School of Materials Engineering

**PHD PRELIMINARY EXAM GUIDE**

The deadline to turn in the documents to Prof. Kvam is **November 15** for the fall semester.

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 one hour)
3. Closed-door oral exam by the advisory committee (about two hours).

# Preparing the original critical review:

The topic area of the **original** critical review must be related to the student’s thesis research, and should not be a general background literature review or prospectus. Instead, the critical review must be a “deep dive” into a particular topic that is sufficiently focused to demonstrate the student’s ability to independently and critically analyze the topic from an MSE perspective using published research. 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 also must be a sufficient body of research literature for the student to analyze. Topics on which review papers have already been written, or the student’s advisor has written extensively, may not be good choices. The student should discuss possible topics with their advisor to make sure a sufficiently original perspective can be developed.

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 or identifying critical research questions. If you have any questions regarding how focused the critical review document must be, please contact Prof. Chawla.

See the Graduate Student Manual for additional 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, and redrawn figures marked, as “after” or “from” the original source.

# 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 (MSE website) signed by the advisor, (must have)**
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 and Karen Morgan 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), 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. Two separate meetings need to be arranged, a first meeting of 1 hour for the public seminar, followed by a second meeting of 2.5 hours for the oral exam with only the student and committee.

**Students:** 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.

Note that the document must be submitted and the prelim date scheduled by November 15. The actual exam may take place before the end of January in the Spring semester.

Contact Prof. Chawla (nikc@purdue.edu) with any questions. Good luck to all the students.