

**GUIDELINES FOR THE PREPARATION OF A
GRADUATE THESIS**

Master of Science Program

**Faculty of Science Graduate Studies Committee
November 2018**

I. PREFACE

The Graduate Studies Committee has prepared this updated (2018) version of the Guidelines for the preparation of graduate thesis to facilitate the writing and formatting of a proper graduate thesis. A brief timeline for the submission and review of the thesis has been added at the end of the document and has been posted with more details online on separate documents. The graduate thesis should be a rational discourse on a scientific problem demonstrating the author's competence in research. As theses are contributions to knowledge placed in the public domain, sound and consistent academic standards must be used in their preparation and presentation. Students should read carefully the following guidelines and regulations and if points are still unclear, they should consult with their supervisors and/or the members of the Graduate Studies Committee.

II. PAPER, PRINTING, TYPING, LAYOUT, and BINDING

Letter-sized paper (21.5 by 28 cm or 8 1/2 by 11 inches) is the standard for thesis printing. With the exception of photographs, only one type and brand name of paper must be used throughout the thesis for a consistent appearance. Good quality paper such as Avon Bond Classic Linen is recommended but not required; currently, regular photocopy paper is the most frequently used.

Printing of the final version of a thesis should be done on one side of the paper only. The body of the thesis must be double spaced, with the exception of footnotes, the list of references, figure legends, and other items such as appendices, which can all be single spaced (references should be separated by one space or the first line of each reference should be indented). Avoid "orphan" headings or subheadings (those located near the bottom of a page and that are not followed for at least 2 lines of text).

The entire thesis should have a "left justification" with the exception of the title page, in which the text should be centered. Use only 12 point font size and a single font type (Times New Roman and Arial are the most common) throughout the thesis, preferable also on figures, tables and footnotes. If a smaller font must be used in figures, the author must make sure that it is still neatly readable (uncluttered) even after photocopying. Boldface and italic type for headings, italics for scientific names, and italics for emphasis of short passages are permitted, as long as they are used consistently along the thesis.

For binding purposes, a left margin of one and half inches is required on each page of the thesis, including pages with figures, tables, or appendices. All other margins should be one inch. This document has that general layout. Master's theses should have a dark blue cover with gold lettering. Since November 2018, only one final copy must be prepared. The processing and binding of the thesis will take care of the additional copies which will be distributed as follow: Student, Supervisor (or Co-Supervisors), Department, and Library. The Graduate Studies Committee will cover the costs of the binding. If additional (personal) copies are requested, their cost must be covered by the author.

III. PRELIMINARY SECTIONS OF THE THESIS

This section is to be numbered with consecutive Roman numerals placed in the center and at the bottom of each page (see appendix 1 for templates) (*):

- i Title page (page number not to be visible)
- ii Abstract
- iii Acknowledgments
- iv Table of contents
- v List of figures
- vi List of tables
- vii List of abbreviations (if applicable)
- viii Glossary (if applicable)

(*) Three traditional pages have been removed from the body of the thesis and are no longer listed here:

Conditions for the use of the thesis
Permission to use postgraduate thesis
Certification of thesis work

These three pages have been replaced with a single form and a signature page that are provided separately and one of them (signature page) will be inserted within the printed version of the thesis (this pages is NOT numbered).

Title page: In addition to the title of the thesis, it must contain degree, name of the Disciplinary area (HUB, ESC or MMS), Department(s), and Faculty of Science, the full name of the author, the name of the Institution, the date, and an indication of copyright. A thesis will be a valuable source for other scholars only if it can be located easily. Hence, it is essential that the title be meaningful and descriptive of the content of the work. If possible, the author should use word substitutes for formulae, symbols, Greek letters, etc. See Appendix for a template of this and the three subsequent pages.

Abstract: The abstract should summarize the main features of the thesis in 500 words or less. It should include a brief description of the problem(s) addressed, the method(s) or procedures followed in its solution, and most important results and conclusions.

Acknowledgments: Faculty supervisor(s), supervisory committee members, and others who assisted in the study should be acknowledged. Reference to sources of funding, scholarships, research assistantships, and other types of financial aid that made the thesis possible should be made. Dedication of the thesis can be included on this page.

Table of contents: Must list all the chapters or sections and their subdivisions (headings and subheadings as judged necessary) using a consistent numbering system that reflects (matches) exactly the subdivisions in the main body of the thesis. Major headings must be

located at the left margin but minor headings or subheadings can be indented, as long as this is done consistently along the Table of contents.

Lists of figures and tables: Must include the number of the table/figure, the caption, and the page or pages in which each one appears. Numbers, captions and pages must reflect (match) what is presented afterwards in the body of the thesis.

List of abbreviations: Must list all the abbreviations used throughout the thesis (if applicable). For clarity purposes, abbreviations used in figures and tables may need to be re-defined in the corresponding captions.

Glossary: Must list and provide a proper definition of technical words used throughout the thesis (if applicable).

IV. MAIN BODY OF THE THESIS

The first page of the first chapter of the thesis should be numbered with an Arabic numeral ("1") and the following pages numbered consecutively thereafter. As in the preliminary section, page numbers should be placed in the center and at the bottom of the page. The first chapters of the thesis are always the introduction and literature review (tentatively, these can be organized as a single chapter called general introduction; see below). What follows are several chapters whose length and style must be arranged according to one of these two general thesis styles: traditional-style or publication-style.

Traditional-style thesis: The Introduction/Literature review chapter(s) must be followed by chapters describing Methods, Results, Discussion and Literature cited. These chapters are all comprehensive and interdependent. For instance, the Literature cited chapter lists all the references cited in the thesis (none of the chapters has its own Literature cited).

Publication-style thesis: In this case the Introduction/Literature review chapter(s) must be followed by independent (stand alone) chapters. Each of these chapters has its own Abstract, Introduction, Methods, Results, Discussion and Literature sections. Typically, a brief (integrative) General conclusions chapter is also included.

Introduction and Literature review

The purpose of the thesis, the pertinent literature, and the rationale for approaches and methodologies used are all summarized here. The Introduction will typically include the statement of hypotheses and/or objectives. A Literature review follows, either as a section within a general Introduction chapter or as an independent chapter called Literature Review. Regardless, the Literature review should provide relevant background information to provide a context for the problem(s) or question(s) addressed in the thesis.

Materials and Methods

A description of the exploratory and/or experimental work conducted, including selection of observational or experimental subjects (patients, experimental plants or animals, controls, etc) should be summarized here. This section also identifies equipment and procedures in sufficient detail to allow readers to reproduce surveys and experiments in the future. This section also provides references to specific methodologies, new or modified, and statistical tests (number of observations, significance levels, etc). If applicable, this section should also identify treatments, drugs and chemicals used, including generic names, dosages and routes of administration. Any research that needs to comply with protocols for animal care, bio-safety or ethical approvals, must identify those protocols and indicate that proper approvals were granted by the appropriate Committees.

Results

Findings and results must be described in a logical (consistent) sequence of text, tables, and figures. In general, data available in tables and figures should not be repeated in full in the text, which should rather emphasize or summarize the most important observations. In the case of the Publication-style thesis, chapters that are already published or submitted for publication should be identified as such at the beginning of each corresponding chapter. These chapters must follow a format that is consistent with the rest of the thesis. Tables and figures must be placed on the page containing or immediately following the first reference to it in the text. For oversized tables, the author should include the word “continued” at the bottom of the first part of the table to indicate that a second part is presented in the following page. At the top of that second page, a “continued from the previous page” statement should be added (alternatively, a shorter caption should read “Table 1. Continued”).

Tables: Number and caption should be placed directly above each table. The caption should define non-standard abbreviations, if any. Give the table columns abbreviated headings and add footnotes if necessary. Designate footnotes by superscript letters or numbers (e.g.^{abc}). Whenever possible and depending on size, tables (and figures) should follow its reference in the text within the same page. Regardless of size, the margins for the caption of tables (and figures) should be the same than the margins for the text of the thesis (do not indent or center the text of these captions).

Figures: Every chart, photograph, map, sketch, etc, should be referred as a Figure and have a number and a caption that should be placed at its bottom. The caption must provide sufficient information to make the significance of the figure evident without reference to the text. Avoid placing the caption of figures (and tables) on separate pages. Use the caption to identify symbols, arrows, or letters, as required. Photographs and photomicrographs should have internal scale markers which clearly contrast with the background. Keep in mind that information presented in colors can be lost when reproduced in black-and-white or on microfilm.

Abbreviations, units, and equations: Only standard abbreviations and units should be used; they should be appropriate to the corresponding discipline and consistently used throughout the thesis. Avoid abbreviations in the title and at the beginning of a sentence. The full term for which an abbreviation stands should precede its first use in the text unless it is a standard unit of measurement or it is included in the List of Abbreviations. The International System of Units (SI) is the standard. A space should be left between the number and its unit. If equations must be included, these should be correlatively identified with letters or numerals.

Discussion

This section emphasizes the new and important aspects of the study and its conclusions. Do not repeat in detail data given already in the Results. Include the implications and limitations of the thesis findings, relating the observations to other relevant studies. This section should also link conclusions with previously stated goals, propose new hypotheses and recommendations when warranted, and avoid statements and conclusions not completely supported by the data. In publication-style theses, and if appropriate to the particular discipline, Results and Discussion sections may be combined.

Literature cited

It is essential to maintain a consistent reference format throughout the thesis. The preferred referencing format will depend on the particular discipline of the thesis.

For biological disciplines, the CBE Style Manual is recommended (Scientific style and format: the CBE Manual for Authors, Editors, and Publishers. 6th edition. Cambridge: CUP, 1994). See also resources like <http://www.nwmissouri.edu/library/citing/cbe.htm> or <http://library.willamette.edu/handouts/cbe/>. For Chemistry-related disciplines, the guidelines by the American Chemical Society are recommended (The ACS Style Guide, 2nd ed.; American Chemical Society: Washington DC, 1997). See also Royal Society of Chemistry standards: <http://www.rsc.org/is/journals/current/dalton/authinfo.htm>.

References may be listed in the order in which they first appear in the text or alphabetically, as acceptable for each discipline. Identify references by Arabic numerals, or by author and year (in parentheses) consistently throughout the thesis. References cited only in the caption of tables or figures should be numbered in accordance with a sequence established by the first identification in the text of the particular table or illustration.

Avoid using abstracts as references. Information from articles submitted, "unpublished observations" and "personal communications" may be used as references only if acceptable within the discipline. Otherwise these may be cited in the text as "unpublished observations" (in parentheses). Include among the references manuscripts accepted but not yet published ("in press"). All the references must be verified by the author against the original documents. References to journals must contain:

Name of all authors (including first names or initials),
Full title of the article (if required in the discipline),
Journal name (full or abbreviated, used consistently) and volume,
Year of publication, and first and last page numbers

References to books and monographs must include this additional information:

Names and initials of editors,
Title of the book (and, if required in the discipline, the chapter),
Edition, publisher, place and year of publication

Citations of Internet sources may be included only if the validity of the sources can be verified. Acceptable Internet sources include but are not limited to Government sites and Online Journals. Up-to-date guidelines on citing online sources may be found at <http://www.upei.ca/library/info/citing.html>. Internet citations must at least include:

URL and date accessed,
Author of the website (e.g. Stats Canada)

Appendix

One or more appendices should be used to present detailed material pertinent to the thesis but not essential to the understanding of the work done. The design of various pieces of equipment, proof of equations, composition of buffers and physiological solutions, lengthy tabulations of observational data are all examples of material that should be included in an appendix. The author should consult with the thesis supervisor about the type of material that should be placed in the appendices rather than in the text.

Appendices are usually placed after the final chapter and numbered consecutively following those of the main body of the thesis. The title of the appendix or appendices must be listed in the Table of Contents.

V. TIMELINE FOR THESIS SUBMISSION, REVIEW and APPROVAL

The preparation of a thesis includes the submission of several preliminary versions to the supervisor, his/her review and feedback. Once this review process ends and the supervisor approves the thesis, these are the steps that follow and an approximate timeline using January 1st as a reference date:

January 1: The student submits the approved version of the thesis to the members of the Supervisory Committee. The Committee is expected to read the complete thesis and provide feedback on its quality in the course of two weeks.

January 15: The Supervisory Committee provides its feedback to the student and the supervisor, identifying potential issues and commenting on the quality of the document. At that time (or after corrections are done) the Supervisory Committee must sign the Thesis Approval form in order to confirm that no serious issues/concerns remain and that the thesis is suitable for defense. This form is sent to the Coordinator of Graduate Studies.

January 16: The supervisor or the author send a copy of the thesis to an External Examiner previously identified, proposed, and confirmed by the supervisor. In general, the External Examiner is aware and/or has agreed to review the thesis in the course of two weeks (be aware of potential delays). Once the thesis has been sent, the student should contact the Supervisory Committee, the External Examiner and the Coordinator of Graduate Studies to explore tentative dates for the Thesis defense.

January 31: The defense takes place and the Examination Committee provides a final set of edits or clarifications needed in the final version of the thesis. Depending on the nature of the changes (minor or major), the Examination Committee will decide who will assess and confirm that those changes are done before the approval of the thesis final version. The last version of the thesis must have the format and layout described in this document.

February 7: Once the final corrections have been completed and an approved final version of the thesis is available, the student must bring one printed copy of it to the Coordinator of Graduate Studies. The Coordinator will then submit a Memorandum to the Registrar's Office indicating that all the requirements for the MSc degree have been completed.

**TEMPLATE OF THE INITIAL PAGES OF THE THESIS:
One additional page (signature page) will be manually inserted into the printed document. That page will be provided after the defense.**

**A COMPARATIVE STUDY OF SELENIUM AND SULFUR IN SMALL
EXCHANGE REACTIONS**

A Thesis

**Submitted to the Graduate Faculty
in Partial Fulfilment of the Requirements
for the Degree of Master of Science
Human Biology (or MMS or ESC)**

Department of Chemistry (or other Dept. or Depts.)

Faculty of Science

University of Prince Edward Island

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Charlottetown, Prince Edward Island

August 2015

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ABSTRACT

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ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

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End of the Appendix

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