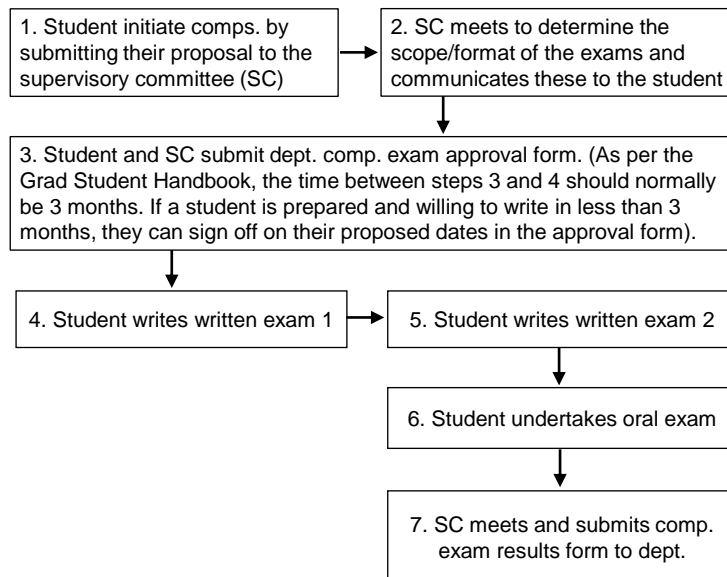


## Department of Civil and Resource Engineering

### General guidelines for the PhD comprehensive exam process

The comprehensive exam process is outlined in the [Handbook](#) (Appendix B), but there is flexibility regarding the lengths of the intervals between the exam stages. You and your supervisory committee should come to an agreement on the timeline. To elucidate the practice in the department, the diagram below represents the suggested process.



### Guidance for PhD Comprehensive Proposal

The purpose of this section is to provide guidance on how to write a successful PhD research proposal and to help you construct a common “look” to the proposal that your committee will be familiar with.

The development of your PhD proposal is a collaborative process between you and your supervisor, with input from your supervisory committee. Your supervisor will assist you in developing your research ideas in your proposal and also ensure the scope of the proposed research is adequate and feasible. Your supervisory committee will play a smaller role in this process but will be responsible for approving your proposal.

The intent of your proposal is to propose the research you intend to carry out throughout your doctoral studies. It is not intended to focus on completed work – this is the role of your thesis. However, if you have completed some research that can help you explain what you intend to do, it can be included in the proposal in a manner presented in this document (i.e., collected data or modeling results may be better suited to the appendix rather than the main body of your proposal). For students that are participating in the transfer process from an MASc to PhD, this document can also be used as guidance for the transfer proposal.

As a rule of thumb, the main body of your proposal should be approximately 10-12 pages, not counting appendices, references, or title page. These pages should include the following components.

- A general introduction to the area or topic of research and its context relative to engineering practice (i.e., why the topic is important);
- A review of relevant research literature that is either closely related or can be applied to the topic of your research (avoid discussing literature that will not impact your own research);

- A discussion of the literature research gaps that exist related to your research topic (i.e., research significance) and a high-level description (usually bullet form) of your research objectives/questions to be carried out as a series of tasks to meet these objectives. Be sure to highlight the novelty of your proposed work (i.e., methods, questions, findings);
- A clear mapping of the research objectives to chapters or potential journal manuscripts;
- A proposed methodology to meet the research objectives;
- A proposed timeline of research activities;
- Reference list;
- Appendices (any preliminary results to support the objectives of the research and demonstrate its feasibility).

You should present an approximately 15-20-minute summary presentation of this proposal at the beginning of your oral exam. During your oral exam, you will be evaluated on the following points:

- Originality, significance, and expected contributions to research;
- Understanding of existing literature;
- Technical comprehension of underlying theory related to the proposed research;
- Clarity and scope of objectives;
- Clarity and appropriateness of methodology;
- Feasibility.

The oral exam may include questions from the SC on your responses to the written exam(s).

### **Suggested Comprehensive Proposal Structure**

The structure for the comprehensive proposal outlines below is intended merely as a guideline for you as you prepare your proposal. Specifically, it provides suggested section headings and content. The breakdown of the proposal sections or the number of pages per section do not have to adhere exactly to what is below; however, the total proposal length (without title, page, reference list, and appendix) is recommended to be approximately 10-12 pages.

- 1) Title page (including proposed title of thesis)
- 2) Introduction and literature review (4 pages)
  - a. Overview of research topic from a big-picture perspective
  - b. Importance of research topic and significant contribution to knowledge
  - c. Literature review should show what *has* been done but also identify gaps (what has *not* been done)
  - d. Statement of research objectives/questions linked to the research gaps
- 3) Topic of each proposed paper or associated dissertation chapter (there will be multiple chapters, and each chapter will be a separate proposal section)
  - a. These sections should each connect with at least one of your research objectives
  - b. Proposed research methodology, including a clear statement of what computational, laboratory, data resources, or field equipment resources will be made available to you
  - c. Expected findings or hypotheses
  - d. Proposed timelines for completion
- 4) Conclusions
- 5) References (references and citations should conform to a standard style throughout)
- 6) Appendix
  - a. Include data already collected or modeling results to date
  - b. Only include information that is critical for the proposal (i.e., to support your methods)