

## ERE Qualifying Exam Guidelines

### Qualifying Exam

The procedure for Ph.D. qualification is identical for individuals who entered the department as an M.S. or a Ph.D. student. For students completing an MS in the department, the student formally applies to the Ph.D. program in the second year of the M.S. degree program. The student is considered for admission to the Ph.D. program along with external applicants. The admission decision is based primarily upon research progress and course work.

There are two steps to the qualification procedure. Students first take a preliminary written exam that is offered at the beginning of Autumn Quarter. The exam focuses upon synthesis of knowledge acquired from core courses in ERE or PE. Typically, students are expected to have expertise in the materials of the following classes:

ERE: Energy 240, 253, 293, 293B, 297 (or 221), CME 200, 204 (or Energy 281)

PE: Energy 175, 221, 222, 223, 240, 251, 260, CME 200, 204 (or Energy 281)

The Exams are different for ERE and PE PhD students, but share a goal of having students exhibit capability to solve an engineering problem. Students take the exam consistent with their PhD degree objective (*i.e.*, ERE or PE).

Students continuing within the department take the written exam at the beginning of their first quarter as PhD students. Students who completed their MS outside of the department take the written exam at the beginning of their fourth quarter as PhD students. A student who does not pass the exam may not be allowed to take the exam a second time. Any student who does not pass the written exam is considered to have failed the qualifying exam. Any student who is deemed to have not made sufficient research progress may not be allowed to take the preliminary exam and research progress shall be taken into account for pass, fail, and retake decisions.

A written PhD proposal and oral defense are the main components of the second step of the PhD qualifying procedure. Each student must select a committee of three faculty members, including the advisor(s), who will read the proposal and attend the oral defense. The other committee members should be chosen in consultation with the advisor(s). One of the committee members can be a senior research scientist, or an external researcher, where appropriate. In the case of a coadvising situation, the committee may include a total of four members (three is also acceptable in this case).

**The body of the written proposal, including references, should be 25-35 pages in length (note the 35-page maximum).** The written proposal can additionally include, as appendices, papers that have been published or submitted, but the student should not expect the committee to read the material in the appendices. Templates (11-point font, normal margins) for the proposal should be used and are available [here](#). The proposal, with approximate lengths for the various sections, should include:

- Introduction and literature review, including key unanswered research questions (4-8 pages)
- Problem statement and research progress to date, including formulations, data and methods used (or to be applied), initial results and discussion, etc. (15-25 pages)
- Proposed work, intellectual/practical merit, timeline (3-5 pages)
- References

**The proposal must be provided to the committee, both as hard copy and via email, a minimum of two weeks prior to the oral defense. This two-week lead time is a firm requirement.** The oral proposal should be scheduled for two hours. This will include a formal talk, of length 35-40 minutes, followed by questions from each committee member. Questions may be on the proposed research as well as the general field of study. The student can pass, pass with qualifications requiring more classes or teaching assistantships, or fail.

Students who completed their MS in the department must prepare and defend their proposal in their third quarter, not counting summer, as a PhD student (this will typically be spring quarter). Students who completed their MS outside of the department must complete the proposal in their fourth quarter of study, not counting summer (which will typically be fall quarter of their second year). In either case the advisor may request a one-quarter delay for extenuating circumstances such as a major change in research focus between MS and PhD programs, serious health issues, etc. Note that this request must originate from the advisor, not the student.

### **Candidacy**

Once a student passes the qualifying exam, he/she must apply to advance to candidacy. Once granted, candidacy is valid for five calendar years. Leaves of absence do not extend the candidacy period. <https://gap.stanford.edu/handbooks/gap-handbook/chapter-4/subchapter-6/page-4-6-1>

The process for scheduling your exam is as follows:

1. Discuss the process and preparation of your proposal with your adviser, typically at least 7-8 weeks ahead of the time you expect to have your exam.
2. Determine the three members for your faculty committee.
3. Identify a time and date that works for everyone on your committee.
4. Schedule an exam and reserve room
5. Email Student Services at least one week prior to your exam with your exam date.
6. Submit your proposal to your committee members at least two weeks prior to your scheduled exam date.
7. Bring a copy of the qualifying exam form and your transcript (available via axes) to the exam.

Please be sure to submit all forms (qualifying exam form and candidacy form) to Student Services Room 97 after your exam.