Oral Qualifier – ENGG194

Committee
The examination committee is constituted based upon suggestions of the advisor, in consultation with the MS-PhD director if desired. The chair is assigned by the director. The advisor may be one of the examiners, but may not chair the committee.

Preparation
There are many ways to structure the preparation for the oral examination. Over the last few years, this has most commonly been the review of three courses, but there are other ways to define the scope of the material to be tested.

The student and the advisor may find other methods more suitable to the student’s preparation for PhD candidacy. The most important consideration is that this exam must test the student’s comprehension of the fundamentals underlying the research. Some examples follow.

Defining the scope of the exam may be accomplished by various methods including, but not limited to:

a) Coursework based exam: The advisor chooses a set of courses that are core to the student’s program, with either applied mathematics as one of them, or mathematical acumen in a relevant area tested in the context of one of the courses.

b) Topic based exam: The advisor chooses a set of topics, not defined by the curriculum, but covering the fundamentals of the broad field in which the student is working. In materials science for example, this might include topics such as magnetism, phase transformations, mechanical properties, optical properties of materials, etc. The expectation would be for the selection of three general areas, and examination in applied mathematics within at least one of those.

c) Literature based exam: The advisor chooses a seminal paper in the broad research field of the student, the student reviews this paper orally for the committee, and is tested on the underlying principles that allowed the author to make the research advance. Knowledge of applied mathematics must be tested, either in the context of the paper, or separately.

d) Research Concept based exam: The student prepares a description of a research concept peripheral to their defined thesis topic. The student would present a brief summary of the background and the idea, and would be tested on the fundamental principles that lend support to the proposed research. Knowledge of applied mathematics must be tested, either in the context of the proposal, or separately. The proposal idea could be developed further to satisfy the requirements of ENGG197.

After the student and faculty advisor decide on the scope and preparation method for the exam, the student prepares a half-page summary of the exam format, obtains the
signatures of the examiners and the MS-PhD Director. **The Director will assign a Chair and notify you. Following this notification, it is your responsibility to contact the Chair and Examining Committee to schedule the exam. Once you have done this, then submit the signed planning sheet to the Registrar.**

*Your advisor must submit a letter describing your research progress before you may take the exam.*

TEMPLATES for oral exam request follow. These are not fill-in the blanks; they are to guide your development of the application.
Coursework based exam

**Student Name** ____________________________

Advisor Name ______________________________

Student’s broad research area __________________

Courses to be used as basis for exam (**please underline the one in which applied mathematics will be tested**) *Faculty should initial the courses they will cover*

#1: 

#2: 

#3: 

*Faculty signatures (chair will be assigned)_________________________

Advisor

Examiner #1

Examiner #2

(Examiner #3 – if advisor is not an examiner)

Signature of MS-PhD Director Required _____________________________
Topic based exam:

**Student Name**

Advisor Name

Student’s broad research area and likely thesis topic

Topics to be used as basis for exam (please underline the one in which applied mathematics will be tested) Faculty examiners should initial the areas in which they are going to examine the candidate

#1:

#2:

#3:

Etc,

**Faculty signatures (Chair will be assigned)**

Advisor

Examiner #1

Examiner #2

(Examiner #3- if advisor is not an examiner)

Signature of MS-PhD Director Required
Literature based exam

**Student Name** __________________________

Advisor Name ______________________________

Student’s broad research area and likely thesis topic __________________________

*Title of paper, and fundamental concepts covered by it:* Faculty should initial areas in which they will ask questions.

The paper to be used will be “skjdldlfj in sslkfjldlf- based research”, by C. Snodgrass.

This paper was the first to introduce

the use of toituw-processing of e. absurdum, and relies on the principles of __________,

________, and

________

**Indicate how applied mathematics will be included in the exam, and the faculty member responsible for questions in this area:**

**Faculty signatures (Chair will be assigned)________________________**

Advisor

Examiner #1

Examiner #2

(Examiner #3- if advisor is not an examiner)

Signature of MS-PhD Director Required ______________________________
Research Concept based exam

Student Name __________________________

Advisor Name __________________________

Student’s broad research area and likely thesis topic __________________________

Title of research proposal concept, and fundamentals underlying it: Faculty should initial areas in which they will ask questions

The concept is the use of bristle-brushes for seeding the growth of biofilm. This concept builds on the use of toituwl-processing of e. absurdum, and relies on the principles of ________, ________, and ________

Indicate the distinction between this and the thesis topic as presently defined.

Indicate how applied mathematics will be included in the exam and the faculty member responsible for questions in this area:

Faculty signatures (Chair will be assigned)______________________________________

Advisor

Examiner #1

Examiner #2

(Examiner #3- if advisor is not an examiner)

Signature of MS-PhD Director Required________________________________________