

ESS Guide to Advancement for Graduate Students

(September 2026)

I. Purpose of the exam

1) To assess readiness to carry out original research at the level expected from a PhD student. This includes clearly communicating: 1) why the proposed research is needed (i.e. the larger problem, the specific question(s), 2) the current state of knowledge, 3) your research approach (the logic of how you will tackle the problem), and 4) the tools you will use to carry out the work (instruments, data, models), 5) the anticipated outcomes and possible implications, 6) preliminary results (if any). The exam is an opportunity to demonstrate your fundamental background knowledge, skills, and mastery of the scientific literature to demonstrate ability to a) become a subject matter expert in the field, b) conduct original research, and c) successfully complete a Ph.D. dissertation.

2) To determine if the proposed research plan (oral and written) is likely to achieve the stated goals within the normative time to degree. You should demonstrate a reasonable understanding of the strengths/weaknesses, and risks/rewards of the research plan. NOTE: You are not obligated to execute the plan as proposed, simply to present and defend a viable research proposal. It is typical that changes to your thesis topic or research plan may occur during the course of your research. Such changes would be made in consultation with your advisor and dissertation committee.

II. When does the exam occur?

The exam should occur by the end of the second year to remain in good academic standing. Extensions for exceptional circumstances may be requested by the ESS Vice Chair for Graduate Studies.

III. Scheduling the advancement exam

The makeup of the Advancement Committee follows University policy: 4 members including the research advisor, and the majority must be ESS Senate Faculty. The committee is selected by the student with input from the Advisor. The student is responsible for contacting potential members and scheduling the exam. Scheduling can be challenging, so start early. The written dissertation proposal should be distributed to the committee at least one week prior to advancement.

IV. What is the content and format of the advancement proposal

The proposal should address: 1) the scientific problem, 2) specific issues addressed in this research, 3) background knowledge needed to understand the problem and demonstrate mastery of the literature, and 4) the approach to be used, 5) the tools and data needed to carry out the work. Consideration of the risks or likely failure points for the research is encouraged. Typical proposals are 7-10 pages of text single spaced (not including literature citations or large figures). The proposal should not exceed 15 pages.

V. Committee membership

Committee members need not be subject matter experts but should have sufficient background to understand the research, and the underlying scientific principles of at least one area important to the work. There is value in having at least one committee member with prior experience in administering ESS advancement exams.

Note: The advancement committee is not the dissertation/doctoral/thesis committee. The dissertation/doctoral/thesis committee (minimum 3 people, including the advisor) is appointed after successful advancement to candidacy and may or may not include members of the advancement committee.

VI. Advancement exam

At or prior to the meeting, the Committee will self-select one member other than the advisor to serve as advancement Chair. The purpose is to ensure a fair and objective process. The Chair is expected to run the meeting.

Typically, at the start of the meeting, the student is asked to leave the room for a few minutes so the committee can discuss the process. The Chair leads this discussion, which typically covers: 1) the order of events (presentation, questions, deliberation, decision/recommendations), 2) whether faculty ask questions during the presentation or hold them until the end, 3) how questions will be asked after the presentation, 4) the scope of questions. Outside members often ask questions about the ESS process at this stage.

The student returns to the meeting and delivers a formal presentation of approx. 30-35 minutes on the dissertation. This presentation should cover: the scientific background, specific goals, research

plan, and preliminary results relevant to the proposal (if any). Preliminary results are not a requirement, but they can be useful to demonstrate the feasibility of the proposed work. The presentation should also include a timeline for completion of the project and note any other degree-related requirements that would influence the timeline (such as remaining required coursework. If the presentation is not completed within a reasonable time (40 min. max), the presentation may be terminated by the Chair. The Chair may (at his/her discretion) allow the presentation to run longer if questions are permitted during the presentation.

During or after the presentation, all committee members (including the Advisor) are given the opportunity to ask questions. Appropriate questions include: 1) specifics of the research plan (as outlined in the presentation or written proposal), 2) related literature that the student should be familiar with, and 3) fundamental knowledge underpinning the research but not necessarily narrowly focused on the work. For example, questions could address basic knowledge of physical/chemical/biological principles or statistical/numerical methods expected of a student at this level.

You should answer the questions to the best of your ability. Request clarification of the question if it is not clear. Not knowing the answer to a particular question is not cause for alarm. Committee members sometimes ask questions that seek to find the limits of a student's knowledge, so questions may get more challenging if you are well prepared for the easy ones. Do not expect your advisor to answer questions on your behalf.

When questioning is complete, you will be asked to wait outside while the committee deliberates. During deliberation the Chair seeks consensus on the outcome (see below) and on specific guidance to the student (if any). If consensus cannot be reached, the outcome will be based on a simple majority vote. After deliberation, you will return to the room and the Chair will communicate the outcome and provide any guidance. The guidance is important and will be documented if you and the Department are clear on the rationale for the decision and exactly what you need to do to remedy any insufficiencies.

VII. Outcomes

Possible outcomes of the advancement exam are **PASS**, **Provisional PASS** (contingent on completion of further revision to the plan/proposal or additional coursework), or **FAIL**.

If you do not pass the exam, you will have the opportunity to retake the exam after a suitable period. A day or two after the exam, you will meet with the ESS Graduate Vice Chair and advisor to discuss the guidance from the Advancement committee and plan next steps. Only one retake of the exam is allowed.