

This document outlines the aspects of the Research and Thesis that are specific to the Chemistry Department. Students must consult the current version of the University Calendar and the websites of the Registrar and the Division of Research and Graduate Studies for the relevant University regulations that are additional to those outlined in this document.

### **Thesis Committee**

Each honours student will have a committee comprised of the thesis supervisor(s), and two additional professors in the department (the first and second reader). The committee is available to the student for help with the progress of the research, is responsible for the evaluation of the written thesis, and participating in the oral examination. The committee will be assembled for each student, typically by mid-May (for those conducting research during the summer), or mid-September (for those conducting research during the term). Once the committees are assembled, their composition shall be communicated to the students enrolled in the course.

### **Workload**

Students have the option of carrying out their research during the summer months or during the academic year. The nature and scope of the research will be decided by the student and their supervisor.

### **Presentations**

(Regulations for students carrying out work primarily during the summer months)

Each candidate must deliver three public presentations of their research. Preparation for these seminars must be made by the students outside the normal lab or fieldwork time.

Seminar I – Midterm Update. Students will deliver a 10-minute chalk talk (+5 min for questions). The talk should include an introduction to the research problem, an explanation of the research goals, and the methodology proposed to meet these goals, as well as preliminary results achieved to date. As a ‘chalk talk’, this presentation will be given primarily on the chalkboard. One PowerPoint slide is allowed to show complex diagrams or structures, if required. This presentation is public and will be scheduled during June or July.

Seminar II – Preliminary Results. Students will present the findings of their research in a poster presentation, where each student prepares a poster describing their research outcomes, and defends it during a departmental poster session. This presentation will be scheduled for early September.

Seminar III – Defence. Students will deliver a 10-12-minute oral presentation that briefly outlines their primary research findings after the written thesis has been submitted. This will be followed by an oral exam (30 minutes or more), which will consist of one or more rounds of questions by the committee. Each round will begin with the first reader (~10 minutes), will be followed by the second reader (~10 minutes), and will conclude with the supervisor (~5 minutes). At this point,

questions from the floor will be entertained. Committee members are permitted to ask additional questions during this time. The examination may include material from any field of chemistry that the examining committee feels the student should be familiar with, including fundamental background material to the research area and any prior courses taken in chemistry. The defence will be scheduled for late February or early March.

\*For students beginning their research in September, Seminar I and II will be combined as a single oral presentation focussing on proposed work, scheduled in September.

### **Written Thesis**

The written thesis should be prepared according to the most recent style guidelines available from the Research and Graduate Studies website. Referencing style (APA, ACS, etc.) should be decided in consultation with your supervisor. 30-50 pages is the appropriate length for a thesis, with 50 pages being the upper acceptable limit (not including references or any material preceding the first page of the introduction). Any additional data, spectra, tables, etc., if needed, may be included as an appendix at the end of the thesis. **However, the appendix will not be graded.** The department has developed several 'milestone' deadlines to streamline the writing and revision process.

Deadline 1 – October 1. Submit a draft of one chapter to thesis supervisor.

Deadline 2 – November 1. Submit a draft of a second chapter to their supervisor.

Deadline 3 – Last day of December exam period. Submit first draft of thesis to thesis supervisor.

Deadline 4 – Last Friday *before* reading week. Submit final thesis to Department Head (3 copies).

Your thesis supervisor will help you plan your written thesis and help with the interpretation of results. Do your best to have the thesis as polished as possible before bringing it to your supervisor. In the event that any of the above deadlines fall on the weekend, the date will be extended to the following Monday. For students who begin research in September, the department may set an alternate schedule.

### **Marking Scheme**

Seminar I	5%
Research activity	30%
Seminar II	5%
Final, written thesis	30%
Oral examination (Seminar III)	5%
Oral examination (question period)	25%
<b>TOTAL</b>	<b>100%</b>

## Guide to Marks

Grade	Mark	Description	Achievements
A+	94-100%	Exceptional	Original and technically flawless. Demonstrated a very high degree of independence, insight, and understanding.
A	87-93%	Outstanding	Demonstrated a very high degree of independence, insight, and understanding.
A-	80-86%	Excellent	Comprehensive. Demonstrated a sound level of analysis with no major weaknesses.
B+	77-79%	Very Good	Mastered a majority of the required techniques, concepts, and skills.
B	73-76%	Good	Mastered most of the required techniques, concepts, and skills.
B-	70-72%	Satisfactory	Demonstrated an acceptable level of performance in research, written thesis, presentations, and oral defence.

Note: A grade of A+ will only be awarded to a student who performs exceptionally in all aspects of their honours project and may not be awarded every year.

The grades for oral presentations will be determined by all participating faculty members, and they will be judging the quality of the presentations according to the criteria outlined on the evaluation sheet appended to this syllabus. Your grade will be the numerical average of all grades submitted.

The grade for research activity will be determined by your supervisor, in consultation with the committee and other faculty members. The top grades will be reserved for students that work very hard, work intelligently, are organized, and rapidly develop laboratory skill.

The grade for the written thesis will be determined by the examining committee. The quality of the writing and organization is very important.

### Seminars and Penalties

All 4996 students are required to attend all seminars hosted by the Department of Chemistry. Failure to attend a seminar will result in a deduction of 2 points from the final course grade. These two points can be recovered by preparing a 2-page review of any recent paper published by the seminar speaker, and submitting the report within a week of the seminar missed (1 inch margins, double spaced, 12 point font). It is up to you to choose a paper, write and submit your critique (to the head) without being reminded that one is due. Absences due to illness, conflicting courses, varsity sports, or any other reason still require that a report is submitted.

Missed deadlines for handing in written work (detailed above) will result in a 1-point penalty (subtracted from the final grade) for every day the submission is late.