

School of Materials Engineering PHD PRELIMINARY EXAM GUIDE

The deadline to turn in the document packages to Prof. Kvam is **November 15**.

There are three main parts of the exam.

1. The student writes an original critical review (4000 words) on a specific subject area/topic related to their thesis research
2. A public seminar of 30-35 minutes plus questions (about 50 minutes)
3. Closed-door oral exam by the advisory committee (about 2.5 hours, including 30 min to review the written starting questions and make notes before the exam starts.)

Preparing the original critical review:

The topic area of the **original** critical review must be directly applicable to the student's thesis research, but not a general background, literature review, or prospectus. Instead, it must be a "deep dive" into a particular topic related to the thesis research that is sufficiently focused to demonstrate the student's ability to independently and critically analyze the prior research literature on the topic from an MSE perspective. Work that is merely descriptive of a topic is not acceptable.

Identifying a good topic is an important part of the assignment. The topic can be related to a phenomenon, a process, an analytical technique, a modeling method or a problem in design, development or research, and should be "useful" for the student to learn about for their research. The latest trends or "hot topics" can be suitable, but there must be a sufficient body of research literature for the student to analyze/critique. Likewise, topics on which review papers have already been written, or the student's advisor has written extensively, may be difficult to demonstrate originality. The student should work with their advisor to choose a topic that best meets the needs of their thesis project, considering also the time commitment within the scope of their other duties. The analysis should conclude with a brief section proposing how to advance understanding of the topic area and how it applies to the student's thesis research.

In the written review, seminar, and oral exam, the student is expected to demonstrate deep knowledge of the chosen topic area, including seminal works and related MSE fundamentals. Some pitfalls are the following: 1. Too broad a topic area, leading to shallow analysis; 2. Weak, superficial or missing analysis of the topic and of its relationships to MSE fundamentals; 3. Lack of originality.

See the Graduate Student Manual for details of the document format. Advisor(s) are allowed to provide general guidance to the student, but must certify that they have not contributed any text to the document. The critical review is to be original work of the student. Plagiarism violations are strictly enforced. Where another author's organization of ideas or particular phrasing are used, they must be properly cited. Closely paraphrasing or copying, even if the content is considered general knowledge, is not acceptable. Referencing the source of directly copied material, although certainly better than not, does not make it acceptable. An unlimited number of figures can be used, including copyrighted (i.e., published) figures, but any figure that is not original must be clearly referenced; redrawn or modified copyrighted figures should be marked, as "after" or "from" the original source, e.g., after [23].

Submitting the document:

The exam document is submitted to Prof. Kvam (copied to Karen Morgan) by e-mail as a **single** electronic file (PDF or Word), including four parts in the following order:

- 1) **Preliminary Exam cover sheet and checklist signed by the advisor, (must have)**
<https://engineering.purdue.edu/MSE/Graduate/grad-files/prelim-exam-cover-page>
- 2) **Preliminary research results performed during the PhD (1 page maximum)**
- 3) **Future research plans (1 page maximum) and**
- 4) **Critical review document (4000 words max). An abstract for the seminar is also required in the package,** either as part of the critical review (not included in the word count) or a separate document.

The document with signed cover page is due to Prof. Kvam no later than **Nov. 15 at 5:00 PM**. Submitting the document close to the deadline is not advised.

Once the document has passed the plagiarism check (checked usually within a day or two of submission), no unauthorized changes can be made and the student must provide a copy of the approved document to each member of their committee.

Scheduling the exam:

Only after the document is approved can the exam be officially scheduled with the Graduate School. All exams are scheduled by Karen Morgan. Students or advisors cannot schedule an exam. The Graduate School requires 14 days advanced notice to schedule an exam. The student is entirely responsible for arranging with their committee the date and times for the seminar and oral exam. The seminar, with a link for remote access if authorized by the advisor, is to be arranged during a normal class period of 50 min (on the half-hour), followed by the exam period of 150 min with only the student and committee. The seminar and oral exam are normally held in consecutive periods but can be separated (in time and location) if committee schedules dictate.

In polling your committee for their availability, first get a sense of general availability, starting with your advisor(s), before narrowing down the options; please do not send out a poll requesting hour-by-hour availability over multiple weeks. Once you have the date and times of your meetings set, fill out **the MSE Prelim Scheduling Request Form**, and submit it Dr. Karen Morgan in order to get the exam scheduled with the Graduate School.

The last day of final exam period is the last possible day allowed by the Graduate School to hold a preliminary exam. If problems with committee availability dictate, the preliminary exam may have to take place early in the next semester, but no later than January 30. Regardless of when the exam takes place, all exam scheduling requests must be submitted by November 15. Failure to schedule the exam by these date without a valid excuse will constitute a first failure of the exam.