

# *Guidelines for Preparing the Master's Literature Review, the Master's Thesis & the Doctoral Dissertation.*

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## **Purpose of the Literature Review, Thesis, or Dissertation**

Each of these undertakings provides the graduate student an opportunity to demonstrate analytical ability and comprehensive undertaking of a subject. They allow the student to explore and analyze a problem relevant to the area of concentration. The thesis and dissertation, moreover, provide an opportunity for the student to develop and demonstrate skills relevant to original laboratory research.

## **Types of “Thesis”**

In the Graduate School of Basic Medical Sciences (hereafter referred to as the Graduate School), three types of scholarly work may be produced. These are:

Master's Literature Review

Master's Thesis

Doctoral Dissertation

Each of these should be a scholarly work that, in abbreviated form, is potentially publishable or presentable at a national or regional scientific meeting. The scope and procedures for conducting the requisite work and for review and approval of the final document differ significantly among these three types of scholarly work, as described below. The rules regarding format and production of the documents, however, are uniform for all these cases.

### **M.S. Literature Review**

This may be used to fulfill a requirement of the Plan A track for a Master of Science degree in each Master's program offered by the Graduate School. It should be a comprehensive review of the scientific literature regarding a well-defined area of research, disease process, scientific theory, etc. The document should be more than a simple compilation of published studies. It should demonstrate the student's ability to analyze critically and synthesize related facts into a comprehensive view.

The student should undertake this work at least one semester *before* the semester of anticipated graduation. With appropriate guidance from the faculty advisor, the student should define a suitable topic. A brief (2-4 page) proposal, outlining the topic and hypotheses to be explored and including a listing or brief discussion of key papers or questions related to this topic, may prove very helpful in focusing the student's efforts. This proposal is not a formal program requirement, however.

During the semester in which the student expects to write and submit the Literature Review, the student should register for the one-credit Literature Review course appropriate to the student's department. Candidates for the Master's degree in Basic Medical Sciences should register for the Literature Review course in the department most appropriate for the topic of the Literature Review. This is usually the major advisor's department.

The student should continue to consult frequently with the advisor during the literature research and the early drafts of the literature review itself. When the document is completed, it must be read by three readers, at least two of whom are members of the Graduate Faculty. The third reader may be a member of the Graduate Faculty or a scientific authority from outside the Graduate School or outside the College. The committee of readers shall confer and issue a consensus recommendation of approval, approval with distinction, or disapproval. If the Literature Review is disapproved, the student should be presented with a written statement of the document's shortcomings and recommendations for improvement or correction. A copy of this statement should also be submitted to the Dean of the Graduate School.

### **Master's Thesis**

This may be used to **fulfill** a requirement of the Plan B track for a Master of Science degree in each **Master's** program offered by the Graduate School. The thesis should be a scholarly work describing a body of original scientific work conducted by the student. The document should not only report the methods used and the data obtained in the laboratory studies, but should also place the results in the context of the existing scientific literature relevant to the topic of investigation.

Because of the need to conduct an original body of laboratory work, the student should undertake this work well in advance of the anticipated date of graduation. The student must find a member of the graduate faculty who has faculty mentor status and who is willing to supervise the student's research. The student and the mentor work closely to define a suitable research project. The advisor continues to monitor the student's progress closely as the research is conducted. When a logical end-point is reached, the student prepares the thesis, which is read by a **committee** consisting of the mentor and two other readers, at least one of whom is also a member of the graduate faculty. The third reader may be a member of the Graduate Faculty or a scientific authority from outside the Graduate School or outside the College. The committee will then examine the student in a defense-of-thesis exercise. The committee may elect to hear an oral presentation of the work by the student before the defense. The student may earn as many as five credits towards the MS. degree requirement for the laboratory research. The student in this track (Plan B) will also earn one credit for the M.S. Thesis itself. The student should enroll for the single thesis credit in the semester in which the document is to be written and defended.

## **Doctoral Dissertation**

This is a major component of the Ph.D. program offered by each of our basic sciences departments. The dissertation should be a scholarly work describing a significant body of original scientific work conducted by the doctoral candidate. The dissertation should not only report the methods used and the data obtained in the laboratory studies, but should also place the research in the context of the existing scientific literature relevant to the topic of investigation.

The path to a doctoral dissertation usually begins with the choice of a faculty mentor. The student spends significant effort early in the training program investigating the research areas and approaches to be found in the laboratories of the graduate faculty associated with the student's program. At an appropriate point in the training program, the student chooses a mentor from among the eligible graduate faculty.

The student and mentor then begin to develop a research project that will serve as the basis of the dissertation. This may require completion of pilot studies to establish feasibility and appropriate preliminary data. Once this stage is reached, a formal thesis proposal is prepared. The required format varies among the different doctoral programs, but the essential feature of all thesis proposals is a relatively explicit and detailed plan of action with a clearly defined end-point. This proposal is presented to a formal Dissertation Committee for their advice and approval. The Dissertation Committee is selected jointly by the doctoral candidate and mentor and must consist of at least five members of the graduate faculty. One of the five must be from outside the student's home department. Some programs also require a member from outside the institution. This external member should be an accomplished scientist with expertise appropriate for review of the proposed work.

After the Dissertation Committee has approved the proposal, the student conducts the planned research under the guidance of the mentor. The Dissertation Committee may be consulted, as a group or individually, to provide further advice and guidance, or to approve adjustments in the planned work that are justified by the results obtained. When the research reaches a logical end-point, the student is given permission by the mentor and/or the Dissertation Committee to prepare the dissertation.

Once the dissertation is approved by the mentor, it is distributed to the Dissertation Committee in advance of a public Defense of the Dissertation.

The Defense of the Dissertation is open to all members of the graduate faculty and may, at the candidate's option, be opened to other members of the College community. At the defense, the candidate presents the results and conclusions of his/her work and defends the work against the challenges of the Dissertation Committee. The Committee meets in executive session and votes one of the following: approval, approval with distinction, approval (with or without distinction) pending minor changes, or disapproval. If the dissertation is disapproved, the candidate must be presented with a written list of specific problems and shortcomings that need to be addressed before approval can be granted. A subsequent re-defense may be required. When the dissertation is approved pending minor changes, the faculty mentor may be charged with the authority to approve the final changes on the Committee's behalf.

## Role of the Advisor

The advisor for the M.S. Literature Review, M.S. Thesis or Doctoral Dissertation has certain responsibilities in this role. It is the advisor's responsibility to:

1. Notify the Graduate Program Director that the faculty member has agreed to serve as the student's advisor.
2. Help the student select and develop a literature review or research topic.
3. Select the other readers (for the M.S. Literature Reviews or M.S. Thesis) or members of the Doctoral Dissertation Committee. This selection should be made in consultation with the student and in accordance with the eligibility rules of the Graduate School. The advisor should also assist the student in enlisting the participation of the selected readers and committee members.
4. Guide in the establishment of a research methodology.
5. Critically review the work in progress. In the case of a laboratory research project, this is a continuous responsibility. For a Literature Review, the advisor should make periodic reviews of the work in progress.
6. Review and comment on various drafts and guide the preparation of the final draft.
7. Chair the meetings and deliberation of the reader/review committee or the Dissertation Committee.
8. Supervise the completion of any final revisions recommended by the readers or Dissertation Committee.
9. Forward the completed literature review, thesis, or doctoral dissertation to the Dean.

In general, only members of the Graduate Faculty may serve as student advisors or as readers of a M.S. Literature Review, M.S. Thesis, or Doctoral Dissertation. Only Graduate Faculty Mentors may serve as major advisors or mentors to a student preparing either a M.S. Thesis (plan B) or a Doctoral Dissertation. The designation of a faculty member as a Member of the Graduate Faculty or as a Graduate Faculty Mentor results from a formal process of credential review within the Graduate School of Basic Medical Sciences. All members of the Graduate Faculty must hold a primary, secondary or adjunct appointment in one of the six basic sciences departments because it is these departments that house the academic authority over the Graduate School's various M.S. and Ph. D. programs.

Literature Review, M.S. Thesis readers and Dissertation Committee members from outside the institution are allowed to participate in these evaluative roles in order to provide degree candidates with the opportunity to interact with recognized external authorities in their field and to introduce a further measure of quality control to the Graduate School's programs. The requirement for Graduate Faculty status is, of course, waived for these individuals.

The student's advisor must be aware of these requirements in selecting faculty for review and Dissertation Committees. A current listing of the Graduate Faculty membership may be obtained from the Office of the Dean of the Graduate School.

# Thesis Format

With respect to the format and style of the thesis, The American Medical Association's Manual *of Style* is highly recommended. Two publications which can be useful in writing the thesis and helpful with grammar are: *A Manual for Writers of Term Papers, Theses and Dissertations*, (Fifth Edition) and *Essentials of Writing Biomedical Research Papers*. All three books are located in the Reference section of the College's Medical Sciences Library.

## Thesis Components

### I. Title Page

The title should be a concise summary of the thesis topic. Although its function is to inform the reader about the thesis, the title also serves as a statement of article content for abstracting and information services. Since titles commonly are indexed and compiled in reference works, avoid words that serve no useful purpose. The words "Method" and "Results" do not normally appear; nor do "A Study of.. ." or "An Experimental Investigation of.. ." which are implicit.

Attachments 1, 2 and 3 represent samples of the title page for each body of work. The page should contain the student's full legal name, the title of the literature review, thesis, or dissertation and the year in which the degree will **be conferred**.

### II. Approval Page

The form of the approval page is given in Attachments 4 and 5. Information includes the title of the thesis, the student's name and lined spaces for approval signatures with dates of acceptance. The name of the sponsor, readers and examiners should be typed below the signature lines.

### III. Acknowledgement Page

A page of acknowledgements is not required, but offers an opportunity to express thanks to people who have been helpful and to give credit to authors and publishers of materials used.

### IV. Table of Contents

The Table of Contents lists every heading, whether major or minor, in exactly the words that appear in the body of the document. This page is usually typed with double spacing between all entries, except when a heading too long to be typed on one line is continued on the next. An exceptionally long Table of Contents may be single spaced throughout; subordinate headings are given graduated indentations. Page numbers are given at the right side of the page, each following a line of dots from the titles and headings. If numerical tables and/or graphic illustrations are interspersed throughout the text, rather than contained in an appendix, a List of Tables and/or List of Figures should follow the Table of Contents and conform to the same style.

### V. Text

The text opens with an introductory chapter or section, followed by sections devoted to literature review, study methodology, results and discussion. Each section begins on a new page. The number of each

section is usually given in capital roman numerals and its title in capital letters and centered width-wise on the page, e.g.,

Section III  
MATERIALS AND METHODS

or

III-MATERIALS AND METHODS

- A. **Introduction.** The Introduction presents the specific problem/topic under study. It should logically orient the reader by conveying a firm sense of what was done and why. *The first page of the introduction is page 1 (arabic numeral), but the number does not appear.*
- B. **Background.** Cites the supporting literature which serves as the theoretical underpinning of the thesis. It demonstrates the logical continuity between previous and present work. The literature cited should include recently published material and should emphasize relevant findings, applicable methodological issues and major conclusions and how they influence the thesis research.
- C. **Methodology.** This section describes in detail how the study **was** conducted. It should include as much information as would be necessary for a subsequent researcher to replicate the study. While this section might include relevant mathematical formulae, lengthy mathematical derivations relevant to the methods of data acquisition or analysis should be placed in the Appendix and briefly described in the text.
- D. **Results.** This section summarizes the data collected and the statistical treatment. In general, the student should state the main findings in enough detail to justify the conclusion. Tables and figures may be helpful in reporting the data.
- E. **Discussion.** This section includes information on what the study has contributed, how the study has resolved the problem that was stated initially and what the limitations of the study were. Future opportunities related to this work, including further research, should also be noted in this section.

*For a Master's Literature Review, sections A-E may not be applicable. Other headings that present a clear and logical outline may be used instead. There should, however, be an Abstract*

## VI. Appendix

Although not required in every thesis, an Appendix (or Appendices) provides an appropriate means for making various auxiliary materials available. Each Appendix (Appendix A, B, C, etc.) begins on a new page and is headed with its letter and a short descriptive title. The Appendix section is numbered as a consecutive part of the pagination of the thesis and must be typewritten with the *same margins* and on the *same paper as the text*. The letter designation of each Appendix, full title and page number appears in the Table of Contents.

## VI. Abstract

The abstract gives a concise summary of the thesis in a *maximum Of 600 words*. The abstract should briefly describe four components: statement of

the problem; procedures or methods; results; and conclusions. It should include the full title of the document, the author's name in full and the sponsor's name.

## **Thesis Production: General Considerations**

### **I. Paper**

Throughout the thesis (original), good quality white 8½" x 11" bond paper, 16 to 20 pound, must be used. Corrasable or easy erasure paper as well as recycled paper and copier paper smear and, therefore, should not be used. No holes should be punched in the paper. For reproduced copies of the thesis, good quality copier paper (16 to 20 pound) may be used.

### **II. Print**

Any standard typeface (pica, elite, executive) is acceptable, if used uniformly throughout the thesis. The print must be letter quality with dark black characters that are consistently clear and dense to facilitate **microfilming**. Dot matrix printers and blue characters are unacceptable. Twelve-point typeface is preferred; typeface size must be at least 12-point for the main text.

### **III. Spacing and Margins**

All straight text should be double spaced. However, quotations, footnotes, titles, table headings, legends and references should be single spaced. Minimum margins of one inch on the right side and on the top and bottom of the page must be used throughout the thesis. A minimum margin of 1½ inches should be used for the left (binding) side of each page. Only one side of each sheet should be printed upon.

*Page numbers should be placed inside the text area and not within the 1-1½ inch borders.*

### **IV. Pagination**

All pages of the thesis must be counted and assigned a number, including prefatory material (e.g., Acknowledgments, Table of Contents), graphs, charts, tables and Appendices. The prefatory pages are to be numbered with small roman numerals, centered at the bottom of the page. Although the title page counts as page i, the number does not appear; the other prefatory pages are numbered ii, iii, iv, etc. The remainder of the text should be numbered consecutively in **arabic** numerals placed in the upper right corner of the page. As previously stated, the first page of the Introduction is page 1, but the number does not appear.

### **V. Reproduction**

As a rule, photostat, photo-offset and xerography are the only acceptable methods for reproducing pages.

### **VI. Quotations**

Quotations must be absolutely accurate and reproduce the exact words, spelling and punctuation of the original, even if they are faulty. A short quotation, which occupies two lines or less of typescript, should be incorporated in the text and set off by quotation marks. A quotation of three or more typewritten lines should be typed in block style with single

spacing. All lines are indented five spaces, and the first lines of paragraphs within such quotations receive an additional three spaces of indentation. *Quotation marks are not used at the beginning and end of blocked quotations.* The reference citation of each quotation must state the exact page or pages quoted.

The order of quotation marks in relation to other punctuation often gives trouble, so a summary of the rules may be helpful. In standard American practice: a comma *or* period precedes the closing quotation mark *under all circumstances* even if only one word is quoted; a colon or semicolon always follows the quotation mark; a question mark follows a quotation mark unless the question is part of the material quoted.

## VII. References

Reference citations lead the reader to the sources of scholarly material mentioned or quoted in a document for the purpose of verifying the author's statement or learning more about the topic. References should be as current as possible. They should also be absolutely correct. For this reason, all citations should be checked with the original source and with the bibliographical listing to ensure they are accurate in every detail. Bibliographies for Literature Reviews and Theses can be quite lengthy, therefore, it is preferable to list authors alphabetically and not by citation number. By identifying the citation by author and year, e.g. Smith, et. al. 1990, the Bibliography will not require numbering and authors can be listed alphabetically.

## VIII. Abbreviations, Symbols **and Terminology**

Include in the manuscript a list of new or special abbreviations used in the paper, with spelled-out form or definition. Internationally accepted biochemical abbreviations such as ADP, NADH, and **pH** do not need to be defined; other frequently used abbreviations need only to be defined at first mention. A table of abbreviations is recommended if the number of abbreviations is long.

For commonly accepted abbreviations, word usage, symbols, etc., authors are referred to the AMA Style Manual. Chemical and biochemical terms and abbreviations should be in accordance with the recommendations of the IUPAC-IUB Combined Commission on Biochemical Nomenclature. Isotope specification should conform to the IUPAC system.

## IX. **Tables, figures, charts and illustrations**

Tables and figures must have one-inch margins required for pages of text. This illustrative material is numbered consecutively throughout the thesis. (e.g., Figure 1, Figure 2, etc., and Table 1, Table 2, etc.) and paginated. Tables are presented by number, title and page in the List of Tables in the prefatory section. Figures are treated similarly in a List of Figures. In exceptional cases, oversize tables or charts may be folded in from the right provided that the one inch left margin is maintained. Still larger tables and charts may be typed full size and then reduced by a photo duplication process to the standard size paper. Please note that color does not reproduce on microfilm; therefore, photographs, illustrations, and charts should be in black and white to the extent possible. Cross-hatching can effectively be used in place of color.

Everything that cannot be typewritten or computer-generated should be lettered or drawn in black permanent ink. When photographic prints are used in the original, additional prints, rather than **xeroxed** copies, should be included in all copies of the document.

## X. **Length**

Although there are no strict limits on length the work should reflect a scholarly effort consistent with the normal standards for the academic degree at issue.

As a guideline, Literature Reviews are usually roughly between roughly 30 and 100 pages, exclusive of references and prefatory pages. Master's Theses are usually 40-100 pages long including figures and tables. Doctoral dissertations are usually 80-250 pages long.

## **Microfilming**

Microfilming is a requirement for those writing a Master's Thesis or Doctoral Dissertation in the Graduate School of Basic Medical Sciences. The School has made arrangements with University Microfilms, Inc., of Ann Arbor, Michigan, for the microreproduction of theses. University Microfilms makes a master microfilm and retains it in its vaults. It announces the publication in *Dissertation Abstracts International* and provides positive microfilms and paper bound xerographic copies to all who wish to buy them at reasonable prices, comparable to the costs of printed books. The charge for University Microfilms' services, which includes binding the typewritten or xerographic copies of your thesis and depositing one of them in the New York Medical College Library, is included in the graduation fee.

Because microfilming and placement in a library are a form of publication, certain legal and financial implications need to be considered. If a microfilm is not copyrighted by its author, its substance lies in the public domain and may henceforth be reproduced by anyone without permission or fee. If control over the use of the material is desired, the thesis should be copyrighted. By paying the \$35 copyright fee, the student authorizes University Microfilms to secure a copyright in his or her name.

All copies of a thesis that are to be copyrighted should include a separate *copyright notice page*, which is inserted immediately after the title page in the following form:

© Copyright [Full Legal Name] 19\_\_\_\_  
All Rights Reserved

## Submission of Thesis

Students should submit the original and two copies of the completed and approved literature review, thesis or dissertation to Marge Riley (Graduate School of Basic Medical Sciences Office, Basic Sciences Building, Room 647) by April 15 for graduation in May. These copies will be bound and distributed to the Medical Sciences Library, the Sponsor and the Graduate Program Director, respectively. Students desiring additional bound copies must pay an additional fee to University Microfilms for Master's Thesis and Doctoral Dissertations. Literature Reviews are not bound by UMI. Students desiring bound copies of their Literature Reviews should contact the Graduate School Office.

A Defense of Thesis Certification must be submitted with the Master's Thesis or Doctoral Dissertation (see Attachment A). For the Literature Review, an Approval of the Master's Literature Review form is used (see Attachment B).

### Attachment 1

#### Format for Title Page Master's Thesis

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(Title)

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(Author's Legal Name)

A Thesis in the Program in \_\_\_\_\_  
Submitted to the Faculty of the  
Graduate School of Basic Medical Sciences  
in Partial Fulfillment of the Requirements  
for the Degree of Master of Science  
at New York Medical College

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(Year)

## **Attachment 2**

### **Format for Title Page Master's Literature Review**

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(Title)

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(Author's Legal Name)

A Literature Review in the Program in \_\_\_\_\_  
Submitted to the Faculty of the  
Graduate School of Basic Medical Sciences  
in Partial Fulfillment of the Requirements  
for the Degree of Master of Science  
at New York Medical College

\_\_\_\_\_  
(Year)

## **Attachment 3**

### **Format for Title Page Doctoral Dissertation**

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(Title)

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(Author's Legal Name)

A Doctoral Dissertation in the Program in \_\_\_\_\_  
Submitted to the Faculty of the  
Graduate School of Basic Medical Sciences  
in Partial Fulfillment of the Requirements  
for the Degree of Master of Science  
at New York Medical College

\_\_\_\_\_  
(Year)

**Attachment 4**

**Format for Signature Approval Page for  
Master's Thesis and Literature Review**

TITLE OF THESIS

AUTHOR

\_\_\_\_\_  
Sponsor

\_\_\_\_\_  
Reader

\_\_\_\_\_  
Reader

\_\_\_\_\_  
Date

**Attachment 5**

**Format for Signature Approval Page  
for Doctoral Dissertation**

TITLE OF DISSERTATION

AUTHOR

Approved:

\_\_\_\_\_  
Sponsor

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Examiner

\_\_\_\_\_  
Date

GRADUATE SCHOOL OF BASIC MEDICAL SCIENCES  
NEW YORK MEDICAL COLLEGE

DEFENSE OF THESIS CERTIFICATION

INSTRUCTIONS: All information must be typewritten with the exception of the examiners' signatures. All signatures must be signed in blue ink. Submit this Approval form along with the original Thesis or Dissertation (plus two copies) to the Graduate School Office.

NAME OF STUDENT \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Last First Middle

DEPARTMENT \_\_\_\_\_ SPONSOR \_\_\_\_\_

DEFENSE OF  M.S. Thesis  Ph.D. Dissertation      DATE OF EXAMINATION \_\_\_\_\_

THESIS TITLE:


**The** committee hereby certifies that a satisfactory defense of the thesis was presented and recommends that the  Master's thesis  Doctoral Dissertation be accepted by the Graduate School of Basic Medical Sciences New York Medical College in partial fulfillment of the requirements of the  M.S.  Ph.D. degree.

EXAMINERS:

NAME	TITLE AND DEPARTMENT	SIGNATURE

VERIFICATION:

\_\_\_\_\_  
 Graduate Program Director                      OR                      // \_\_\_\_\_  
Chairperson Date

\_\_\_\_\_  
 GSBMS Dean    \_\_\_\_\_  
Date

GRADUATE SCHOOL OF BASIC MEDICAL SCIENCES

NEW YORK MEDICAL COLLEGE

APPROVAL OF M.S. LITERATURE REVIEW

INSTRUCTIONS: All information must be typewritten with the exception of the examiners' signatures. All signatures must be signed in blue ink. Submit this Approval form along with the original Literature Review (plus two copies) to the Graduate School Office.

NAME OF STUDENT \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Last First Middle

DEPARTMENT \_\_\_\_\_ SPONSOR \_\_\_\_\_

LITERATURE REVIEW TITLE:


The committee hereby certifies that a satisfactory M.S. Literature Review was completed and recommends that it be accepted by the Graduate School of Basic Medical Sciences of New York Medical College in partial fulfillment of the requirements of the Master of Science degree.

EXAMINERS:

NAME	TITLE AND DEPARTMENT	SIGNATURE

VERIFICATION:

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Graduate Program Director OR Chairperson Date

\_\_\_\_\_  
GSBMS Dean Date