (created with the advisor) for completing thesis sections.
 - During the fall, the students and preceptors meet approximately weekly. During the spring, the group only meets a few times, leaving time for writing and more personalized check-in meetings. The Head Tutor meets with the thesis class at the beginning of both the fall and spring terms.
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What are the roles of the UCC, preceptors, and co-head Tutors?

- The Undergraduate Curriculum Committee (UCC) serves as the group overseeing the major aspects of the senior thesis program, establishes guidelines for funding, and assigns final thesis grades. The UCC members also support the senior thesis students by attending both the mid-year (December) and final (May) oral presentations and providing feedback.
- The co-Head Tutors or Head Tutor serve as the faculty contact point for all students working on a senior thesis and their advisors. They oversee the preceptors in the administration of EPS 99A and 99B and serve as a liaison between faculty and students as needed, ensuring that faculty are appropriately involved in each step of the thesis process.
- The preceptors administer the EPS 99A and 99B courses. They meet with the students regularly, providing support through:
 - Teaching workshops on organizing literature, creating figures, using Word/LaTeX, structuring a scientific paper, putting together a poster or presentation, oral presentation tips, etc.
 - Providing information on specific sections of a senior thesis (writing tips).
 - Holding regular meetings and check-ins, providing students the opportunity to share ideas with each other and practice explaining their research.
 - Helping the students stick to the timeline created with their advisor by emailing them about upcoming deadlines for sections of their thesis.
 - Communicating with advisors about major deadlines, selecting additional readers, and collecting feedback on the final thesis.
- The UCC, Head Tutor(s), and preceptors are also regularly in communication with the Academic Program Manager to ensure that students are doing well and staying up in all their coursework and concentration requirements.

Troubleshooting/FAQs for Students:

The thesis process is not easy. It is designed to challenge you to grow as a researcher, writer, scientist, and independent thinker. When challenges arise (as they most likely will), don't be discouraged. Students who have gone before have overcome similar challenges, and the department stands ready to help you have a positive experience!

Below are suggestions that may help. Please seek out assistance from the preceptors, UCC, your advisor, etc. Do not suffer in silence!

1. I'm having a hard time communicating with/getting feedback from my advisor.

Faculty (like students!) are busy shuffling competing demands on their time. Have an upfront conversation with your advisor about the best way to communicate with them (office meetings, email, video chats, phone calls, etc.). The best strategy is to have a regular (weekly), standing appointment with your advisor. This eliminates the need to continually try to fit something into your schedules. If both of you decide there is no need to meet during a particular week, you can cancel your meeting, but the next one still remains in place. Be sure to clearly and specifically communicate with your advisor when you need assistance or feedback (e.g. Is it possible to provide comments on my draft by the end of the week so I can work on revisions over the weekend?). It may also be helpful to ask your advisor to pair you with a grad student or postdoc, if possible, that may be available more frequently for more casual meetings.

2. I am struggling to meet deadlines.

First, consider the purpose of the deadlines you are concerned about. Are they less flexible deadlines or interim deadlines just set to help you move forward? Most deadlines fall into the latter category. Talk to your advisor about adjusting the deadlines/goals you set together and let the preceptors know about the changes in your timeline so they can follow up and help keep you on track. If you are concerned about the more inflexible deadlines (e.g. the final thesis due date), contact the preceptors or co-head tutor, who will work with you and your advisor on a plan forward, perhaps adjusting the specific research expectations for your project or helping you to organize your time.

3. It seems like the expectations for my research are changing/expanding and I don't know what to do.

Part of the excitement of research is that you don't know exactly where it will take you when you start out. Your research question will undoubtedly evolve as you work on your project. There are always more questions to answer, but there is not always time available to answer them. Check in with yourself periodically and ask: "What question(s) am I answering? What is the logical order of answering these questions? Which question(s) are most meaningful to me and to my advisor?" If you find that you are experiencing "scope creep" in which your project keeps becoming larger and more difficult to approach in the short time frame of a senior thesis, you'll need to prioritize. Talk to your advisor as soon as you sense this happening so you can decide together where to focus your energy. The questions you have to set aside (for now), may make a great future research project. If you are having a hard time communicating your concerns with your advisor, talk to the preceptors or co-head Tutor.

4. *I am getting conflicting messages from different people—my advisor, co-advisor, postdocs, etc. all have different ideas of what I need to do.*

Many students end up working with multiple faculty, grad students, and postdocs in addition to their main advisor. It is common that all of these people are interested in seeing your research go in slightly different directions. While it would be great to be able to go in every direction, since you are limited in time, you will need to prioritize your efforts. Your default should be to follow the advice of your advisor, but if you choose to go down a different path (which may be fine), make sure you communicate clearly to your advisor (and other research group members) which path you will be taking and why. Ask for help from the preceptors and Co-head Tutors if you need help having this conversation.

5. *My code/lab work is way more complicated and taking much longer than I thought.*

When you realize that your research is taking longer than you anticipated, you should meet with your advisor immediately. You will need to prioritize your research tasks, and your advisor will be able to help you choose where to focus your time. They may also be able to provide resources on how to make your procedures/codes more efficient or solve recurring issues.

6. *I am drowning in background literature.*

When you start working with a research group, you'll have a lot of information to catch up on. Start by asking your advisors and others in your group (postdocs and grad students) for just the most important papers, text book chapters, etc. As you move on in your project, you'll be able to decide which additional resources are the most relevant to your research question. Ask the preceptors for help in organizing your literature and reading notes.

7. *I have science writer's writing block. I love research but can't seem to put words on a page.*

There are many helpful resources in the department and the university to help you with your writing. The preceptors offer workshops on how to organize your research and structure your thesis. They are also happy to discuss writing strategies that will work for you and provide accountability. The [Academic Resource Center](#) also provides workshops and tips geared towards thesis writers. You can also visit the senior thesis tutors at the [Harvard Writing Project](#). Most importantly, let the preceptors and your advisor know that you are struggling.

8. *What happens if things fall apart and I am no longer able to complete a thesis?*

Your senior thesis should be a challenging, yet positive experience. There are many people in the department eager to help you succeed. If you decide not to complete your thesis, you have until the fifth Monday of the term to switch from EPS 99 to EPS 91 (mentored research). Please communicate any concerns as soon as possible with your advisor and the Academic Program Manager.

9. *What funding is available for my research and expenses?*

Student requests for research-related funding are reviewed by the UCC. Requests, particularly for support over the summer before the senior year, should be turned in by the March deadline that will be provided to the students. Students are required to put together a budget outlining their expenses, including summer housing and meals, equipment, etc. Students are strongly encouraged to apply to

other funding sources, since funding is limited. Funding amounts are subject to change, but as of 2019, EPS concentrators may receive up to \$1500 in research funding per semester (\$750 for joint or secondary concentrators). Summer research and living expenses may be funded up to \$4500 (\$2250 for joint or secondary concentrators).

10. I would like to attend a conference. Is there funding available for my fees and travel?

Student requests for research-related funding are reviewed by the UCC. Students are required to put together a budget outlining their expenses for attending the conference, which should be turned in well in advance of the conference. As of 2019, the EPS department will provide up to \$500 to support conference registration and travel. Advisors are expected to supplement the departmental contribution to student travel funding.

11. How are grades and honors assigned for senior thesis students?

For EPS 99A, students are assigned a grade of SAT/UNSAT, assigned by the Head Tutor in consultation with the faculty advisor and Preceptors. EPS 99A will initially be listed as zero credits, but following completion of 99B, students will receive 8 credits for the year-long EPS 99 course, which do count toward the EPS concentration requirements. For EPS 99B, the letter grade for the course is determined by the UCC with input from the Preceptors and Undergraduate Program Coordinator based on the recommendation of the thesis advisor and the additional reader(s) for the student's thesis. Although both the final thesis and the oral presentation factor into the student's final grade, the thesis grade will be determined largely based on the final written thesis. The thesis advisor(s) and thesis readers (chosen by the thesis advisor) will read the final thesis, attend the final oral presentation, and submit grade recommendations to the Undergraduate Curriculum Committee (UCC). The UCC members and Preceptors will meet to determine the final grade and honors recommendation. Note for joint concentrators: Both of a student's concentrations will participate in the grading process, but the primary concentration (i.e. the one listed first in my.harvard) will determine the final grade.

12. What is the Hoopes Prize?

The Hoopes Prize recognizes winning senior thesis writers with \$5,000 and their advisors with \$2,000. The EPS final thesis deadline is approximately one week before the nomination deadline for the Hoopes Prize. The thesis must be nominated by the faculty member who supervised the work. If your advisor nominates your thesis, you will also need to complete the submission process as detailed on the [Hoopes Prize](#) website. Please see the [Hoopes Prize FAQ](#) for important details and firm deadlines for the nomination process.

13. Can I do both a senior thesis and a 4th year or concurrent master's program?

Both writing a thesis and completing a master's degree are very demanding on your time. Trying to do both is VERY STRONGLY discouraged. If you are considering this option, you are required to meet with the Graduate Coordinator, Co-head Tutors, Preceptors, and Academic Programs Manager PRIOR to beginning thesis research to discuss the feasibility of your plan for both fall and spring terms of your senior year.

Troubleshooting/FAQs for Faculty:

Advising senior thesis students presents challenges and opportunities that are different from those involved in mentoring graduate students. Below are some issues that may arise and suggestions on how to approach them.

1. How is advising a senior thesis student different from advising a graduate student?

Unlike PhD students, senior thesis students have a very limited amount of time to complete a research project from start to finish. In working with a prospective thesis writer, consider how much research a student with little experience can reasonably complete within about 6 months of active part-time research. Ideally, students should be able to complete most of their research during the summer and fall, leaving the spring semester for writing.

Senior thesis students are also likely conducting original research for the first time and will require more guidance as they get started. Advisors should be careful not to make assumptions about what students already know how to do, but have conversations with them about every step of the research process, allowing students to gradually become more independent. Undergraduate researchers may also benefit from more frequent and detailed feedback on their research and writing than their graduate peers. It is also important for seniors to have their advisors present at the mid-year and final presentations, and advisors will be asked to introduce their thesis advisee(s) at the final oral presentations.

In order to facilitate frequent and close guidance for senior thesis researchers, it may be helpful to ask a graduate student or postdoc from your research group to meet more frequently and casually check in on the senior's progress. Past thesis writers have commented that this has been helpful when they wanted to feel like less of a burden on their faculty advisor for daily assistance with research tasks.

2. I don't agree with the deadlines and/or order of sections required by the preceptors.

Any deadlines other than the course registration deadline, progress report deadline, thesis draft and final thesis deadlines, and the final oral presentation **are entirely at the discretion of the student and their advisor**. Any other deadlines presented to the student (e.g. methods section, results, conclusion, etc.) are only suggested to help students make timely progress toward completing the final thesis. Based on the timeline in the EPS 99 syllabus, the preceptors may ask the student to turn in various sections of the thesis during the fall and spring semesters. However, these "interim" deadlines may always be adjusted to best meet the needs of the student and advisor. Please contact the preceptors if you have any concerns about interim deadlines.

3. What funding is available to assist senior thesis students?

Student requests for research-related funding are reviewed by the UCC. Requests, particularly for support over the summer before the senior year, should be turned in by the March deadline that will be provided to the students. Students are required to put together a budget outlining their expenses, including summer housing and meals, equipment, etc. Students are strongly encouraged to apply to other funding sources, since funding is limited. Funding amounts are subject to change, but as of 2019, EPS concentrators may receive up to \$1500 in research funding per semester (\$750 for joint or secondary concentrators). Summer research and living expenses may be funded up to \$4500 (\$2250 for joint or secondary concentrators).

4. *My student wants to attend a conference. Is there funding available for their travel?*

Student requests for research-related funding are reviewed by the UCC. Students are required to put together a budget outlining their expenses for attending the conference, which should be turned in well in advance of the conference. As of 2019, the EPS department will provide up to \$500 to support conference registration and travel. Advisors are expected to supplement the departmental contribution to student travel funding.

5. *I am concerned that the student I advise is not making adequate progress to complete the thesis in time.*

As the research advisor, you are most aware of your student's individual progress toward completing the thesis research and writing. Please **immediately** bring any concerns to either the Head Tutor, Academic Program Manager, or Preceptors. Students in the past have been able to overcome tremendous hurdles with renewed dedication and support, but it is important that everyone is aware of the support that may be needed. To ensure that a student will complete the final thesis by the April deadline, it is strongly recommended that all research is completed by the end of the January term. Students should have all of their data collected and analysis completed by the fifth Monday of spring term (this is the deadline for students to switch from EPS 99B to EPS 91 if they will not be able to complete the thesis).

6. *How are grades and honors assigned for senior thesis students?*

For EPS 99A, students are assigned a grade of SAT/UNSAT, assigned by the Head Tutor in consultation with the faculty advisor and Preceptors. For EPS 99B, the letter grade for the course is determined by the UCC with input from the Preceptors and Undergraduate Program Coordinator based on the recommendation of the thesis advisor and the additional reader(s) for the student's thesis. Although both the final thesis and the oral presentation factor into the student's final grade, the thesis grade will be determined largely based on the final written thesis. The thesis advisor(s) and thesis readers (chosen by the thesis advisor) will read the final thesis, attend the final oral presentation, and submit grade recommendations to the Undergraduate Curriculum Committee (UCC). The UCC members and Preceptors will meet to determine the final grade and honors recommendation. Note for joint concentrators: Both of a student's concentrations will participate in the grading process, but the primary concentration (i.e. the one listed first in my.harvard) will determine the final grade.

7. *How can I recognize an outstanding thesis?*

Advisors that recognize an outstanding thesis are strongly encouraged to nominate their student's thesis for the [Hoopes Prize](#), which recognizes student winners with \$5,000 and their advisors with \$2,000. The EPS final thesis deadline is approximately one week before the nomination deadline for the Hoopes Prize. The thesis must be nominated by the faculty member who supervised the work. Please see the [Hoopes Prize FAQ](#) for important details and firm deadlines for the nomination process. The Preceptors will send info and a reminder about this to advisors before the deadline.

Generalized Timeline for the Senior Thesis Advisors:

Junior Year (Spring)	
Around February, the preceptors hold an information meeting for sophomores and juniors about the senior thesis process.	
Students should identify a thesis advisor and project by the end of their junior year.	
February-March	Rising seniors contact faculty about serving as their thesis advisors and discuss possible projects
March	Students submit funding requests to the UCC
Summer	
During the summer, the preceptors put together the list of thesis writers and offer a workshop on finding, reading, and organizing literature.	
Students should gain a good understanding of the literature and complete as much lab/computer work as possible before fall classes begin.	
June-August	Advisors begin regular meetings with students and provide guidance on reading literature and beginning the research project.
August	Advisors and students should put together a tentative timeline for the research and writing steps.
Fall Semester	
During the fall, the preceptors meet with seniors approximately weekly. Following a panel of previous thesis students, workshops are offered about Word/LaTeX formatting, making figures, making posters, oral presentations, or other requested topics.	
Students should complete the bulk of their research and should write a section or two of their paper (likely the background and methods) by the end of the semester.	
Week 1	EPS 99A Registration Forms due (registration deadline)
Week 4	Thesis Description with timeline due
Week 12	Progress Reports with revised timeline and a chapter of thesis (preferably lit review) due
Week 13	Mid-Year Presentations
Spring Semester	
During the spring, the preceptors provide workshops and tips on writing and structuring parts of the written thesis and hold check-in meetings and practice sessions. They follow up with students on their personal timelines.	
Students will wrap up research during J-term and complete their writing during spring.	
Week 5 (5 th Monday)	Research updates should include preliminary interpretations
Week 7 (before spring break)	Full Thesis draft due to advisors
Spring Recess	Spring Recess
Week 8 (during or by end of spring break)	Advisors provide feedback to students
Week 10	Final Thesis Due
Week 11	Submit comments and grade recommendations to UCC; Hoopes Prize nomination deadline
Week 14 (reading period)	Thesis Oral Presentations

Appendix A. Senior Thesis Timeline Worksheet:

The timeline for students to accomplish the reading, research, and writing necessary to complete their senior thesis is provided in the EPS 99 syllabus (Appendix D). If the advisor would like to modify the timelines from the suggested deadlines in the syllabus, this worksheet should be turned in at the beginning of the fall with the Thesis Description, with a revised timeline being turned in at the end of the fall with the Mid-Year Progress Report (copies will be provided to students). The preceptors will use this timeline to follow up with your student and help keep them on track with the written sections of the thesis.

Please assign a tentative date or date range for each of the following (feel free to add to or modify this list as needed) You can also add research goals specific to the student's project.

- Literature Review
- Research Question
- Background/Intro
- Methods Section
- Results Section
- Discussion Section
- Conclusion
- Abstract
- Mid-Year Oral Presentation
- Poster (optional)
- Final Oral Presentation

Summer	
Students should gain a good understanding of the literature and complete as much lab/computer work as possible before fall classes begin.	
Due Date/Date Range	Task
Fall Semester	
Students should complete the bulk of their research and should write a section or two of their paper (likely the background and methods) by the end of the semester.	
Due Date/Date Range	Task
Week 1	EPS 99A Registration Forms due (registration deadline)
Week 4	Thesis Description and timeline due
Week 12	Progress Reports and revised timeline due
Week 13	Mid-Year Oral Presentations

Appendix B. Senior Thesis Procedures (for students):

(Deadlines and guidelines may vary from year to year. See the EPS 99 syllabus for current dates.)

1. Finding an advisor and project

Think about a topic that interests you and an advisor you want to work with. You can work with faculty from your classes or browse the EPS website for research topics. It can be helpful to talk to a variety of grad students and faculty. Think about if you would prefer to do field work, lab work, coding, etc. **By the beginning of the summer** before your senior year, you should have confirmed with an EPS faculty member that you will be completing a senior thesis. You and your advisor should discuss a specific project that you will be working on. It is **very strongly recommended** that you begin working on your thesis research during the summer.

2. Funding your research

With your advisor, you should seek out funding for research expenses throughout the project and for living expenses during the summer. Around February of your junior year, you will receive an email with a request for summer funding from EPS. This form is usually due in the middle of March. On this form, you describe your research and housing needs. Note that preference will be given to those who apply for additional funding outside of EPS and, ordinarily, EPS will cover half of the expenses for joint concentrators and secondary fielders. Please contact the Academic Program Manager for more details about funding.

Additional Harvard Programs that provide funding:

- HCRP (Harvard College Research Program): <http://uraf.harvard.edu/research-funding>
- Office of Undergraduate Research and Fellowships: <http://uraf.harvard.edu/home>
- HUCE Undergraduate Summer Research Fund (Harvard University Center for the Environment): <http://environment.harvard.edu/student-resources/undergraduate-summer-research-fund>
- Origins of Life Initiative: <http://origins.harvard.edu/pages/undergraduate>
- Oceanography: <http://www.seas.harvard.edu/climate/eli/oceanography-committee/>
- Faculty Sponsor (Faculty may apply for Faculty Aide if student is not receiving HCRP funding): <http://seo.harvard.edu/faculty-aide-program>

3. Registering for and Participating EPS 99A/B

EPS 99A/B: Students must take at least one term of EPS 99A/B (fall or spring). However, it is recommended and preferred that students enroll in EPS 99 for both the fall and spring terms. A hard copy of a registration form, which will be provided to you at the beginning of the academic year, is due **on the fall term course registration deadline** for the fall term (or full year), and **on the spring term course registration deadline** for students enrolling in only one term of EPS 99. The registration form includes your thesis topic and advisor. The form should be signed by your advisor and submitted to the Academic Program Manager. About EPS 99:

- EPS 99A (fall) and 99B (spring) are courses available to assist you in the research and writing process. The courses also serve as place holders in your schedule to make sure you have time for research and writing.
- Senior thesis students are required to take either 99A or 99B, though it is very strongly recommended that you enroll in both courses.
- The instructor(s) of record for these courses is(are) the (co-)Head Tutor. The preceptors provide workshops teaching skills related to organizing and communicating your research, provide a support system, and help you and your advisors put together a timeline to complete the thesis. The preceptors help you stick to your timeline (created with your advisor) for completing thesis sections.
- During the fall, the students and preceptors meet approximately weekly. During the spring, the group only meets a few times, leaving time for writing and more personalized check-in meetings.

4. Thesis Description Form

Students are asked to submit a description of their thesis topic and plans for completing the thesis during week 4 of the fall semester (**usually the first week of October**). This 1-2-page document should address the points below. This form serves as a kind of research agreement between the student and the advisor. The form should be signed by your advisor and submitted to the Academic Program Manager.

- Describe the topic you plan to investigate. Include a description of methods, resources, and a plan of work with expected milestones (~1 page).
- If your advisor prefers not to use the timeline provided by the preceptors (in the EPS 99 syllabus), provide a **timeline** of tasks with specific dates that you have worked out with your advisor.
- Describe the working relationship you expect with your thesis advisor (i.e., regular discussion sessions/meetings, direct supervision of laboratory research, etc.) Identify co-advisors and anyone else you plan to work with extensively.
- Indicate your needs for office/work space, and if your advisor will be providing this space.
- (optional) If you anticipate that you will need financial support from the department in order to conduct your research, please include a budget providing expense estimates and a describing how funds will be used.

5. Progress Reports

To ensure that sufficient progress toward the thesis is made, the Undergraduate Curriculum Committee (UCC) requires that students enrolled in EPS 99 during the fall term submit a 1 to 2-page progress report (along with figures and references) discussing initial research and findings. This “Mid-Year” progress report will be due during week 12 of the fall semester (**usually the last week of November**). This report should be signed by your advisor and submitted to the Academic Program Manager.

- Summarize work accomplished during the previous term. Include principal methods and techniques (~1 page).
- Provide a **revised timeline** of remaining tasks with specific dates.
- Include a literature review draft for your thesis.

6. Mid-Year Presentations

At the end of the first semester (week 13), **usually the first week of December**, students present an update of their research progress to their fellow senior thesis writers, their advisors, the Co-Head Tutors, the UCC, and the preceptors. This presentation may take the form of 12-minute oral presentations or a poster session (or both), depending on the needs and interests of the students. See the current EPS 99 Syllabus for more details.

7. Writing Sections of the Thesis

The bulk of the research and data collection for the thesis should be completed by the end of the January term. During the spring semester, students should focus on writing the sections of their thesis. Based on the timeline put together by you and your advisor, the preceptors will ask you to turn in draft sections of your thesis throughout the spring term. These sections include the introduction, methods, data, results, discussion and conclusion sections. You should also submit these sections to your advisor. The preceptors serve mostly to keep the students on track with their timelines but may provide editorial assistance as well.

8. Thesis Rough Draft

The completed rough draft is due the week before spring break (**usually the second week of March**). This draft should include all of the sections and should be submitted to the preceptors and to the advisors. Thesis advisors should provide written feedback on this draft to the student, preferably by the end of spring break.

9. Readers

The completed theses are sent to at least two official Readers. Your advisor serves as the first reader, and the second reader is suggested by your advisor. The second reader is usually another faculty member familiar with the topic of your thesis but not directly involved in your research. If you worked with more than one faculty member, both advisors may serve as readers, but you need at least one reader that was not involved in your project. The preceptors will coordinate the appointment of readers and collection of written comments and grade recommendations. Please see grading guidelines in the appendix of this document.

- Note that EPS requires 2 readers, SEAS requires 3 readers, ESPP requires 2 readers, and in SEAS the students select their readers.

10. Final Thesis Submission

The final thesis is due during week 10 of the spring term (**usually the first week of April**), one week before the Hoopes Prize nomination deadline. The thesis may be written in either MS Word or LaTeX, but should follow the formatting guidelines provided by the preceptors. It is recommended to use a template based on a past thesis. (Please see Appendix G for thesis text formatting and a template of the first three preliminary sections.). On the due date:

- Sign and turn in the honor code affirmation form (provided in the preceptor space).
- Submit one hard copy to the Academic Program Manager by noon on the deadline.

- The copy should be unbound and printed on archival paper, which will be provided by the Preceptors. The final copy will be bound and archived in Harvard's Cabot Library.
- The thesis can be printed in the EPS computer labs (GM 103B, GM 103C), or by the Preceptors in GM 101.
- Send an electronic copy (.docx or .pdf) to the preceptors. The Preceptors will send this copy to the thesis readers.

11. Public Presentation and Reception

Each senior enrolled in EPS 99 will give a 12-minute presentation to the EPS community followed by a 3-minute question and answer session. Presentations are usually held few weeks after the final theses have been submitted in Haller Hall (**usually the first week of May**). A reception that follows the presentations will be held in the Hoffman Student Lounge. The preceptors will hold practice sessions and provide feedback on draft presentations before the formal presentations.

12. Grades and Honors Recommendations

For EPS 99A, students are assigned a grade of SAT/UNSAT, assigned by the Head Tutor in consultation with the faculty advisor. For EPS 99B, the letter grade for the course and any honors recommendations are determined by the UCC during a meeting following the public presentations. Although both the final thesis and the oral presentation factor into the student's final grade, the thesis grade will be determined largely based on the final written thesis. The UCC considers the reviews and recommended grades of the readers, its own review of the thesis, input from the Preceptors and Undergraduate Program Coordinator, and the public presentation in determining grades. Separately from the grading process, advisors may choose to nominate exceptional theses for a Hoopes prize.

Note for joint concentrators: Both of a student's concentrations will participate in the grading process, but the primary concentration (i.e. the one listed first in my.harvard) will determine the final grade.

13. Feedback

In order to continually improve the thesis experience for students and their advisors, the preceptors will meet with students to discuss their experiences and provide feedback. Students will also be asked to complete an anonymous survey. Faculty advisors are also welcomed to provide feedback. In addition to program feedback for the UCC and preceptors, senior thesis writers are encouraged to provide tips and advice that will be shared with future classes of thesis writers.

14. Fostering a Supportive Environment

Your fellow senior thesis writers will provide an important support system for you during your research and writing. To facilitate this support, a small office space in Geological Museum Room 414 is reserved for senior thesis students. Please see Maryorie (grande@eps.harvard.edu) in the front office (Hoffman, 4th floor) for a key to that space. Additionally, the preceptors may divide the senior thesis class into accountability partnerships to provide each other informal support. Limited funds may be available for bonding activities among the senior thesis class.

Appendix C. EPS 99A/B Syllabus (2020-21):

Instructors:	Esther James, estherkjames@fas.harvard.edu , Geological Museum 101A Annika Quick, annikaquick@fas.harvard.edu , Geological Museum 101B
Administrator:	Chenoweth Moffatt, moffatt@eps.harvard.edu , Hoffman 402
UCC members:	Roger Fu, rogerfu@fas.harvard.edu , GeoMuseum 204B (co-head tutor) Stein Jacobsen, jacobsen@neodymium.harvard.edu , Hoffman 209 Zhiming Kuang, kuang@fas.harvard.edu , GeoMuseum 455 (co-head tutor) Marianna Linz, mlinz@seas.harvard.edu , HUCE 433G
Meeting:	1-hour weekly workshop/meeting (or as needed); Day and Time TBD
Location:	Preceptor Space (GeoMus 101)/GeoMus 103C, or as shown on schedule

Note on Enrollment: Although only one semester of EPS 99A or 99B is required, senior honors candidates are very strongly advised to take both terms of this course. Students wishing to only enroll in 99B will be required to present mid-year results before enrolling in 99B (equivalent to the mid-year presentations required in 99A). To enroll, students must submit a registration form, which includes permission of their faculty advisor, to the EPS Academic Administrator (Chenoweth) by the course registration deadline.

Course Description: This course involves research and writing a senior thesis under faculty direction. To assist with the EPS senior thesis process, this course offers additional support for students throughout the academic year. EPS Preceptors will facilitate workshops to address the needs of the students, provide routine check-ins, host group discussions and practice talks, and assist students in submitting departmental-required documents and making sufficient progress toward completing their thesis.

For detailed information about the thesis process, please see the [EPS Senior Thesis Guide](#), which will be provided to students and available on the course Canvas site.

Grades and Honors Recommendation: Although both the final thesis and the oral presentation factor into your final grade, your thesis grade will be determined largely based on your final written thesis. Your thesis advisor(s) and thesis readers (chosen by your thesis advisor) will read your final thesis, attend your oral presentation, and submit grade recommendations to the Undergraduate Curriculum Committee (UCC). The UCC members and Preceptors will meet to determine your final grade and honors recommendation.

Note for joint concentrators: Both of your concentrations will participate in the grading process but your primary concentration (i.e. the one you listed first in my.harvard) will determine your final grade.

Academic Integrity: Please read Harvard's policy on academic integrity, in the Undergraduate Handbook. The relevant section is available at: <http://handbook.fas.harvard.edu/book/academic-integrity>. Also, please read Harvard's guide to using sources (<http://usingsources.fas.harvard.edu/icb/icb.do>), which includes a section on "Avoiding Plagiarism."

It is your responsibility as a student to read and understand the provisions of the Harvard College Honor Code. Cases of suspected Honor Code violation will be referred to the Honor Council.

Course Material: Course materials are the property of the instructional staff, Harvard University, or other copyright holders, and are provided for your personal use. You may not distribute them or post them on websites.

Honor Code: Members of the Harvard College community commit themselves to producing academic work of integrity – that is, work that adheres to the scholarly and intellectual standards of accurate attribution of sources, appropriate collection and use of data, and transparent acknowledgement of the contribution of others to their ideas, discoveries, interpretations, and conclusions. Cheating on exams or problem sets, plagiarizing or misrepresenting the ideas or language of someone else as one’s own, falsifying data, or any other instance of academic dishonesty violates the standards of our community, as well as the standards of the wider world of learning and affairs.

Appendix D. EPS 99 Combined Schedule (Deadlines and Meetings)—*Example (updated each year)*

Date	Event	Document Due	Location
Fall Term 2019			
September 9 (M) (course reg. deadline)		EPS 99 Reg. Form* (Due at noon)	Academic Program Manager
September 9 (M)	Opening Meeting/ Intro from the Head Tutor		Preceptor Space
September 16 (M)	Meeting: Research Updates & Accountability Partner Check-In	Draft of Thesis Description	Preceptor Space
September 23 (M)	Workshop 1: Reference Managers & Reading Journal Articles (makeup)		Geological Museum 103C
September 30 (M)	Workshop 2: Panel of previous students	Thesis Description with Timeline*	Academic Program Manager
October 7 (M)	Meeting: Research Updates & Accountability Partner Check-In Chat with Head Tutor: Working with Advisors		Preceptor Space
October 14 (M)	Workshop 3: MS Word Formatting Tips		Geological Museum 103C
October 21 (M)	Workshop 4: Introduction to LaTeX		Geological Museum 103C
October 28 (M)	Meeting: Research Updates & Accountability Partner Check-In	Draft of Literature Review	Preceptor Space
November 4 (M)	Workshop 5: Working on Figures		Preceptor Space
November 11 (M)		Draft of Progress Report	Preceptor Space
November 18 (M)	Workshop 6: Poster Presentations		TBD
November 25 (M)		Progress Report with Revised Timeline* (Due at noon)	Academic Program Manager
December 2 (M)	Meeting: Practice Poster Presentations		TBD
December 6 (F) (time TBD)	Mid-Year Poster Presentations (EPS Community event; Advisors provide feedback)	Mid-Year Presentations	TBD

*advisor signature required; gray: dates may be modified by student and advisor

Date	Event	Document Due	Location
Spring Term 2020			
January 17 (F)	Meeting: Spring Term Check-In with Preceptors and Head Tutor	Table of Contents and Revised Timeline	Preceptor Space
January 24 (F)		Methods Section	
February 7 (F)	Workshop 6: Putting together a Scientific Paper	Results Section	Preceptor Space
February 21 (F)		Introduction and Discussion Sections	
February 24 (F)	Meeting: Research Updates (Oral) – must include preliminary interpretations		Preceptor Space
February 28 (F)		Preceptor Draft (Electronic copy of thesis)	
March 6 (F)	Individual Meetings: Feedback on Thesis		Preceptor Space
March 13 (F)		Thesis Rough Draft (Electronic copy of full thesis)	
March 27 (F)	Individual Meetings: Feedback on Thesis		Preceptor Space
April 7 (Tu) (1wk before Hoopes nomination is due)		Final Thesis (Electronic and 1 archival paper copy; Due at noon)	
April 10 (F)	Workshop 7: Public Speaking & Presentation Tips		Preceptor Space
April 17 (F)	Meeting: Practice Thesis Presentations		TBD
April 24 (F)	Meeting: Practice Thesis Presentations		TBD
May 1 (F) (time TBD)	Thesis Oral Presentations		Haller Hall

*advisor signature required; gray: dates may be modified by student and advisor

Appendix E. Thesis Text Format

The thesis should be printed on 8 ½ x 11 in. paper. Left and right margins must be 1.5 inches for binding purposes. The format is single column with line spacing of 1.5 or 2. Figures should be embedded in the text. It is recommended that you print on both sides of the paper. Visit the Cabot Library to see examples of bound EPS dissertations. See a sample title page, abstract, and table of contents below. Template files based on past theses may be available from the preceptors.

Recommended format Title Page (i)

Title

A Thesis Presented

by

Your Name Here

to

The Department of Earth and Planetary Sciences

in partial fulfillment of the requirements

for a degree with honors

of Bachelor of Arts

Month Year

Harvard College

(shield)

Recommended format for Abstract Page (ii)

Abstract

Summary of thesis, approximately 200-400 words long

Recommended format for Table of Contents (page iii)

Title Page		i
Abstract		ii
Table on Contents		iii
List of Figures		iv
Acknowledgements		v
Introduction		1
Chapter title	(arbitrary page number)	5
Chapter title	(arbitrary page number)	20
Chapter title	(arbitrary page number)	40
Conclusions	(arbitrary page number)	60
References	(arbitrary page number)	65

Appendix F. Senior Thesis Grading Guidelines

Senior Thesis Grading Guidelines

Earth and Planetary Sciences (EPS)

Dear Readers:

Thank you for serving as a thesis reader. For students who write theses, the documents you are reading represent the culmination of their Harvard education. Your careful attention to their work honors their effort, regardless of how you evaluate it.

This form asks you to provide feedback that will be sent to both the students and the EPS Undergraduate Curriculum Committee (UCC). Please fill out all of the sections on this form, which includes requests for:

- ✓ A numerical score for various aspects of the thesis. These scores will be used by UCC to assist them in deciding the final grade for the student.
- ✓ A letter grade recommendation.
- ✓ General comments in a form that can be shared with the students. You may type or paste your comments in the box provided at the end of this form. Comments throughout the thesis (by line, page, or section number) are also welcomed. *(This is the only section that will be sent to the students.)*

You may consider the following when reading theses and providing comments:

- One typed page of comments should suffice.
- We hope that your comments will be honest and critical, but respectful, objective, and constructive. Keep in mind that the thesis represents months of effort and thought.
- You should offer enough detail in your comments to explain the strengths and weaknesses of the thesis, especially if you assign a low grade.
- The standard of work expected of a senior thesis is higher than that of term papers. At the same time, the thesis is likely the student's first attempt at independent research. Unlike a doctoral dissertation, it has not been evaluated and rewritten multiple times, nor executed on an open-ended time scale. Consequently, you may show leniency in technical or scholarly standards. Nonetheless, you should expect originality and intellectual rigor beyond what you expect in term papers.

Reader: _____

Student: _____

Thesis Title: _____

Date of Review: _____

Part I. Numerical Scores

(To guide comments and assist in assigning letter grades and honors recommendations)

Please provide a score on a scale of 1 to 5 for each of the areas of the student's thesis based on the descriptions below.

1. Contribution to Knowledge

Is the thesis an original contribution to knowledge? If not, does it show sound judgment, a substantial amount of work, clarity of thought and presentation, and some creativity? If not, are the deficiencies of sufficient magnitude to cause the reader to question the conclusions?

Score: _____.

- 5 Original contribution to knowledge
- 4
- 3 Sound judgment; clarity of thought, but not an original contribution
- 2
- 1 Deficiencies of substantial magnitude

2. Design and Analysis

Is the thesis exemplary in the selection of problem, selection of data, and in the manner by which conclusions are drawn? Are there flaws in the design and analysis?

Score: _____.

- 5 Exemplary
- 4
- 3 Slightly flawed
- 2
- 1 Highly flawed

3. Interpretations and Conclusions

Are the conclusions drawn from the data persuasive? Or are there weaknesses in the interpretation and conclusions?

Score: _____.

- 5 Highly Persuasive
- 4
- 3 Some weaknesses
- 2
- 1 Fatal weaknesses

4. Clarity and Style

Does the thesis meet your expectations for literary style? Is the thesis presented clearly and skillfully with respect to tables, graphics, citations, etc.?

Score: _____.

- 5 Exceptionally well-written and presented
- 4
- 3 Minor errors in style and lapses in graphical presentation
- 2
- 1 Extensive errors and lapses

Part II. Final Assessment

Please use the criteria below to provide a letter grade for the student.

EPS Grading Criteria/Letter Grade Recommendation: _____.

Note: A more thorough description of the grading scale is provided in the grading guidelines document accompanying this form.

- A** An exceptional thesis that is carefully and completely executed, analyzed, and explained; represents a substantial amount of work that presents original ideas and a contribution to scientific knowledge.
- A-** A high quality thesis that reflects original ideas, sound judgment, and a substantial amount of work; the thesis has no serious flaws but lacks the complete analysis of an A thesis.
- B+** A thesis reflecting a well-executed project, sound judgment, and a substantial amount of work, but with minor errors in reasoning, analysis, and presentation.
- B** A thesis which demonstrates familiarity with major work in the field, however the investigation is incomplete or insufficiently executed and analyzed.
- B- or lower** A thesis that does not demonstrate familiarity with the field, reflects poor execution, and has extensive errors.

Part III. Comments

Please use the space below (or additional pages as needed) to provide comments on the thesis. Comments will be provided to the student and to the committees responsible for assigning the final letter grades and honors. Please explain specific strengths and weaknesses of the thesis that contributed to your overall recommendations.

Reader's Name: _____

Date: _____

Reader's comments/remarks on thesis: