GUIDE FOR THE PREPARATION OF MASTER'S AND DOCTORAL THESES

SCHOOL OF GRADUATE STUDIES HAMILTON, ONTARIO

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1.0 GENERAL REQUIREMENTS

1.1 Introduction

A Ph.D. student may prepare and defend either a **standard thesis** (see sections 1.2 and 2.0) or a **"sandwich" thesis** (see sections 1.3 and 5.0**)** at oral examination (also known as the 'thesis defense'). Normally, a Master's student may submit only a standard thesis (see sections 2.0 and 5.2). Each department or program offering graduate work is wholly responsible for setting up oral examinations for Master's candidates (see Sections 6.1 and 6.2). The School of Graduate Studies is wholly responsible for arranging all Ph.D. oral examinations (see Sections 6.3, 6.4, and Appendix 1). **If after reading the material in the guide, you have any questions, please do not hesitate to contact the Thesis Coordinator in the School of Graduate Studies at extension 23680, Email: *gthesis@mcmaster.ca*.**

1.2 Criteria for Acceptance of Master's and Standard Ph.D. Theses for Thesis Defense

A thesis is a coherent document that provides a complete and systematic account of the research work accomplished by the writer. The criteria for acceptance are listed in detail later in this guide, but in general, the requirements are summarized as follows:

(a) Before submitting for defense, the text and accompanying illustrative material or multimedia must be clear and error- free and, where written using Canadian English and grammar; the student is advised to use a spell and/or grammar checker. The text of the Ph.D. thesis must not exceed 300 pages double spaced; normally, a Master's thesis must not exceed 200 pages double spaced, but further information about a Master's thesis will be supplied by the student's department or Graduate Program.
(b) Normally, only an electronic version of the thesis is acceptable for submission for thesis defense. The word-processing program, format or multimedia used by the student will be one that is mutually agreed between the student and the supervisory committee. The arrangement and numbering of each page must be within the specified margins (see section 2.2). However, it may be necessary to distribute a printed copy of the thesis to accommodate the wishes of an internal or external examiner who prefers to read a hard copy. **Consequently, the student should be prepared to supply a printed copy (or copies) of the thesis to the Thesis Coordinator at the School of Graduate Studies before the defense (see Appendix 1).**
(c) After a successful defense and after the corrections have been made and approved, the student is responsible for making sure that the final electronic thesis is correctly prepared (i.e. page numbering of the preliminary pages, order of sections, chapters, etc.) before converting the document to a pdf file or approved multimedia format and then uploading the file to 'MacSphere'.

1.3 Criteria for Acceptance of a Sandwich Ph.D. Thesis (Containing Previously Published/Prepared Material) for Defense

It is increasingly common in many disciplines to present for defense a Ph.D. thesis which consists in part of previously published peer-reviewed scholarly works (or submitted for peer review). If some of the research undertaken expressly for the degree has been previously published or prepared for publication as one or more journal articles, or parts of books, then electronic files of these published, 'in press' or 'submitted for publication' items may be included *verbatim* within the thesis; the thesis is then termed a 'sandwich' thesis. **In addition to the criteria in 1.2, certain important conditions need to be followed when preparing a sandwich Ph.D. thesis:**

(a) There must be a written introduction preceding the published (or 'in press' or submitted) article or articles which thoroughly sets the context for the entire thesis, and draws out the overall objectives and implications of the work. If the introduction itself includes a co-authored article or chapter, then the independent contributions of the student to that article or chapter must be outlined in the preface of the thesis. It is understood that the introduction is critical to evaluating the student's contribution to the thesis separate from co-authors.
(b) For all co-authored articles that are part of the body of thesis, the contribution of the student **to each of the** articles must also be outlined in the preface to the thesis. The aim of this procedure is to ensure that only co-authored papers to which the student has made a significant original contribution are included in the thesis. The author of the thesis shall normally be the main contributor to these co-authored articles.

(c) It is permissible to include electronic articles as they appear in an on-line journal (or by photocopying them for a hardcopy version of the thesis); however, the Associate Vice-President and Dean of Graduate Studies, on a recommendation from the examining committee, may require that the published articles be reproduced as the final word processing file submitted for publication and in a form described in section 2.2. Illegible captions due to small fonts, miniaturized figures or tables, and irregular margins are among the reasons for insisting on incorporating the word processing file rather than reproducing the electronic reprint into the electronic thesis.

(d) If copies of previously published material are presented in the thesis, the material must indicate the names and order of the co-authors exactly as published, and the relative contribution of each author. The name of the journal and other publication information (date, volume, pages and so forth) must also be included. All of the required information must be presented at the beginning of the chapter or section of the thesis that reproduces the previously published material. The objective of this requirement and of requirements (b) and (c) is to assure examiners that there has been full disclosure of collaborative activity. It is the student's responsibility to obtain the copyright to include previously published material in the thesis.

More details of the requirements for writing a sandwich Ph.D. thesis are described in section 5.0.

2.0 PREPARATION OF THE MASTER'S AND STANDARD PH.D. THESIS

2.1 The Electronic Thesis for Oral Defense

The **Master's thesis** which has been prepared for defense will be e-mailed by the student as an electronic file to those members of the supervisory committee who will act as examiners and to the Chair of the defense. The Master's student can obtain information about their thesis defense (i.e. the date, time, and venue; the names of the examiners) from the Graduate Coordinator or Graduate Administrator in the department or Graduate Program in which they are registered.

The **Ph.D. thesis** for defense will be e-mailed by the student to **all** supervisory committee members prior to initiating the thesis defense system (see Appendix 1). In addition, the Ph.D. student should be prepared to deliver a **print copy** (or copies) of the thesis to the Thesis Coordinator who will be responsible for distributing it to an internal or an external examiner if they require a hard copy. **The text of the hardcopy version must be the same as that of the electronic thesis**, and must be printed on regular quality 8½" x 11" printer paper and back-printed to save paper.

When the thesis has been successfully defended and required changes have been made to the text, the student may wish to print one or more copies of the final version for binding at their own expense. Alternatively, the student may be able to e-mail their final thesis to the binding company. Up-to-date Information about thesis binding is available either from the Thesis Coordinator (gthesis@mcmaster.ca) or from the SGS website (www.mcmaster.ca/graduate)

2.2 The Text of the Thesis

2.2.1 General

The thesis must be typed in either 10 or 12 point font. There are two types of fonts: proportional and fixed (typewriter style) and different space values for each character in a proportional font. Arial and Times New Roman are examples of proportional fonts. If you are using a proportional font for your thesis you must use a 12-point font. A fixed font has the same value for each character, and an example of this is Courier. If a fixed font is used, the smallest you can use is 10 point (10 characters per inch). **The student is encouraged to select a font that is easy for the examiner to read.**

The text may be single or double spaced; footnotes and long quotations should be single spaced. Word processors such as WordPerfect, LaTeX and MSWORD are automatically set to create footnotes in the correct format. The entire thesis must be in the same typeface and font, and, for hardcopies, care should be taken to ensure an even black copy is produced.

It is recommended that a laser printer be used for hardcopies. If an ink-jet printer is used, be sure to use paper that is specifically designed for this kind of printer, to avoid smudging and to achieve good print quality.

The student is urged to find a text processing program which includes unusual symbols or characters should they be necessary. Characters that are not readily available (e.g. unique symbols) may need to be created in an electronic format which can be readily downloadable from a pdf file by future readers.

2.2.2 Margins and Indentations

For students who wish to send a copy (or copies) of their finally-approved thesis for binding, the following should be noted. To ensure sufficient space on the page for binding, the TOP and LEFT margins should be 3.8 cm, and the RIGHT and BOTTOM margins should be 2.5 cm. If the thesis is to be back printed, both LEFT and RIGHT margins should be 3.8 cm. These margins also apply to all illustrative material, including diagrams, maps, photographs, charts, tables, and computer printouts.

2.2.3 Header

All pages of the thesis, beginning with the Introductory chapter (or Chapter 1), must have header information containing the degree program, the author's name, McMaster University and the department, e.g.

Ph.D. Thesis - J. Smith; McMaster University - Mechanical Engineering.

The word processing program should automatically insert headers at the top of each page. The purpose of the header information is to provide identification if people subsequently print or photocopy sections of the thesis.

2.2.4 Pagination

All pages are to be numbered EXCEPT the half title page, which is disregarded in the pagination, and the title page, on which the number (i) is implied but not written. The remaining pages of the preliminaries should be numbered with lower-case Roman numerals (ii, iii, iv, etc.) placed in the centre at the bottom of the page, approximately 2 cm from the bottom edge of the paper. Page numbers should be in a consistent location on each page.

All pages of the thesis, beginning with the Introduction or Chapter 1, must be numbered with Arabic numerals (1, 2, 3 and so on). This includes pages with tables, illustrations, diagrams, bibliographies and appendices.

2.2.5 Preparing and Sending the Electronic Thesis for Binding

After a successful defense and required changes have been made and approved by the supervisor, the student will upload a pdf version of the final thesis to MacSphere. Inevitably, the student will also want some copies of the final thesis printed and bound. To this end, students are encouraged to e-mail the same pdf file to the binding company to ensure that electronic and printed versions are the same. Details of selected companies who are organized to print and bind the thesis are listed on the School of Graduate Studies website (http://gs.mcmaster.ca/academic-services/degree-completion) or advice may be provided by the Thesis Coordinator. The student when ordering copies of the bound thesis will be expected to pay all costs for binding and delivery. Delivery of copies of the bound thesis will be arranged by the student; **the bound thesis must not be delivered to the School of Graduate Studies**.

2.2.6 Non Text Format and Multimedia

Maps, diagrams, figures and tables may be drawn or prepared using a black font colour. The finished drawing should be scanned into an electronic format which can be incorporated into the text of the thesis using the word-processing program. Similarly, photographs should be scanned or converted into an electronic format which is suitable for including in the word-processing program.

For examiners who prefer to read the thesis as a hard copy, illustrations must be dark enough to reproduce well, and have standard margins on all sides. Pages wider than 8.5" x 11" should be photo-reduced provided the material is still readable. Drawings for a hardcopy of the thesis may be photocopies of high quality. Photographs should be originals, not photocopies. Students should consult McMaster Printing Services for page-reduction advice. *Oversized pages* (charts, graphs, maps, tables, etc.) should be carefully folded into the hardcopy thesis and should not extend the full width of the standard page.

2.2.7 Abbreviations and Symbols

Abbreviations and symbols must be those that are generally accepted in the field of study, must be defined in a list of Abbreviations and Symbols at the start of the thesis (see section 3.1.h below), and must be used consistently throughout the thesis.

3.0 SEQUENCE OF PARTS OF THE THESIS

A standard graduate thesis consists of the following parts, and is arranged in this order:

3.1 The Preliminary Pages

The following preliminary pages will precede the main text: The Half Title Page; Title Page; Descriptive Note (page ii); Abstract; Acknowledgements; Table of Contents; List of Illustrations, Charts, Diagrams; List of Tables; List of Abbreviations and Symbols, Declaration of Academic Achievement. Preliminary pages from (c) onwards will be numbered using Roman numerals.

(a) *Half Title Page:* The purpose of the half title page is to indicate to the binder what words should be put on the spine of the bound volume to serve as a significant label. The length should not exceed sixty (60) characters (including Spaces). This page must **not** be numbered. **See Example 1 on p. 10 for the required format.**

(b) *Title Page:* All text on the title page must be centred between the margins. The top and left margins should be 3.8 cm (1.5 inches) and the right and bottom margins should be 2.5 cm (1.0 inch). The copyright line should be placed as the last line of the page. This page must not be numbered. **See Example 2 on p. 11 for the required format.**

(c) *Descriptive Note:* This page simply lists degree and year; department; university name and location; full title in lower case; full name of author followed by degrees previously conferred; supervisor; and number of pages, counted separately for the preliminary pages and the text. This page must be numbered 'ii'. **See Example 3 on page 12 for the required format.**

(d) *Lay Abstract*: A lay abstract of not more 150 words must be included explaining the key goals and contributions of the thesis in lay terms that is accessible to the general public. This page must be numbered 'iii'.

(e) *Abstract:* An abstract of not more than 300 words must be included and will indicate the major emphasis of the thesis, new discoveries, and its contribution to knowledge. The style of abstract varies somewhat from discipline to discipline; the student should follow an appropriate style. This page must be numbered 'iv'.

(f) *Multimedia Abstract*: (Audio, video, animation) Students may include a 3 minute audio or video clip describing their thesis, which will be linked to their thesis on MacSphere. Such multimedia abstracts must be approved by the supervisory committee.
This is not a requirement and is at the discretion of the student.

(g) *Acknowledgements:* An expression of thanks for assistance given by the supervisor of research and by others should be either set forth on a separate page or incorporated into the Preface (if there is one). These and all subsequent preliminary pages listed under (f), (g) and (h) must be numbered in lower case Roman numerals, i.e. 'iv', 'v', 'vi' etc.

(h) *Table of Contents:* Must include the titles of all section or chapter headings and subheadings with their respective page numbers and must be numbered in lower case Roman numerals continuous after (e).

(i) *Lists of Figures and Tables* with their respective titles and page numbers; must be numbered in lower case Roman numerals continuous after (f).

(j) *List of all Abbreviations and Symbols* with their appropriate definitions; must be numbered in lower case Roman numerals continuous after (g).

(k) *Declaration of Academic Achievement:* The student will declare his/her research contribution and, as appropriate, those of colleagues or other contributors to the contents of the thesis.

NOTE: The Preliminary pages described above will also precede the main text of a 'sandwich' thesis

3.2 Text, References and Footnotes

The text of the standard graduate thesis consists of the 'Introduction' section or chapter, followed by several well-defined sections or chapters which contain the research results, finishing with a Conclusion and

Discussion section or chapter, or a summary statement of the results of the investigation.

The List of References section (or bibliography) follows the text, and this section is followed by any appendices. **See Example 4 on p. 13 for the recommended format of the bibliography for different disciplines.**

Regarding the style of writing, it is common practice to adopt the style (e.g. phraseology, nomenclature, abbreviations) practiced within the field of study. For more advice, the student may wish to be advised by the guidelines presented in A Manual for Writers of Term Papers, Theses and Dissertations (Kate L. Turabian, 8th edition, published 2013). These guidelines provide alternative formats to accommodate the practice in different disciplines but, once chosen, the format must be adhered to consistently.

Footnotes should be numbered (as necessary) and placed at the foot of the page or, with less convenience to the reader, at the end of the chapter or section, or at the end of the thesis. If footnotes are collected in one place, their location must be shown in the table of contents by title and page. Most word processors, by default, place footnotes at the end of each page and assign them consecutive numbers (see Turabian, Ch. 13, Section 13.17).

Students should contact their department to ascertain any departmental specifications for the preparation of a master's thesis.

4.0 CITATIONS AND REFERENCES

4.1 Citing Published Articles within the Text

In the basic and applied sciences, referencing within the text must follow a **consistent system** which **normally** gives the surname of the author(s) followed by the year of publication (see Turabian, Chapter 10). The Thesis Writer's Handbook by Miller & Taylor (1987) may also be consulted for instructions and examples of MLA and APA document styles (also see the section on Electronic References below).

Note: Citing Master's and PhD theses written by others fall into this category. Theses are publications that are available (either via the internet or through interlibrary loans, or through Library and Archives Canada) and should be cited as publications.

4.2 Citing Unpublished Articles by the Student within the Text

In respect of articles not yet published in the literature, the term *"to be published"* is not to be used, since a more precise term is desirable both for bibliographic accuracy and for information as to the status of the material. Either of the following wordings must be used, as appropriate:

(a) *Accepted for publication in the [Name of Journal].* (If the issue in which the article will appear is known, it should be cited.) If the issue is not known, the date of acceptance should be stated immediately after the word accepted.

(b) *Submitted [Date] to [Name of Journal].*

Note: The author of a thesis could alternatively treat an item in section 4.2 (b) as a 'private communication' (see section 4.3), but if there seems good cause to suppose the submitted article will be accepted, it may be of more value to mention the likely journal of publication.

4.3 Citing Other Unpublished Information or Articles within the Text

This category includes anything other than published accepted or submitted items. It could include material that is in draft prior to submission, internal reports that are not available through the internet or in standard reference library lists, and personal letters and oral communications. In the case of a letter or a report, a reference could read e.g.:

Private Communication from Dr. John Doe: Dept. of Gastronomy, McMaster University, Report No. 10/70.

4.4 Electronic References

The following are recommended website links which provide information on how to cite electronic references:

Columbia Style Guide: http://www.chicagomanualofstyle.org/16/ch14/ch14_toc.html

APA Style Guide:
http://guides.library.ualberta.ca/content.php?pid=515
41&sid=380592

MLA Style Guide: http://library.mcmaster.ca/guides/mla-style-guide

University of Alberta Library: http://www.library.ualberta.ca/guides/citation/

5.0 PREPARATION OF THE "SANDWICH" PH.D. THESIS

Some of the research undertaken by the student expressly for the Ph.D. degree may have previously been published or prepared as one or more journal articles, or chapters of books; these items may be included within the Ph.D. thesis subject to the following regulations and to obtaining permission from the supervisory committee. A thesis consisting of peer-reviewed scholarly works (e.g. journal articles), whether previously published, submitted for peer-review, or prepared for publication but not yet submitted, is often referred to as a **"sandwich" thesis**. A **minimum of three published or submitted but not yet published scholarly works** must be included within the sandwich thesis; **normally, at least one** of these must be published or 'in press' at the time the thesis is submitted for defense. The following points pertain specifically to the sandwich thesis:

5.1 The sandwich thesis must be a coherent presentation of the candidate's research work which includes an introductory chapter (normally 'Chapter 1') that outlines the general theme and the objectives, and a final chapter of conclusions that draws out the overall implications of the research. The introductory and concluding chapters need to be substantial in content, depth and length, not paper thin. In addition to setting the overall context, and identifying how the several papers relate to each other, it would be valuable if the introduction could also warn a reader of any overlap in the article chapters, such as in the literature reviews or the methods section of each article. Likewise, the concluding chapter should show clearly how the preceding chapters form a coherent substantial body of work and how significantly this body of work advances our knowledge. The different chapters (or sections) which include the published or prepared articles must contribute to the general theme of the thesis. Repetition of material that appears in more than one journal article (e.g., introduction, background, methodology) should be avoided. **The author of the thesis shall normally be the main contributor to these published or prepared articles.**

5.2 A sandwich thesis may be the choice of document for a Ph.D. student who has researched a topic for 4-6 years. In contrast, a Master's student who has undertaken a research topic for a relatively short time (1-2 years) would normally write a standard thesis rather than a sandwich thesis, but in exceptional circumstances the supervisory committee may agree that the Master's student should write a sandwich thesis.

5.3 The Preliminary pages (see section 3.1) for the sandwich thesis are similar to those of a standard thesis. However, the Preliminary pages of a sandwich thesis must include a preface that clearly documents the student's (and the other authors') contributions to each multi-authored work and when the work was conducted. The student must justify why his/her original contributions should be included in the main body of the thesis.

5.4 There must be a written introduction **preceding each published (or 'in press', or submitted) scholarly work** which sets the context and draws out the overall implications of the work. The metaphor, 'sandwich thesis', implies that the 'meat' is in each of the scholarly works, but it is also important that there is 'bread' to hold the sandwich together.

5.5 For any chapter of the sandwich thesis that includes a **published scholarly work**, the student may choose to either incorporate **an electronic version of the published reprint** (with pages renumbered to fit in with

the pagination of the thesis; see item 5.10 below), or **an electronic version of the published work** (e.g. the MSWORD document) that complements the first (Introductory) and last (Discussion and Summary) chapters of the sandwich thesis in respect of font type and size, margins, and overall style.

5.6 In addition to the written text, which may include diagrams, figures and tables, the student may also include film or sound files with the electronic thesis. It will be the student's responsibility to ensure that all electronic files supplied to an external examiner are in formats that the examiner may access easily. In the event an internal or an external examiner prefers to assess a hard-copy of the thesis, the student will provide **a print copy (or copies) of the sandwich thesis (including a CD, DVD, or USB Key as appropriate)** to the Thesis Coordinator prior to the thesis defense. The text of the printed version of the thesis must be the same as that of the submitted electronic copy.

5.7 Written permission to include copyright material in a Ph.D. thesis must be obtained by the student from the copyright holder. **This permission must also include a grant of an irrevocable, non-exclusive license to McMaster University and to Library and Archives Canada to reproduce the material as part of the thesis.** While these licenses should normally be obtained at no cost, any payment which might be required by the rights holder is the exclusive responsibility of the student. If the scholarly work has been published in an academic journal, copyright will normally have been assigned to the publisher of the journal. If the material has been published in another format (e.g. as part of a book, or as a technical report, etc.) the copyright may not have been assigned to the publisher, but rather licensed by the author(s) for a specific purpose. The exact status of the rights attaching to the material must be determined. If the material has been co-authored, the status of the rights of each co-author in the work must be determined. The candidate must secure from any co-author of a published work a written waiver of all rights in favour of McMaster University and Library and Archives Canada so as to permit publication of the thesis. In addition, written permission must be obtained from any co-author who retains copyright or the person to whom the co-author has assigned copyright, by way of a grant of an irrevocable non-exclusive license to McMaster University and to Library and Archives Canada, to reproduce material generated by the co-author as part of the thesis. The thesis should indicate that scholarly works have been printed either "with permission" or "under license" (either by a statement in the preface or on the first page of each article). **Electronic copies of the letters of permission or licenses should be submitted to the School of Graduate Studies prior to the defense.** **<u>See Appendix 3 for an example of a Letter of Permission.</u>**

5.8 For unpublished work (e.g., a paper that has been submitted for publication in a peer-reviewed journal but not yet published), a statement concerning the status of any dealing or contemplated dealing with the copyright or the auspices under which the work was prepared must be on the first page of the separately prepared, unpublished work. If copyright has already been legally assigned, written permission, as described in item 5.7 above, must be obtained.

5.9 For each published scholarly work, a complete citation, including first and last page number in the journal publication (or the Digital Object Identifier (doi) number) and recognition of the copyright holder must be written on the first page of the chapter.

5.10 The previously published or prepared scholarly works must be assigned page numbers that are sequential within the thesis. To avoid confusion, it is essential to remove the original journal page numbers; this information will be included in the citation given on the first page of the chapter.

5.11 Journal articles typically contain many more words per page than a page of a thesis. Such articles must be prorated to assess their acceptability within the maximum-allowed 300-page length of the thesis.

5.12 A list of references is included in most journal articles or manuscripts that are included in a sandwich thesis. References should remain self-contained within each article, as they appear in the original published document. Frequently, this may appear as a serial number, often a superscript incorporated appropriately within the text, which relates to a non-alphabetic bibliography at the end of the article (or chapter; see for example Turabian 10.33). It is acceptable that, because journal articles from more than one journal may be included, more the one referencing styles will also be included within the sandwich thesis. References for the new material in the thesis, e.g. the first and last chapters, should be listed in the main reference list at the end of the thesis as in the standard thesis (see section 3.2). A reference in one or more of the reproduced articles or manuscripts should only be included in the main reference list if it is also cited in the new material.

Finally, after a successful defense and all changes and corrections have been completed to the satisfaction of the supervisor (or examination committee as necessary), the student will upload the sandwich Ph.D. thesis

(including all associated approved files) as a pdf file to 'MacSphere' as described for the standard thesis (see section 6.4).

6.0 SUBMISSION OF THE THESIS: BEFORE AND AFTER THE DEFENSE

6.1 Submission of a **Master's** Thesis **prior to** Defense

To meet the requirements for a Master's degree, the thesis must be submitted by the student to the graduate administrator of the department (or Graduate Program) prior to the defense, either in an electronic form (e.g. by e-mail or a memory stick) which is preferred by the examiners or, if preferred, as a hardcopy no later than the date specified in the 'Sessional Dates' section of the School of Graduate Studies Calendar for the degree to be recognized at the appropriate convocation.

6.2 Submission of a Completed **Master's** Thesis a**fter** a Successful Defense

After a successful defense, the Chair of the examination committee will inform the student in general terms of the changes to the thesis which are required by the examiners. Usually, the supervisor will be asked by the Chair of the examination committee to supervise these changes. In addition, the Chair of the examination committee will give to the student a form [entitled: 'Final Thesis Submission Sheet'] which will be initialed by the Chair to indicate whether the examination committee have decided that minor or major changes are required to the thesis. This form will be given to the student to hand to the supervisor when all changes have been made. The form must be signed by the supervisor if the changes are minor (or by all of the examiners if major changes are required) when all changes have been approved. When the supervisor has signed the form, the student will prepare a pdf version and upload the final thesis to 'MacSphere', **and either send (by internal mail) or take the signed form to the Thesis Coordinator. It is the student's responsibility to ensure that all pages of the final thesis are complete and placed correctly before uploading to MacSphere.**

The student is advised to submit their final thesis after defense no later than the date specified in the 'Sessional Dates' given in the School of Graduate Studies Calendar for the appropriate convocation.

6.3 Submission of a **Ph.D.** Thesis **prior to** Defense

Having e-mailed a copy of the thesis to each member of the supervisory committee, the student will access the 'Student Centre' portal in Mosaic to intiate the defence process online. The student, in consultation with the supervisor and supervisory committee members, will also provide the Thesis Coordinator with a preferred date(s) for the defense. The Thesis Coordinator will then e-mail the supervisor and all supervisory committee members to ask them to (i) approve the date for defense and (ii) approve the written thesis as defensible; the supervisor and all supervisory committee members will reply appropriately to the Thesis Coordinator. When the thesis has been approved by the supervisory committee as worthy of defense, the Thesis Coordinator will arrange the selection of an
external examiner (from a list of prospective examiners supplied by the student's supervisor), and the date and time of the Oral Defense. If the external examiner is able to evaluate the written thesis but is unable to attend the thesis defense, the Thesis Coordinator will seek to find (through an e-mail list to all faculty members) an internal examiner from the university community.

When all of the examiners have been determined by the Thesis Coordinator, they will be notified of the date, time and place of the thesis defense. Furthermore, the external examiner and internal examiner (as necessary) will be sent an electronic copy of the thesis. If an internal or external examiner prefers to evaluate a hard copy of the thesis**, the student must be prepared to provide the Thesis Coordinator with a printed copy (or copies) of the thesis**. The text of the printed version of the thesis must be the same as that of the submitted electronic copy. If an external examiner requests a printed copy of the thesis, the Thesis Coordinator will supply it to the examiner.

6.4 Submission of a Completed Ph.D. Thesis **after** a Successful Defense

After a successful Oral Defense, the examination committee may ask for changes to the written thesis. The Chair of the examination committee will give to the student a form [entitled: 'Final Thesis Submission Sheet'] which will be initialed by the Chair to indicate whether the examination committee have decided that the changes, collectively, are of a major or a minor nature (a decision which is made by the examination committee).

If the changes are deemed to be minor, then the Chair will ask only the supervisor to oversee the changes by the student. There will be no requirement for the revised thesis to be sent to all supervisory committee members for further comment.

If the changes are deemed to be major, the Chair will ask the supervisor and appropriate members of the supervisory committee to supervise the student in making these changes; when suitable changes have been made, the revised thesis will be sent (in electronic format) to all examiners for further appraisal. The members of the examination committee, in consultation with the examination Chair, will then decide whether the revised thesis is 'approved' or if it requires further alteration and scrutiny. It is conceivable that the student may be called by the examination committee for a formal re-examination and re-defense of the written thesis.

When the student's supervisor (or the examination committee) is satisfied that all changes have been made correctly, the supervisor will complete and sign the "Final Thesis Submission Form". The student will then send the signed form by internal mail (or deliver personally) to the Thesis Coordinator. Finally, the student will convert the final thesis to a pdf file; **it is the student's responsibility to ensure that all pages are complete and correctly numbered AFTER converting the final thesis to a pdf file and before uploading to MacSphere.** The student must also ensure that all components that are included in the thesis, e.g. sound or video files, are readily accessible to future readers after uploading to MacSphere. Sometime after the thesis has been uploaded, the student will automatically receive an e-mail invitation from the Associate Vice-President and Dean of Graduate Studies to complete the on-line 'Ph.D. Student's Exit Survey'.

After the final thesis has been uploaded to MacSphere but **before** its official publication, the Thesis Coordinator will access the thesis over the next 5 - 7 days to check the information given by the student to MacSphere, and check the essential details on the Preliminary pages of the thesis. If the Thesis Coordinator is satisfied that the essential information is correct, only then will the thesis be officially published. An e-mail giving the official date of publication of the thesis will automatically be sent to the student.

The student is encouraged to upload the final thesis after defense no later than the date specified in the Sessional Dates contained in the School of Graduate Studies Calendar for the appropriate convocation.

6.5 Binding Copies of the Final Master's or Ph.D. Thesis

As of May 1, 2011, McMaster University no longer requires that a graduate student provide the university library or the student's department, school, or graduate program with suitably bound copies of their printed thesis. Furthermore, Library and Archives Canada will no longer require an unbound copy but will access the student's thesis directly via MacSphere. Nevertheless, after a successful defense and after all the corrections and changes have been approved by the supervisor, the student will probably want to have copies of their Master's or Ph.D. thesis bound for personal reasons or for presentation, for example, to their supervisor or even to the department. Either the Thesis Coordinator or the School of Graduate Studies website will give advice on reputable companies and their costs for thesis binding. It is the student's responsibility to ensure that the electronic thesis sent to the bindery (or print copies sent for binding) is **the same version** as that uploaded to MacSphere. The student will be expected to pay for all copying and binding costs including any charges for delivering copies of the bound thesis to the student's address. The student should **not** instruct the bindery to deliver copies of the bound copies of the thesis to the School of Graduate Studies at McMaster University.

Example 1: Half-Title Page

GOVERNOR JOHN WENTWORTH

(Note: All Capital Letters)

The length should not exceed 60 character spaces, including spaces between words.

Example 2: Title Page

THE CHARACTER AND ADMINISTRATION OF GOVERNOR JOHN WENTWORTH

(Note: All Capital Letters)

By KATHLEEN STOKES, B.A.

(Note: All Capital Letters) (All previous degrees should be listed)

A Thesis Submitted to the School of Graduate Studies in Partial Fulfilment of the Requirements for the Degree Master of Arts

McMaster University © Copyright by Kathleen Stokes, June 1992

Example 3: Descriptive Note

McMaster University MASTER OF ARTS (1992) Hamilton, Ontario (History)

TITLE: The Character and Administration of Governor John Wentworth AUTHOR: Kathleen Stokes, B.A. (McMaster University) SUPERVISOR: Professor H.E. Duckworth NUMBER OF PAGES: vii, 212

(To follow the title page and to be numbered ii)

Example 4

BIBLIOGRAPHY

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APPENDIX 1

STEPS FOR THE SUBMISSION, EXTERNAL EXAMINATION, AND DEFENSE OF A Ph.D. THESIS

STEP 1: Student Initiates the Ph.D. Thesis Defense Process Online

The link to initiate a thesis defense through **Mosaic** is available on the School of Graduate Studies website (*http://gs.mcmaster.ca/doctoral-degree).* Once the defense is initiated, the supervisor will be contacted by e-mail through the Thesis Defense System to submit nominations for an external examiner. The names of the potential examiners nominated by the supervisor must **not** be revealed to the student. **The selection of an external examiner is the responsibility of the Associate Vice-President and Dean of Graduate Studies.** All nominees must be at 'arm's length' from all members of the supervisory committee and the student. To maintain this distance, all communication with the external examiner must originate only from the School of Graduate Studies, and **not** from the supervisor or members of the supervisory committee.

As it takes time to contact a proposed External Examiner and to receive word of his or her acceptance, this completed electronic form must be submitted by the supervisor **at least 4-6 weeks** before the student moves to Step 2.

STEP 2: Propose a Date and Time for Ph.D. Thesis Defense

The student will be prompted via email to submit a date and time for their thesis defense. The student is expected to have conferred with the supervisory committee members regarding suitable dates before submitting the thesis online via the **Thesis Defense System**. Once the student has submitted the thesis, the members of the supervisory committee will be prompted via email to (a) agree on the time and date for defense, and (b) agree that the thesis is ready for defense. **ONE hard copy of the thesis should be submitted by the student to the Thesis Coordinator at the School of Graduate Studies six to eight weeks in advance of the expected date for oral defense.** A majority of the Supervisory Committee must approve the thesis before it can be sent out for external examination. This means that if two out of the three members approve the thesis and the 3rd member does not approve, the thesis can still be sent to the external examiner for review. However, if the student has a four-member supervisory committee and only two members approve, the thesis cannot be sent for external examination.

A **300-page limit** on the **text** is imposed on all Ph.D. theses [i.e. excluding the Preliminary pages (see Section 3.1), bibliography and any appendices]. In cases where students and their supervisors believe that the thesis topic requires substantially greater length than 300 pages, written approval from the appropriate Associate Dean of Graduate Studies must be obtained before the external examiner is contacted. Potential external examiners must be informed of the exceptional length of a thesis in advance.

The thesis (whether an electronic or hardcopy version) will not be sent to the External Examiner until it has been approved for submission and defense by the Supervisory Committee.

STEP 3: The Defense

In addition to three members of the supervisory committee (one of which will be the supervisor) who will act as examiners and assuming that the external examiner is unable to attend the thesis defense, the Thesis Coordinator in the School of Graduate Studies will search for and recruit one internal external examiner from the faculty within McMaster University who is available to attend the defense. In addition, a Chair of the examination committee will be selected by the Thesis Coordinator; the Chair is not expected to be an expert in the topic of the defense, but is expected to facilitate a fair and orderly examination process.

If the external examiner's report on the thesis is favourable and they give their approval that the defense should proceed, the date and time of the thesis defense is then confirmed by the Thesis Coordinator who will send out a notice of the examination to the examination committee, the student and the relevant department or program. The Thesis Coordinator will then select a Chair. If the external examiner wishes to attend the thesis defense, there will be no search for an internal external examiner. If the external examiner's report is negative, the examination will be postponed until the external examiner's concerns have been addressed (or alternative

arrangements have been agreed) by the supervisory committee and the student in consultation with the Associate Vice-President and Dean of Graduate Studies.

STEP 4: After the Defense

The Chair of the examination committee will discuss in general terms with the student the examiners' conclusions and desired changes to the thesis (i.e. whether 'minor' or 'major' in nature), and give the student a form, 'Final Thesis Submission Sheet'; this form will be initialed appropriately by the Chair. When the student has completed the changes and corrections indicated by the examination committee and the supervisor (or supervisory committee) has approved these changes, the supervisor (or supervisory committee) will sign the form to indicate completion. The student will either bring or send (by internal mail) the signed form to the Thesis Coordinator, and submit an electronic file (as a pdf) of the finally approved thesis to MacSphere (see Section 6.4).

APPENDIX 2

PROCEDURES AND INSTRUCTIONS FOR THE EXAMINATION OF Ph.D. THESES

1. Purpose of the Examination (or Thesis Defense)

The examination will be chaired by a senior professor or professor emeritus of the University who will be recruited by the Thesis Coordinator; the Chair's role is to ensure that the examination proceeds in a fair and orderly manner and is completed within a reasonable time (three hours maximum). The Chair will not question the candidate, will make no judgment on the candidate's performance and will have no vote.

It is the examiners' task to determine whether the student has met the University's thesis requirement, that each doctoral candidate present and successfully defend a thesis that embodies the results of original research and mature scholarship. The examiners represent Graduate Council and through it the Senate of the University, and are therefore responsible for the standard of the Ph.D. degree in this University.

The oral thesis defense at McMaster University is an examination of a Ph.D. candidate's ability to defend publicly their written work. Therefore, questions having to do with the detailed content or the general argument of the thesis are relevant, as are questions regarding the relationship between the content of the thesis and the body of knowledge to which it contributes. (The more general judgment of the candidate's proficiency in their discipline and particular area of specialization are presumed to have been made at the time of the comprehensive examination.)

The committee of examiners, both of the written thesis and of the oral defense, will not likely all be expert in the candidate's specialty, or even in his or her discipline. It is the particular responsibility of the external examiner(s) and the supervisory committee to ensure that the thesis does indeed present an original and significant contribution to knowledge. The examiners may reasonably be expected to exercise their judgment of the written thesis and the oral defense as members of the University faculty, keeping in mind the standards of excellence expected by the University of its Ph.D. graduates.

The examiners are expected to judge whether the student's thesis and defense are satisfactory or unsatisfactory. The examiners have previously read and reported on the written thesis and they must now give their final judgments on the oral defense of it and on the written thesis in light of the defense. Examiners are expected to exercise their judgments on both of these matters. Only in exceptional circumstances may they abstain.

2. Ph.D. Oral Examination Procedure

(a) When the candidate arrives, the Chair will introduce those committee members not known by the candidate.

(b) The Chair should explain to those present the composition of the examining committee.

(c) The Chair will confer with the examination committee **in the absence of the student and audience members** to determine if anyone has misgivings or any doubt about the worth of the thesis, and to determine the order of questioning.

(d) When the Chair invites the candidate and audience members to return to the examination room, the Chair will ask the student to present an oral statement about his/her thesis of approximately 15 minutes duration (in no case more than 20 minutes). **The student should stress the main points of the contribution to knowledge and the principal technical difficulties either of an experimental or theoretical nature which he or she has overcome. A summary of the thesis is neither necessary nor desirable.** The Chair should remind the candidate that notes or other aids may be used **but the statement may not be read from a prepared script.**

(e) **Individual examiners will question the candidate according to the order established by the Chair. All members of the examining committee are expected to put questions to the candidate. Issues that have been raised by members of the supervisory committee in the course of composition of the thesis may nevertheless be profitably brought up now, when the candidate will have to respond in the presence of others.**

(f) If present, the external examiner should be given full opportunity to question the candidate. If the external examiner is not present, it is the Chair's responsibility to see that questions raised in the external examiner's report are put to the candidate by some member of the examining committee, preferably the supervisor.

(g) **Candidates who are unwilling or unable to respond to questions should be cautioned by the Chair that such an action may cause the examination to be adjourned, or in extreme cases, could lead to failure when the examination committee are asked to judge on the success or failure of the defense (see item (k) below).**

(h) When the examiners have completed their questions, the Chair will invite members of the audience to ask questions or make comments.

(i) When there are no further questions, the Chair should ask the candidate and audience members to withdraw from the room.

(j) In the event that the external examiner is not present, the Chair and committee will decide whether the examiner's report is to be read or summarized before the vote is taken.

(k) After a discussion of the examination, the Chair will ask for a judgment on each of the two questions, the acceptance or rejection of the written document and the success or failure of the defense. If there are two or more negative or abstaining votes on either question, with at least one of these votes being from a member of the supervisory committee, adjournment is mandatory and a reconvened oral defense must be held at a later date. The candidate should be told as clearly as possible what they must do to improve either or both the written thesis and their defense of it.

If the oral defense is reconvened, no new examining committee members will be added, except for necessary replacements, to expedite the timing of the reconvened examination. It is the duty of the examiners to attend the reconvened examination. The reconvened examination is the candidate's final opportunity to defend the thesis satisfactorily. No subsequent defense may be held, and there is no appeal of the final decision.

(l) In the event that the written thesis is approved conditionally, the Chair is responsible for ensuring that (1) the candidate is advised of the conditions in writing, (2) the candidate receives and understands the form, 'Final Thesis Submission Sheet', which will be used to confirm that the conditions have been met, and (3) the supervisor is also aware of this form.

(m) Following the committee**'**s decision, the Chair will secure the initialed votes of each examiner and then will complete and sign the 'Examination Committee Report'.

(n) The Chair will then go to the candidate, inform them of the committee's decision(s), and bring them into the examination room for any congratulations or discussion appropriate to the examiner's decision. An unattributed copy of the external examiner's report will be given to the candidate. In cases where the external examiner is not present, a successful candidate may be informed of the identity of the external examiner, providing that the external examiner has permitted this identification to be made.

(o) It is the responsibility of the Chair to inform the candidate that the corrected electronic thesis (when finally approved by the supervisor) must be uploaded by the candidate as a pdf file to MacSphere, and to invite the candidate to sign the necessary forms to give the University permission to publish the thesis electronically (or to temporarily withhold as the case may be), and Library and Archives Canada permission to access the thesis for their archives. The Chair will then return the examination file containing the signed Examination Committee Report and permission forms to the Thesis Coordinator in the School of Graduate Studies.

(p) The examination then will be formally adjourned. Normally, examination of a PhD candidate will take about two hours and in no case should take more than three hours.

(q) If the student has failed or if the oral defense is to be reconvened, the Chair of the examining committee should discuss the situation as soon as possible with the Associate Vice-President and Dean of Graduate Studies.

Appendix 3

SUGGESTED FORM OF A PERMISSION REQUEST LETTER

[Department letterhead stationery (preferred) or return address] [Date] [Name and Address of copyright holder]

Dear ,

I am completing a [Ph.D. or M.Sc., or M.A., etc.] thesis at McMaster University entitled [……..]. I would like your permission to reprint in full the following journal article in my thesis:

[Complete citation of the article]

Please note that I am [a co-author/the author] of this work.

I am also requesting that you grant irrevocable, nonexclusive license to McMaster University [and to the National Library of Canada] to reproduce this material as a part of the thesis. Proper acknowledgement of your copyright of the reprinted material will be given in the thesis.

If these arrangements meet with your approval, please sign where indicated below and return this letter to me in the enclosed envelope. Thank you very much.

Sincerely,

[Name and Signature]

(*Licence to the National Library is to be requested only for Ph.D. theses*)

PERMISSION GRANTED FOR THE USE REQUESTED ABOVE

[Type Name of Company]

Authorized by: Title:

Date:

Signature: