

CAPS449 – Honours Thesis Guidelines

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NOTE: For 2022-2023 CAPS449 projects will be lab-based including bioinformatic projects, and the final oral presentations will be in person.

DEADLINES:

1. Submission of supervisor, thesis title and outline to course director: (see form) Late Sep.
2. Submission of thesis progress report to course director: (see form) Late Nov.
3. Submission of thesis (draft) to supervisor: (see template) Mid Mar.
4. Submission of supervisor's assessment to course director: (see form) Late Mar.
5. Submission of approved thesis to course director: (upload PDF to Canvas) Late Mar.
6. CAPS449 Presentation Day (10am - 4pm)* April

* *Oral examinations for non-experimental projects will be scheduled separately*

If for any reason you cannot meet a deadline, please consult the course director IN ADVANCE. If prior notification is not feasible, proper documentation of circumstances which resulted in failure to meet the deadline is required.

Students have the option of choosing either an "Experiment Research Project" or a "Non-Experimental Research Project", although the Experimental Project is preferred and highly recommended.

HOW TO FIND A SUPERVISOR

- 1) If you are not familiar with the research programs of the faculty in the Department, please review the websites of the individual faculty, which can be found here: <http://cps.med.ubc.ca> . If you wish to work with a supervisor outside of the Department please email me ahead of time for approval (see point 3).

- 2) After identifying faculty members working in a field of interest to you, make contact with them and inquire about conducting your thesis work with them. You can choose to do this via email or meeting them in person. If they may accept you, a discussion of potential projects should follow. Most faculty will want a copy of your CV and unofficial transcripts so be prepared to provide them. Potential supervisors may not be prepared to discuss projects until closer to September, but should at least be in a position to describe the general field along with the techniques you may use. You will definitely want to have a commitment from a supervisor to host you in their lab by the second week of term in September.

- 3) I highly recommend that you conduct your project with a supervisor within the Department, or its Associate Members (listed on the same website provided above). This cohort of faculty have experience supervising students for CAPS449 and thus will know what the expectations are and thus are more likely to provide a suitable project. If for some reason you prefer a faculty member who is not associated with our Dept., you will need to seek my permission. I will need a written description of the project so I can determine if it has sufficient relevant content and is suitable for our CAPS Honours Program and that the proposed supervisor is aware of the time commitment.

- 4) You do not need not work for your 449 supervisor during the summer. In fact, if you choose to conduct your CAPS449 project in a lab that you will have worked prior to September, it is important to note that you will not be permitted to use data collected prior to September for your thesis, other than to set the stage for your 449 project, assuming it is related. This is to ensure that everyone has an equal start at the beginning of the term.

RESPONSIBILITIES OF SUPERVISORS

1. Selection of an appropriate experimental or non-experimental research project.
2. Supervision of not more than two 449 students.
3. Securing access of suitable laboratory supplies and equipment to perform work required.
4. Providing scientific guidance on experimental design, analysis of data and presentation of results.
5. Scheduling of weekly meeting with students who enroll in the non-experimental research projects.
6. Marking research theses and attending oral examinations (by accepting a student a supervisor is agreeing to mark the thesis of two other students, if asked, regardless of the topic).
7. All faculty members of the Department are expected to attend the oral presentation.

FOR BOTH EXPERIMENTAL AND LIBRARY PROJECTS, THE ROLE OF THE SUPERVISOR IN THE WRITTEN ESSAY SHOULD BE RESTRICTED TO:

1. general recommendations regarding structure, development and progression of ideas within the context of the essay format.
2. providing advice on the general format of the thesis according to the guidelines, and the use of correct grammar, spelling and sentence structure.

THE INVOLVEMENT OF THE SUPERVISOR SHOULD BE LIMITED TO THE FIRST DRAFT OF THE ESSAY. THEREAFTER THE STUDENT IS LEFT TO HIS/HER OWN DEVICES.

RESPONSIBILITIES OF THE STUDENTS

1. Allocation of appropriate time to this course over the two terms (September to March).
2. Each student is expected to spend an average of not more than 12 hours per week in the laboratory from September to March. It is recommended that the experimental work should be completed by the mid-term break, and that *the writing up of the project proceed in parallel with laboratory work*.
3. *Strict adherence* to deadlines and guidelines of the course as stated in this document.
4. The student is responsible for final proof reading, and accuracy of the references.
5. For non-experimental research projects, students are expected (COMPULSORY) to schedule a weekly meeting with their supervisors.
6. To provide upon request a copy of any written material from work in the same lab prior to the start of the 449 (i.e. from summer work, Coop work, course work, etc)

RESPONSIBILITIES OF THE DEPARTMENT

1. The Department will provide a projector and computer that must be used for all PowerPoint presentations.

MARKING SCHEME

1.	Essay (& Oral examination ⁺)	50%*
2.	Oral presentation	20%**
3.	Supervisor	30%
	TOTAL	100%

⁺For non-experimental projects, an oral examination is included.

*Essays will be marked initially by two faculty. [These may be faculty or associate members of the Department of Cellular and Physiological Sciences, or members of other departments who supervise CAPS 449 students during this academic year.] The average of the two marks will be the final mark. If marks given are too far apart, a third faculty member will be assigned to mark the essay, and the closest two marks will be averaged. For non-experimental projects, essay and oral examination will be graded initially by two faculty, and the average of the two marks will be the final mark. If marks given are too far apart, the mark given by the moderator who is also present in the oral examination will be utilized. The closest two marks will be averaged.

**The average of marks given by all faculty members of the Department attending the presentation will be the final mark.

PENALTIES

- Marks will be deducted from the final mark of the essay:

Late submission of name of supervisor and research title:	10%
Late submission of progress report	15%
Late submission of draft of thesis	20%
Late submission of final thesis to course director	100% (see #4)
Non conformation with the format stated in the guidelines (max)	25%
- Marks will be deducted from mark of oral presentation:

Exceeding the 10-min time limit	10%
Absence with no valid reason	100% (see #4)
Being late with no valid reason	30%
- Marks will be deducted from mark of oral examination and essay: (non-experimental research project)

Absence with no valid reason	100%
Being late with no valid reason	30%
- The following circumstances will result in a mark of '0' in the course:**
 - Use of research materials not generated during the September to March research period in the graduating thesis
 - Fabrication of data results
 - Plagiarism
 - Failure to participate in research activity of the course
 - Absence from the 10 min oral presentation
 - Absence from oral examination (for non-experimental research projects)
 - Failure to submit the final thesis to the course director.

GRADUATING ESSAY (EXPERIMENTAL RESEARCH PROJECT)

I OBJECTIVES

- A. To carry out an approved research project.
- B. To submit an approved thesis based on the research work performed.
- C. To present an oral synopsis and defense of the submitted thesis.

II THESIS ORGANIZATION

A. Abstract

- 1. A concise summary of the essay.
- 2. No abbreviations should be used in this section.
- 3. Page limit: 1 (max).

B. Introduction

- 1. A brief introduction pertinent to the research topic with a review relevant to literature.
- 2. Clearly outline the hypothesis, rationale, objective and specific aims of the research project.
- 3. Results figures and tables are not permitted in this section, but a diagram is OK.
- 4. Page limit: 3 (min) to 5 (max)

C. Methods

- 1. Concise and explicit description of the experimental methods used.
- 2. Detailed description of newly developed methods.
- 3. For methods which you have not performed yourself, cite only the appropriate reference. For example: if cultured cells are provided to you to perform experiments, the reference containing the methods used in the isolation and preparation of these cells for culture must be cited.
- 4. Common and routine procedures (e.g. Lowry protein assay and radio-immunoassays) require only the citation of the original source, however modifications of these methods must be clearly stated.
- 5. State the source of the materials and chemicals used.
- 6. State the methods used in data presentation and analysis where appropriate.
- 7. **A section must be included to state clearly the contribution of the student and others to the research project. Work not performed by the student should be clearly outlined.**
- 8. Page Limit: 15 (max).

D. Results

- 1. This section is solely for the presentation of experimental data. Interpretation and conclusion should be reserved for the discussion section.
- 2. Present data in a way that is commonly used in research publications in the area of study; the use of figures is encouraged.
- 3. When appropriate, indicate the significance of differences in data obtained by means of appropriate statistical tests.

4. Illustrations including diagrams, photographic pictures, figures and tables must be accompanied with legends. The legends can be placed underneath the illustrations or on the opposite pages.
 5. Illustrations should be placed in pages immediately following their first descriptions in the text. Integration of illustrations with the text is optional. You might find it easier to prepare each illustration on a separate page.
 6. The thesis must be based solely on data generated by the student during the winter session (September to March).
 7. Page limit: none, but should be appropriate. [Consult your supervisor].
- E. Discussion
1. Compare the results with existing data in the field.
 2. Distinguish conflicts based on results from conflicts based on interpretation of results.
 3. State conclusions which are directly derived from the results obtained.
 4. Compare the conclusions with others which are in the literature.
 5. Page limit: 4 (min) to 6 (max).
- F. References (examples used in this section are for illustration only)
1. Cite only relevant literature.
 2. The use of original sources is encouraged; review articles should only be cited when appropriate.
 3. Use Reference format of the journal *Diabetes*. Number references in order of appearance in text. Identify a reference number in the text by enclosing it in parentheses.
 4. In the reference section, place citations in numerical order. Include all authors (do not use *et al.* except in text) and complete article titles. Abbreviate names of journals as in *Index Medicus*; spell out names of unlisted journals. Indicate abstracts and supplements. Supply inclusive page numbers.
 5. Page limit: none [Caution: appropriate number of citations should be used].

Examples for citation presentation in the reference section:

1. Primhak RA, Whincup G, Tsankas JN, Milner RDQ: Reduced vital capacity in insulin-dependent diabetes. *Diabetes* 36:324-326, 1987
2. Nerup J, Christy M, Patz P, Ryder P, Svejgaard A: Aspects of the genetics of insulin-dependent diabetes mellitus. In *Immunology in Diabetes*.
3. Andreani D, Federlin KF, Heding LG, Eds. London, Kimpton, 1984, p. 63-70
4. Seine S, Bell GI: Comparison of the 5'-flanking sequences of chimpanzee, African green monkey, and human insulin genes (Abstract). *Diabetes* 34 (Suppl. 1):20A, 1985
5. Permutt MA, Andreone TA, Rotwein P: Insulin gene polymorphism and type II or non-insulin-dependent diabetes mellitus (NIDDM). In *Proc Int Congr Endocrinology*, 7th ed. Labrie F, Proulx L, Eds. Amsterdam, Excerpta Med., 1985, p. 245-248
6. Beta cell function in type 2 diabetes: glucose metabolism and insulin secretion in the normal pancreas [article online], 1999. Available from http://www.amaryl.com/TXT/Clinical_Management/Overview/beta_cell_failure_TX T.html. Accessed 4 May 2000

III. THESIS FORMAT

The thesis must be based solely on data generated by the student during the winter session, September to March (work carried out in the summer cannot be included).

A. THE THESIS MUST BE ORGANIZED IN THE FOLLOWING FORMAT:

1. The thesis must start with a page stating the student's name and thesis title (see appendix 1).
2. Table of Contents
3. Abstract
4. Acknowledgement (optional)
5. List of Figures
6. List of Tables
7. Introduction
8. Methods
9. Results
10. Discussion
11. References

B. General Format:

1. Essay should be typewritten and double spaced.
2. Pages should be numbered starting from the abstract; number should be placed at the top righthand corner.
3. All margins (top, bottom, left and right) must be one inch.
4. Font size must be 12
5. Thesis should be submitted as a single PDF

IV PRESENTATION

1. An oral presentation is mandatory for the course.
2. Students are required to present a synopsis of their research work taking not more than 10 min; a 5 min question period will follow.
3. Students will be responsible for understanding and explaining all basic principles related to the thesis including sections of introduction, methods, results and discussion.
4. PowerPoint will be used for oral presentations.
5. Presentation will be scheduled for a day in April

V SUPERVISOR, THESIS TITLE AND PROGRESS REPORT [use attached forms]

1. Students must submit the title of the thesis, and name of supervisor to the course director (use form 1).
2. A mid-term progress report (not to exceed two typewritten pages, double spaced) must be submitted to the course director (use form 2).
3. The progress report should include the title, objective, summary of results obtained and future proposed experiments.
4. This report must bear the signature of the thesis supervisor.
5. Any changes in thesis topic from the original proposal must be clearly stated and made no later than the submission of the progress report.

GRADUATING ESSAY ('NON-EXPERIMENTAL' RESEARCH PROJECT)

I OBJECTIVE

1. To write a critical review on a selected topic in Anatomy/Cell Biology/Physiology.
2. To present an oral synopsis and defense of the submitted thesis.
3. To follow the guidelines and rules of the course.

II THESIS ORGANIZATION

1. Students should consult with their own supervisors. A compulsory weekly 1 hour meeting of the student with the supervisor should be arranged at a mutually agreeable time.
2. The critical review must include the following sections:
 - a) an abstract (1 page) summarizing the essay
 - b) a detailed background of the topic (~6-8 pages, cite primary literature only)
 - c) current technical approaches in the area (6-8 pages)
 - d) controversy/unanswered questions in the field (6-8 pages)
 - e) a research plan including hypothesis, rationale, and experimental approach including details about methodologies, experimental conditions, controls and predicted outcomes (5-8 pages)
 - f) significance and impact of proposed research (2-3 pages)

III THESIS FORMAT

1. The thesis should be 25 (minimum) to 30 (maximum) pages (typewritten, double spaced), excluding table of contents, lists of tables and figures, acknowledgement, figures, tables and references.
2. The thesis must start with a page stating the student's name (see appendix 1), followed by a table of contents, an abstract of not more than 2 pages, a list of figures, a list of table, acknowledgement (optional), and then the essay.
3. Refer to the 'Experimental Research Project' section for formats of text and reference citations, and presentation of tables and figures.
4. Margins: all margins (top, bottom, left and right) must be one inch.
5. Font size must be 12; pages should be numbered starting from the abstract.
7. Please email the thesis as a single PDF to the course director.

IV PRESENTATION AND ORAL EXAMINATION

1. An oral presentation is mandatory for the course.
2. Students are required to present a synopsis of their research work taking not more than 10 min; a 5 min question period will follow.
3. Students will be responsible for understanding and explaining basic principles, and critically evaluating the literature.
4. PowerPoint will be used for oral presentations.
5. In addition to the presentation students are also examined orally for a period of not more than 60 min.

V THESIS TITLE, NAME OF SUPERVISOR AND PROGRESS REPORT [use attached form]

1. Student must submit the title of the thesis, and name of supervisor to the course director (use form 1).
2. A mid-term progress report should be submitted to the course director (use form 2).
3. The report should include the title, outline of the organization of the review, including sub-headings of sections, the status of the library search, and a list of representative references.
4. This report must bear the signature of the thesis supervisor.
5. Any changes in thesis topic from the original proposal should be clearly stated and made no later than the submission of the report.

Appendix 1

CAPS 449

Graduating Essay

(Title of your thesis) e.g.

The consequence of not following the guidelines in writing a graduating thesis

Department of Cellular and Physiological Sciences at UBC

Student's name

Date (month and year)

(The following sentence must be included for all thesis)

This thesis is submitted as part of the graduation requirements for

the degree of Bachelor of Science in Honours Physiology

The University of British Columbia

FORMS

**All forms should be digitally signed and uploaded to Canvas in
PDF format**

Form 1

SUPERVISOR, THESIS TITLE AND OUTLINE

STUDENT'S NAME: _____

STUDENT ID #: _____

STUDENT'S EMAIL: _____

EXPERIMENTAL/NON-EXPERIMENTAL: _____

THESIS TITLE: _____

SUPERVISOR'S NAME: _____

SUPERVISOR'S EMAIL: _____

SUPERVISOR'S SIGNATURE: _____

ADDRESS, ROOM AND PHONE # OF RESEARCH LAB:

OUTLINE OF PROJECT (500 words max):

Form 2

PROGRESS REPORT

CAPS 449

EXPERIMENTAL RESEARCH PROJECT

NAME OF STUDENT:

TITLE OF GRADUATING ESSAY:

OBJECTIVE:

RATIONALE:

RESULTS OBTAINED (if appropriate, attach figures and tables as appendix):

FUTURE PROPOSED EXPERIMENTS:

SUPERVISOR'S NAME: _____

SUPERVISOR'S SIGNATURE: _____

Form 2

PROGRESS REPORT

CAPS 449

NON-EXPERIMENTAL RESEARCH PROJECT

NAME OF STUDENT:

TITLE OF CRITICAL REVIEW:

OBJECTIVE:

OUTLINE OF CRITICAL REVIEW:

REPRESENTATIVE REFERENCES:

PROPOSED ADDITIONAL MATERIAL TO BE INCLUDED:

SUPERVISOR'S NAME: _____

SUPERVISOR'S SIGNATURE: _____

**CAPS 449
SUPERVISOR'S ASSESSMENT**

**SUPERVISORS PLEASE FILL IN AND EMAIL THIS FORM TO DR. LOEWEN
(CLOEWEN@MAIL.UBC.CA) UPON REVIEW OF THE DRAFT OF THE THESIS**

Name of Student: _____

Name of Supervisor: _____

Signature: _____

Performance of student on the project (this is not a mark for the thesis/essay, it is a mark for the performance in the lab/course)

(Please give a mark out of 100%): _____

Date of submission of draft of thesis:

Month: _____ Day: _____

The draft conforms to the criteria stated in the Guidelines (please check with an X):

CRITERIA	YES	NO
Page limit of Abstract (1)		
Page limit of Introduction section (3-5)		
Page limit of Method section (max 15)		
Page limit of Results section (appropriate with your approval)		
Page limit of Discussion section (4-6)		
Appropriate references are cited		
Page numbers included		
Section arrangement correct		
General layout acceptable		
Citation format appropriate		

For non-experimental projects:

Format conforms to Guidelines: YES / NO