

Preliminary Examination Guide

Department of Earth and Space Sciences– Research Program

Summary

The Preliminary Examination (Prelim) is one metric used to evaluate progress within the ESS Research Graduate Program, taken in September of the second year. The Prelim is meant to develop and foster skills in proposing and presenting research, and to structure research progress in the first two years of the program.

The Prelim is required of all entering Earth & Space Sciences Research Program Graduate students (both MS & PhD). Examinees will be evaluated appropriately to their degree attainment and degree goal.

As part of the Prelim, examinees are expected to present a proposed project. A proposal is characterized by a research project that is still in a form of development such that the final answer or result is still a work in progress. The proposal framework is intended to display the examinee's critical thinking skills and creativity for solving a significant problem. An examinee who has a nearly completed project can still use this as a foundation for a proposed project by thinking how they might extend the project with a new set of questions.

Successful examinees must demonstrate

- **the ability to think** critically, logically, and creatively
- **knowledge of the disciplines** that underlie the examinee's general area of interest (e.g., geology, geophysics, physics, math, chemistry, biology, etc.)
- effective **communication**

Exam outcome is based on the examinee's demonstrated

- ability to pose and write a research problem
- presentation of the research problem
- ability to reason through complex questions during discussion
- appropriateness of background knowledge.

Dates for the Prelim (generally the week before Autumn Quarter starts) will be established by the department annually and communicated prior to the end of the Spring Quarter.

Committee Composition and Member Roles

Prelim committee assignments include the Departmental Examination Committee (DEC) and the Student Examination Committee (SEC). SECs are composed from the pool of DEC members.

Committee membership is at the discretion of the department chair. Faculty committee members are appointed by the department chair. Graduate student ex-officio membership is proposed by the graduate student community and approved by the department chair.

Table of Committee Roles

Committee Position*	# on DEC	# on SEC	Position Role
Co-Chair(s)	2	1	Facilitates the exam, be knowledgeable of exam procedures, provide calibration among exams and an overview of the relative exam quality, and ensure fairness of exams among the examinees. Votes on the recommended outcome.
Faculty Committee Members	4-6	2	Broadly evaluate the examinee performance. Ideally, at least two members of a SEC will have expertise within the examinee's research topic. Committee members from outside the research discipline are present to ensure breadth and provide a big-picture perspective on the material presented. The exact composition of the committee will depend on the available faculty assigned to the DEC. Votes on the recommended outcome.
Faculty Research Advisor(s)		1-2	Serve as subject expert(s), and provide context on the student's development. Contributes to discussions of performance evaluation.
Graduate Student Ex-Officio Representative(s)	2-4	1	Participates in the entire exam process while also ensuring the examinee is treated fairly, represents the broad interests of the examinee. May provide feedback as an ex-officio member of the SEC, but not an evaluative assessment.

**D/SEC members must uphold student privacy rights per the [Family Educational Rights and Privacy Act \(FERPA\)](#) with regard to discussion of deliberation with individuals outside of the D/SEC*

Examinee Preparation

- Significant research mentorship from faculty
- Projects and oral presentations in courses
- Presentations by first year students in a Spring Quarter seminar (ESS 594)
- Practice Proposal Defenses conducted by examinees

Required Materials

Examinees submit the following materials* via electronic submission two weeks prior to the beginning of Autumn Quarter. **Examinees must have prior approval from Student Services in order to submit late materials.**

- ESS Graduate Research Program Preliminary Exam **Faculty Advisor Form**
- **Unofficial UW Transcript** (examinees preferring not to submit a transcript per FERPA regulations can meet with Student Services to prepare an alternative academic record)
- Research **Proposal Manuscript**
- **Curriculum Vitae** (max 3 pages) including prior degrees, fields, publications, awards, funding, and service as applicable
- Examinee First Year **Committee Meeting Minutes** (best held during Spring Quarter)
- Examinee **Goal Statement Form** communicating career goals and first-year experiences broadly

*Sample materials are available on the ESS Sharepoint [here](https://uwnetid.sharepoint.com/:f:/s/earth_and_space_sciences/EkVnQ9R1SXtAiQzydXVBjwMBTRukRW6dlz9JLHICXPA32Q?e=Zg6cZd). Users must be logged into their UWNID to access files. URL:

https://uwnetid.sharepoint.com/:f:/s/earth_and_space_sciences/EkVnQ9R1SXtAiQzydXVBjwMBTRukRW6dlz9JLHICXPA32Q?e=Zg6cZd

Research Proposal Manuscript and Presentation

The written Research Proposal serves the purpose of helping the examinee to consolidate and refine their ideas for the proposed project, encouraging dialogue between the advisor and examinee in preparation of the proposal, and informing the SEC about the project prior to the Prelim.

Examinees will prepare a Research Proposal including:

- Written narrative within the following parameters*:
 - maximum of **3 single-spaced pages** of text with a **12 point font**
 - maximum of **5 additional pages** may contain **references and figures**
 - proposals should include
 - a concise statement of a **tractable research goal**
 - followed by a brief **review of the important background**
 - a short **discussion of the analytical approach**
 - **description of the expected outcomes** that tie back to the research goal
 - manuscript organization is left at the discretion of the examinee and advisor, in order to allow flexibility in style
 - manuscript should **reflect the examinee's own synthesis** with **minimal edits from the faculty research advisor**
- Presentation within the following parameters:
 - 20 min oral presentation that summarizes the written manuscript
 - presentation slides or other visual aids that effectively communicate the relevant concepts (not submitted to the SEC prior to the Prelim)

**The topic of the Research Proposal should be limited in scope so as to be tractable (i.e. not a dissertation proposal requiring extensive development or data collection), be forward thinking, and not a research project that is already completed. The topic of the proposal could be new to the examinee, be an extension of previous experience, or be pursued in future research. The independent formulation of research proposals by examinees is encouraged. However, the project concept and methodology are more commonly developed in partnership with the research advisor, with additional guidance from the first-year committee and others. It is also customary for the advisor (and others) to provide extensive feedback on the written proposal during its development.*

Prelim Structure Timeline

- Before the end of Spring Quarter
 - ESS 594 is offered for examinees
 - Examinees schedule and hold a meeting with their first-year committee to solicit feedback and guidance in preparation of the Prelim
 - Student Services announces dates, DEC, and requests scheduling information from examinees and committee members
- Before the end of Summer Quarter
 - Finalized individual exam dates and SECs are finalized
- Two weeks before Autumn Quarter Starts
 - Examinees submit materials

- DEC Co-Chairs reach out to examinees for individual discussion, if needed, to provide the examinees an opportunity to ask questions about the Prelim process, request a disability accommodation, or raise a confidential concern
- Exam Day
 - Examinee Oral Presentation (20 mins)
 - Open to department community
 - Open Question Session (approximately 10 mins)
 - Open to department community
 - Closed Question Session
 - Attended by SEC and examinee only
 - The SEC uses this time to more fully assess the examinee's critical thinking skills and depth of knowledge, as well as the tractability of the proposed project.
 - SEC questions may address both the specifics of the Research Proposal and the fundamentals underlying the general research area
 - SEC Deliberation
 - After completion of the exam, the examinee is excused, and the SEC (including the graduate student representative) and the examinee's faculty research advisor(s) discuss the results and develop any recommendations
 - Secondary Deliberation
 - Faculty research advisor(s) and graduate student representatives are excused
 - The Co-chair and remaining faculty committee members vote on the recommendation and summarize the exam outcome feedback on site
 - Verbal Communication of Feedback
 - Faculty research advisor(s) and SEC chair promptly communicate recommendations and evaluations made during the committee's deliberation to the examinee immediately following
- October Faculty Meeting
 - DEC Co-chairs present recommendations from all of the exams during the closed Executive Session, and faculty vote to adopt the exam outcomes. The recommendation by the DEC Co-chairs is holistic, and incorporates
 - recommendation of the SECs
 - academic performance
 - fundamental understanding of natural science research questions
 - written and verbal evaluation by the examinee's advisor
 - any other relevant information
- By November 15
 - Official written outcome, including any conditions, will be issued to examinees by the ESS Graduate Program Coordinator/Associate Chair for Graduate Programs (GPC) in the form of a brief, standardized letter. A separate document will provide feedback about Prelim performance.

Criteria and Evaluation

Based on the written proposal, oral presentation, and period of questioning, examinees are evaluated based on the following criteria

- Provided **motivation** for the proposed work
- Clearly articulated a **scientific question** or hypothesis, and its significance
- Presented a **tractable plan** for answering the primary research question
- Articulated **possible outcomes** of the proposed research

- Quality of **writing** and **slide content**
- Effective **oral communication**
- Sufficient **background** on the state of the science
- **Clarity** and **accuracy of responses** to questions
- Demonstrated **breadth and/or depth of knowledge** on the topic
- Demonstration of **critical thinking** skills

The exams are inherently non-uniform given the variable methods and disciplinary foci of the examinees. Nevertheless, the committees strive to apply uniform standards for evaluation.

Exam Outcomes

Exam outcomes are recommended by the SEC, voted on by the faculty, and communicated to the GPC via the DEC co-chairs.

- Pass
 - Examinee may proceed along admitted degree pathway in consultation with faculty research advisor
 - SEC may offer recommendations* to augment the examinee's research progress
- Pass with Conditions
 - Examinee may proceed along admitted degree pathway after satisfying conditions**, communicated in written prelim results letter, by the following Spring Quarter or an SEC-determined deadline
 - Once conditions have been met, proceed with research toward admitted degree pathway in consultation with faculty research advisor
 - If conditions are not met by the deadline, the examinee will not be making satisfactory academic progress and be issued an academic notice (per graduate school policy 3), see ESS Satisfactory Progress Guidelines (currently being developed)
- No Decision
 - Exam was inconclusive and could not be scored due to circumstances outside of the examinee's control. Examinee will be provided with next steps by their SEC
- Fail
 - Examinee may be reexamined, either in part (without presentation) or fully (with presentation) by the end of Autumn Quarter
 - Examinee will be provided with next steps to complete before reexamination by their SEC
 - If conditions are not met by the start of Winter Quarter, the examinee will not be making satisfactory academic progress and be issued an academic notice (per graduate school policy 3.7), see ESS Satisfactory Progress Guidelines (currently being developed)
 - After consultation with GPC and their advisor, an examinee in the PhD program may elect to complete an MS degree. After the successful completion of the MS, an examinee may choose to submit a petition to re-enter the Ph.D. program (documented in ESS Satisfactory Progress Guidelines (currently being developed))
 - Examinee may be dismissed from ESS Graduate Research Program

**Recommendations* made by the SEC should be seriously considered by the examinee, faculty research advisor, and research supervisory committee to be implemented into the examinee's academic plan.

***Conditions* set by the SEC must be met by the examinee by the set deadline, and require resolution for the examinee to maintain satisfactory academic standing as a graduate student. See ESS Satisfactory Progress Guidelines (currently being developed).

After the Prelim Exam

After successful completion of the Prelim (including resolution of any conditions set by the SEC), examinees will begin to construct their degree supervisory committee (MS or PhD) in consultation with their faculty research advisor(s). Committees should be finalized within a year of taking the Prelim.

Examinees are welcome to discuss ideas, outcomes, threads from their exam with SEC members to support future research endeavors and professional development.

ESS Graduate Research Program Preliminary Exam Faculty Advisor Form

Form to replace faculty advisor letters of evaluation for Preliminary Exam materials as of 9/2024

The purpose of this form is to inform the SEC on the academic preparation of the examinee, from the perspective of the advisor.

Name of Student Examinee:

Name of Faculty Advisor(s):

First Year Committee Members:

Date of last committee meeting:

Please briefly describe your advisee's relevant academic history with regard to their prior institution including degrees earned, research experiences, publications, and coursework:

Please briefly describe your advisee's academic progress since entering the ESS Graduate Research Program:

Please briefly describe your advisee's academic research objectives including relevant commentary on coursework taken/needed, viability of research project/data collection/data analysis, etc:

Please briefly describe the origin of the project idea and how much feedback has been provided by the advisor in its development.

Preliminary Exam Examinee Goal Statement Form

The purpose of this form is to provide the examinee the opportunity to share their past academic experiences and future goals with the SEC.

Name of Student Examinee:

Name of Faculty Advisor(s):

Research Area of Interest:

Please briefly describe your academic progress over your first year in the ESS Graduate Research Program (<100 words):

Please briefly describe your broad experiences as a first year student since entering the ESS Graduate Research Program (<100 words):

Please briefly discuss your academic and research goals for the next year (<100 words):

Please briefly discuss your current career goals (academic/research/industry/etc) (<100 words):

Is there anything else you would like to communicate to the Prelim Committee with regard to your student experiences, academics, research, or career goals?