

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

PART I. GENERAL PRINCIPLES AND RULES

Purpose of the Literature Review, Thesis, or Dissertation

Each of these undertakings provides the graduate student an opportunity to demonstrate his or her analytical ability and comprehensive understanding of a subject. They allow the student to explore and analyze a problem relevant to the discipline of the student's graduate degree. They provide the student the opportunity to demonstrate achievement of the GSBMS's educational objectives related to (a) knowledge of the major organizing concepts within the discipline, (b) critical evaluation of the scientific literature, (c) effective communication skills, (d) grasp of the scientific method, and (e) understanding of the principles governing the responsible conduct of research. The thesis and dissertation, moreover, provide an opportunity for the student to develop and demonstrate skills relevant to original laboratory research.

Types of "Theses"

In the Graduate School of Basic Medical Sciences (hereafter referred to as the Graduate School), three types of scholarly work may be produced as a culminating project in pursuit of a Master's or doctoral degree. 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, with only some slight differences among the three types.

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 defined area of research, disease process, scientific theory, scientific controversy, or similar focus. The document should be more than a simple compilation of published studies. Rather, it should demonstrate the student's ability to analyze these studies critically and to synthesize related facts into a comprehensive overview.

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. Such an outline must be approved by the student's sponsor and at least one additional reader by December 1 prior to the anticipated May graduation. A form (*M.S. Thesis / Literature Review Committee Membership*) should be used to indicate this approval and submitted to the GSBMS office by December 1. This form is available on the GSBMS Web site: [🔗](#)

This is also the deadline for applying to graduate the following May, which may be done by downloading and filing the appropriate form from the University Registrar's site: [🔗](#)

During the semester in which the student expects to write and submit the Literature Review, it might be appropriate for the student to register for one of the Master's Independent Study courses (XXXX-9700), appropriate to the student's academic program. This course is not required, but it may be counted against the total number of credits required for the Master's degree. The course also may be used to help the students achieve full-time status in their last semester, when they may not have many didactic credit requirements remaining. Course XXXX-9700 counts as 4 credits, but the tuition charge is only that of a one-credit course. In addition, students should be aware that only one credit of XXXX-9700 may be used against the minimum degree requirement of 30 credits. Furthermore, XXXX-9700 may be taken only once.

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 the sponsor and at least one additional reader. The second reader may be a member of the Graduate Faculty or an appropriate scientific authority from outside the Graduate School or outside the College. The committee of readers shall confer and issue a consensus recommendation of approval or disapproval. Approval may be contingent upon the completion of minor corrections, edits or amendments. 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 shall also be submitted to the Dean of the Graduate School.

If there are only two members on the committee (advisor/sponsor and reader), “approval” of the literature review requires the approval of both members. If there are three or more members on the committee, “approval” requires that there be no more than one dissenting vote from the committee. Concerns regarding possible misconduct or other ethical breaches must be brought to the attention of the Dean of the Graduate School, and may affect the final decision regarding acceptability of the document.

Master’s Thesis

This may be used to fulfill a requirement of the *Plan B* track for a Master of Science degree in each 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 student should prepare, under the advisor’s guidance, a written proposal for the planned research. The proposal should provide a rationale for the work, sufficient preliminary data – either from the student’s own work or from previous work in the advisor’s lab – to show that the proposed work is feasible, and an outline of the project’s Specific Aims and proposed experimental design. When the proposal is ready, it should be presented to a thesis committee comprising the advisor and two or more additional members, at least one of whom is also a member of the Graduate Faculty. The final (third) member of the committee may either be a member of the Graduate Faculty or a scientific authority from outside the Graduate School or outside the College. The committee should approve the proposal when it is satisfied that it is a reasonable and feasible plan. 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 the thesis committee. After they have read the thesis, the committee will examine the student in a defense-of-thesis exercise. Depending upon departmental custom, this examination may use a format similar to that used for a dissertation defense, or modified in some way consistent with the more limited scope of a Master’s thesis in comparison to a doctoral dissertation. The committee may elect to hear a brief oral presentation of the work by the student before the defense. The defense shall be open to all members of the Graduate Faculty and, at the student’s option, to other members of the College community.

Based on their evaluation of the thesis and their examination of the student, the thesis committee shall confer and issue a consensus recommendation of approval, approval with distinction, or disapproval. Approval may be contingent upon the completion of minor corrections, edits or amendments. If the thesis is disapproved, the student shall be provided with a written statement of the document's shortcomings and recommendations for improvement or correction. A copy of this statement shall also be submitted to the Dean of the Graduate School. When the thesis is approved pending minor changes, the sponsor may be charged with the authority to approve the final changes on the Committee's behalf.

The student may earn and count as many as five credits towards the M.S. degree requirement for the laboratory research itself. A Master's thesis research project may be thought of as analogous to a doctoral dissertation project, but more limited in scope. As a rough rule of thumb, such projects should be able to be completed within one year.

Doctoral Dissertation

This is a major component of all of our Ph.D. and M.D./Ph.D. programs. 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 begins with the choice of a faculty mentor. The student spends significant effort early in the training program investigating the research areas and approaches found in the laboratories of the Graduate Faculty throughout the College. At an appropriate point in the training program, the student chooses a consenting mentor from among the eligible members of the Graduate Faculty – viz., those with faculty mentor status and active research programs.

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 in practice among the different doctoral programs, but the essential feature of all thesis proposals is a relatively explicit and detailed plan of action with a coherent rationale and 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 allow or require a member from outside the institution, who would serve as one of the five committee members. This external member should be an accomplished scientist with expertise

appropriate for review of the proposed work. One member of the committee shall serve as its Chair. Who assumes this role varies by custom among the departments, and may be the candidate's research mentor, the program director, or someone chosen by vote from among the membership.

In general, the Dissertation Committee should be formed within the first semester after the candidate passes the doctoral qualifying exam. A formal proposal should be presented within one year of passing the qualifying exam, or within two years of choosing a mentor (whichever occurs first). The primary purpose of the dissertation research project, from an educational perspective, is to serve as the stage upon which the candidate learns to design, conduct, and analyze a scientific research project. The function of the Dissertation Committee is to provide formative and summative assessment of the candidate's progress in this effort. **Given these two principles, there is no benefit to be gained in delaying the formation of a committee and presentation of a formal proposal until the dissertation project is largely complete. Failure to meet either of the deadlines noted earlier in this paragraph, therefore, will be taken as evidence of inadequate progress towards completion of degree requirements and may result in the Dean constituting a committee to assess why the candidate's progress is so slow. This, in turn, may lead to the student's dismissal from the program.**

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 often as is necessary, as a group or individually, to provide further advice and guidance, or to approve adjustments in the planned work – such as changes in the Specific Aims or modifications of the planned experimental designs – that are justified by the results obtained or new developments in the field. The Committee *must*, however, meet with the candidate at least annually to evaluate the candidate's progress. When the research reaches a logical end-point, the student is given permission by the mentor and/or the Dissertation Committee to prepare the written 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 or 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 or committee chair may be charged with the authority to approve the final changes on the Committee's behalf.

Role of the Advisor (Sponsor)

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 student's Graduate Program Director that he or she 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 reader(s) for the Master's Literature Review or 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 the student in establishing a research methodology for the project.
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. Advisors are strongly encouraged to set up a pre-arranged schedule, with delivery dates, for the student to achieve various benchmarks in the project or to submit various drafts and revisions of the final document.
6. Critically review and provide constructive comments on various drafts of the literature review, thesis or dissertation, and guide the preparation of the final draft. Provide guidance to the student with regard to standards of scholarship, rules of attribution, avoidance of plagiarism, and other matters of style and format.
7. Chair the meetings and deliberations of the reader/review committee or the Dissertation Committee, if the advisor is serving as chair of that committee.
8. Supervise the completion of any final revisions recommended by the readers or Dissertation Committee.
9. Be aware of the GSBMS rules regarding literature reviews, theses and dissertations, and the various deadlines that must be met for timely submission. Help the student meet these deadlines and standards.

Role of the Reader (Master's Literature Review)

1. Review the proposed topic and outline and offer constructive feedback to the student on both. When the topic and outline are satisfactory, approve the literature review plan.
2. The reader may offer constructive criticisms or advice throughout the earlier drafts of the literature if he or she is willing, but it is not required that the reader review or approve every preliminary draft. What is often helpful to the student during the development stage, however, is for the reader to review specific sections that fall within his or her particular expertise, or to discuss the relevant literature on the topic with the student.
3. Critically read the final draft of the literature review and offer constructive criticisms as appropriate. In consultation with the sponsor and other reader(s), if any, recommend approval, approval with suggested or required edits or additions, or disapproval.

Role of the Reader (Master's Thesis)

1. Review the proposed topic and outline and offer constructive feedback to the student on both. When the topic and outline are satisfactory, approve the literature review plan.
2. The reader may offer constructive criticisms or advice throughout the earlier drafts of the literature if he or she is willing, but it is not required that the reader review or approve every preliminary draft. What is often helpful to the student during the development stage, however, is for the reader to review specific sections that fall within his or her particular expertise, or to discuss the relevant literature on the topic with the student.
3. Critically read the final draft of the literature review and offer constructive criticisms as appropriate. In consultation with the sponsor and other reader(s), if any, recommend approval, approval with distinction, approval with suggested or required edits or additions, or disapproval.
4. Review the thesis proposal and provide advice and guidance to the student with regard to the proposed research. If necessary, guide the student in prioritizing among possible Specific Aims or experimental approaches in order to create a project with appropriate scope and focus.
5. Examine the student in an oral defense-of-thesis examination.

Role of the Dissertation Committee member

1. Provide advice and guidance to the candidate with regard to the proposed dissertation research project. If necessary, guide the candidate in prioritizing among possible Specific Aims in order to create a project with appropriate scope and focus.
2. Approve the dissertation research proposal, when it is satisfactory, and any subsequent modifications.
3. Authorize the candidate to proceed with writing the dissertation.
4. Critically review the written dissertation and offer suggestions for improvement, if necessary.
5. Examine the candidate in an oral defense-of-dissertation exercise.
6. If necessary and if so charged by the Dean, serve as an advisory committee to the Dean on the candidate's progress. This may involve evaluating and recommending possible remediation for slow progress towards fulfillment of degree requirements, or making a recommendation regarding the candidate's possible dismissal from the program.

In general, only members of the Graduate Faculty may serve as advisors or as readers of a Master's literature review or thesis, or a doctoral dissertation. Only members of the Graduate Faculty with mentor status may serve as research sponsors for students conducting research for either a Master's thesis (Plan B) or a doctoral dissertation. The appointment of a faculty member to the Graduate Faculty and the designation of mentor status result 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.

Scientists from outside the Graduate School or the College are allowed to participate as readers of Master's literature reviews and theses and as members of doctoral dissertation committees 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 primary advisors (sponsors) for Master's literature reviews and the research sponsors for both Master's theses and doctoral dissertations, however, **must** be members of the Graduate Faculty. Furthermore, as noted above, thesis and dissertation sponsors **must** have mentor status within the Graduate Faculty.

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

PART II. **FORMAT SPECIFICATIONS AND GUIDELINES**

1. **General Format Specifications**

a. **Paper:**

The original copy of the document must be printed on good quality white bond paper, 8½" x 11" and 16 to 20-pound weight. Corrasable or easy erasure paper and recycled paper smear easily and may not be used. For the reproduced copies of the original, good quality, 16 to 20 pound copier paper may be used. No holes should be punched in the paper in either the original or any of the copies.

b. **Print:**

Any standard typeface or font is acceptable, but it should be used throughout the document. The print must be letter quality with dark black characters that are consistently clear and dense, in order to facilitate microfilming. Either a laser or ink jet printer may be used, if the print is clear, dense and not smeared. Dot matrix printers and colored fonts are unacceptable. Twelve-point font should be used for the main text, but a 10 or 11-point font size may be used for footnotes or legends, if the print is clear and legible.

c. **Margins and line spacing:**

All pages must have a margin on the left side that is at least 1¼ and no more than 1½-inches, and 1-inch margins on all other edges (top, right and bottom). Only one side of the page should be printed upon.

All straight text should be double spaced. However, quotations, footnotes, titles, table headings, and legends should be single spaced. Bibliographic references should be single-spaced, with an extra line between each reference.

d. **Pagination:**

Page numbers should appear centered on the bottom of the page, within the 1-inch margin. Prefatory pages should use small Roman numerals (i, ii, iii, etc.). The *Title Page* is considered page i, BUT IS NOT NUMBERED. The *Signature Page* is page ii and is the first numbered page. Other prefatory pages include, in order, *Copyright*, *Acknowledgements*, *Table of Contents*, *List of Tables*, *Lists of Figures and Illustrations*, and *List of Abbreviations*, and the *Abstract*.

Text pages use Arabic numbers (1, 2, 3, etc.). The first page of the *Introduction* is considered page 1, BUT IS NOT NUMBERED. Numbering resumes with the next text page, as page 2.

Page numbering continues in sequence for the remainder of the document, with each chapter – such as *Methods*, *Results*, *Discussion*, etc. – beginning on a new page. Appendices, if included, should follow the last text chapter, with each appendix beginning on a new page, but following the pagination order in sequence. The final section of the document is the *Bibliography*. It begins on a new page, but is paginated in continuous sequence.

2. **Specific Page Formats**

a. **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 the document's content for abstracting and information services. Since titles commonly are indexed and compiled in reference databases, avoid words that serve no useful purpose. The words "Methods" and "Results" do not normally appear, nor do "A Study of..." or "An Experimental Investigation of..." which are implicit.

The *Title Page* should be the top (first) page and must follow this format:

Title of Document

Author's Full Legal Name

A (Insert A) in the Program in (Insert B)
Submitted to the Faculty of the
Graduate School of Basic Medical Sciences
in Partial Fulfillment of the Requirements
for the Degree of (Insert C)
at New York Medical College

YEAR degree will be conferred

where the various inserts use one of the following phrases:

Insert A: Literature Review / Thesis / Doctoral Dissertation

Insert B: Biochemistry and Molecular Biology
Cell Biology
Microbiology and Immunology
Experimental Pathology
Pharmacology
Physiology
Basic Medical Sciences

Insert C: Master of Science / Doctor of Philosophy

All sections must be centered horizontally. The entire page should be roughly centered vertically, with the titled and author occupying the top half of the page and the description and year placed in the lower half. (See an example of a title page in Appendix I following these instructions.)

b. **Signature page:**

Each document must have a *signature page*. The *signature page* is placed immediately behind the title page, and is numbered as page ii.

The *signature page* should contain the document's title and the author's full legal name, exactly as they appear on the title page. The signature page should also contain the names and signatures of the examining committee (a sponsor and 1 or more readers for a Master's Literature Review, a sponsor and 2 or more readers for a Master's Thesis, and a sponsor and 4 or more additional members of a PhD Dissertation Committee). It should also contain the date that the document was approved. [Please note that the date of approval (*signature page*) and the date of degree conferral (*title page*) are distinct and may not fall in the same year – e.g., if a dissertation is defended in December of 2010, with the degree conferred in 2011.] See the example in Appendix I for the required format.

The original document must contain the original signature page, with original signatures. The photocopies may contain additional originals of the signature page or photocopies of the single original.

c. **Copyright page:**

If the document is to be copyrighted (see discussion below, in paragraph #6), there should be a *copyright page* immediately following the signature page. The *copyright page* should contain the following formula, which should appear centered towards the bottom of an otherwise blank page:

© Copyright [Author's full legal name] YEAR
All Rights Reserved.

If such a page is included, it should be numbered as page iii.

d. **Acknowledgments page:**

A page of acknowledgements is not required, but offers an opportunity for the student to express thanks to people who have been helpful or supportive in any way to his or her thesis project or graduate study. It is also an opportunity to thank and give appropriate credit to collaborators, colleagues, mentors, and other individuals who may have provided research material, access to equipment or analytical tools, or other help with the research presented in the thesis or dissertation. The sources of funding for original research and, if applicable, external sources of funding for the student, such as fellowship support, should also be acknowledged here.

e. **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. See Appendix I for an example.

f. **List of Tables and /or List of Figures and Illustrations:**

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. Given modern word processing capabilities, it is greatly preferred to intersperse tables and figures throughout the text, rather than collect them in an appendix, so most theses and literature reviews will have one or both of these lists in their prefatory sections. The format for these pages should parallel that used for the Table of Contents.

g. **List of Abbreviations:**

This is an optional section that should be included if there are a large number of abbreviations and acronyms that are used repeatedly throughout the document. The items should be listed alphabetically, with the abbreviation on the left and the “definition” on the right.

Internationally accepted biochemical abbreviations such as ADP, NADH, and RNA do not need to be defined. Other frequently used abbreviations need only to be defined at first mention, even if a table is included. For commonly accepted abbreviations and symbols, authors should refer 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.

h. **Abstract:**


Each dissertation, thesis, or literature review must include an *abstract* as the last component of the document.

For dissertations and theses, the *abstract* should summarize (a) the question or hypothesis investigated in the research, (b) the procedures or methods employed, (c) the results, and (d) the conclusions and implications of the work. If the source of support for the research is not acknowledged on the *Acknowledgments page*, which is preferable, the funding support should be noted in the abstract. The text of the abstract should be no more than 775 words in length.

For literature reviews, the *abstract* should summarize the topic that was reviewed, identifying why the topic is of interest, the major themes and conclusions drawn from the review of the literature, and possible future directions for research in this area or questions that remain unanswered. The text of the abstract should be no more than 400 words in length.

The *abstract* should be the last component of the prefatory section of the document, following the *List of Abbreviations*, and preceding the *Introduction* and main text. Its pages should be numbered in small Roman numerals in sequence with the text that precedes it.

3. **References and bibliography**

Works cited in the text should be listed in the Bibliography in alphabetical order by the last name of the first author. If the works are cited in the text by number, the references should be numbered in sequence corresponding to this alphabetical order. If the works are cited in the text by the authors' names, the bibliographic list does not need to be numbered. The bibliographic citations should contain enough information to allow the reader to identify and retrieve the original source document. The AMA style manual specifies this information for journal articles, books, book chapters, and Internet sources: 

<http://www.amamanualofstyle.com/oso/private/content/jama/9780195176339/p037.html>

Basic acceptable citation formats are shown in Appendix I.

When the work is cited in the text, the number corresponding to its place in the *Bibliography* should be provided in parentheses. It is also acceptable to cite by using the authors' name(s) and publication year, – e.g., Smith, 1995; Jones and March, 2005; Crosby *et al.*, 2008. The “et al.” formula should be used when there are three or more authors. In the case of multiple entries, use suffixes appended to the year, as in Jones and March 2005a; Jones and March, 2005b. Whichever format is chosen, it must be used throughout the document.

4. **Other format specifications:**

- a. The AMA Manual of Style should be used as a reference for style, standards of attribution, nomenclature, abbreviations and other formatting issues. It may be found on-line through the NYMC Health Sciences Library site [🔗](#)

or directly at: [🔗](#)

<http://www.amamanualofstyle.com/oso/public/index.html>

5. **Chapter organization**

There is some leeway with regard to how the body of the document is organized. For dissertations and theses, the most common organization is to have the following chapters, with these or similar names:

- Introduction and Background
- Materials and Methods
- Results
- Discussion
- Bibliography

The *Introduction* includes a comprehensive review and analysis of the background literature that has led to the investigation forming the basis of the present dissertation or thesis. This section should be much more extensive than the normal introduction to a scientific journal article, and should cite most of the previous seminal work that has contributed to the field under study. This first chapter may be divided into sub-sections related to different aspects of the scientific background or using some other organizational scheme that makes sense. Usually, the *Introduction* concludes with a listing or brief description of the various *Specific Aims* on the present investigation. As an alternative approach, the specific aims and objectives of the student may be presented as a separate chapter between the *Introduction* and *Methods*. The writer's goal should be that, after reading this initial section, the reader should understand

what the student is attempting to accomplish in this research, why the question is of interest, and enough of the background science to be able to appreciate the design and rationale of the study.

A *Methods* or *Methodology* chapter includes detailed descriptions of all the methods used in the study, and the *Results* chapter should describe the results of each experiment, including appropriate graphs and tables, in some logical sequence. The *Results* chapter should include running commentary that provides some interpretation of each experiment.

The *Discussion* usually summarizes the major findings of the study, provides a critique of the technical limitations of the work, and places the work in a broader context in terms of the original specific aims, the general background of the field, and its possible future implications or suggestions for further study.

Appendices may be added after the *Discussion* and before the *Bibliography* for more detailed and extensive exposition of specific technical approaches or innovations, mathematical derivations or analytical methods, and similar topics. These are optional.

An alternative organization is to have a general *Introduction* chapter, including specific aims or followed by a separate *Specific Aims* chapter, and then a series of individual chapters corresponding, more or less, to each specific aim. Within each of these chapters, the specific methods, results, conclusions, and discussion may be organized with respect to that particular topic. If there is a great amount of common methodology used throughout the study, a separate overall *Methods* chapter might be included before the series of individual topic chapters. Again, a general *Discussion* chapter should follow to put the entire work in context.

For Literature Reviews, the “background - methods – results – conclusion and discussion” model of organization usually doesn’t work as well. In most cases, the Literature Review should at least have an *Introduction* that outlines the scope and purpose of the review, and also why the chosen topic is of interest, and a *Conclusion* that summarizes the major findings of the review, places them in broad context, and provides some insight into the possible future directions of the field. In between these two pillars, the student may divide the document into as many chapters or sections as is appropriate for the chosen topic. The division will usually depend primarily on the approach used to organize the review of the literature, and so this should be chosen in a way that helps the reader understand the body of work that is being analyzed.

6. **Length**

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

issue. As a rough guideline, Literature Reviews are usually between 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.

7. **Paper copies**

There should be one original plus at least two photocopies of each dissertation / thesis / literature review (hereafter termed the *document*). The three print copies you submit will be distributed as follows:

Original	Health Sciences Library
Copy #1	Sponsor
Copy #2	Department

a. **Optional additional paper copies**

You may submit additional copies to the GSBMS at the time you submit your original. These will be bound and returned to you. These must be accompanied by a check, payable to *New York Medical College*, for \$25 for each of these additional copies to cover the cost of binding.

8. **Electronic copy**

a. **Master's Literature Reviews**

In addition to the requisite and optional paper copies described above, you may ALSO submit a *pdf* version of your **final** approved document at the same time. The electronic version will be archived by the NYMC Health Sciences Library. You may choose to make it available to anyone who requests it, restrict access to just the NYMC community, or embargo access until a specified date. These options allow you to secure copyright or patent protection, if you wish. The document will not be released outside of NYMC unless you assure in writing that **you** have received permission to use any previously copyrighted material that might be included in your document, such as figures or tables from published articles or books.

The electronic version of your document should be in ***pdf*** format and submitted on a CD, DVD or "flash drive." The version submitted should contain all the pages of your final approved document in the same order as in your print copy, including the title page, signature page, abstract, and all the figures and tables.

You must also complete and sign the *New York Medical College Health Sciences Library Thesis/Dissertation Submission Form*. (Appendix II.)

b. Doctoral Dissertations and Master's Theses

Students submitting a doctoral dissertation or a Master's Thesis (Plan B), **must** also submit a *pdf* version of their complete document directly to Proquest/UMI *via* a special Web site. There is no obligatory fee associated with this submission. There are, however, optional services available at additional cost. These are described in a later section.

The link to Proquest/UMI can be accessed from the GSBMS Dissertation site: [🔗](#)

When the student submits the *pdf* version of the dissertation or thesis, the Graduate School administrator is notified by e-mail. When she approves the document, it will be forwarded simultaneously to Proquest/UMI and also to the NYMC Health Sciences Library. If there is a formatting problem, the student will be notified and instructed to correct it.

You have the same choices regarding access to the copy of your Dissertation or Thesis as are described above for the Master's Literature Review. You must indicate your preference in this regard by completing and signing the *New York Medical College Health Sciences Library Thesis/Dissertation Submission Form*. (Appendix II.)

9. Approval Form

Each document must be accompanied by an *approval form*. This is either (a) an *Approval of M.S. Literature Review* form (for literature reviews, Appendix II) or (b) a *Defense of Thesis Certification* (for Master's theses and doctoral dissertations, Appendix II). In either case, **this form is not part of the document, but becomes part of the student's permanent academic file**. It contains the student author's name and department, the faculty sponsor's name, the title of the document (literature review, thesis or dissertation), the names, department affiliations and signatures of the readers or members of the dissertation committee, and the signatures of the graduate program director *or* department chair, and the dean (GSBMS). The dates for a successful defense of the dissertation or thesis and acceptance of the final document are also entered on the form.

10. Publishing and microfilming

Publishing your document is a **requirement** for those writing a Master's thesis or doctoral dissertation in the Graduate School of Basic Medical Sciences. The GSBMS has made arrangements with ProQuest/UMI of Ann Arbor, MI for the

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ProQuest/UMI offers additional services. These are optional, at your choice and your expense. You may find out more information about these services from the Proquest/UMI web site, but, briefly, they are as follows:

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- Have Proquest file for copyright protection of your thesis or dissertation in your name. Some of the considerations regarding copyright protection are discussed below. The fee for this service is currently \$55.
- You may opt for “Open Access” publishing of your thesis or dissertation. This option will make the full text of your thesis or dissertation available to anyone with Internet access. This is in contrast to the regular, or “Traditional,” publication model in which your thesis is available only on a subscription database. This essentially restricts access to scholars who have privileges at university libraries or similar subscribers. Thus, the “open access” option maximizes the potential reach of your thesis or dissertation. There is a fee for this service, to underwrite the costs of hosting the work for electronic public access. Currently, the fee is \$95.

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with Proquest as disqualifying for subsequent publication of manuscripts based on that work in those journals. Publication of your thesis and dissertation with Proquest may, however, affect intellectual property rights with regard to patent applications. It is possible to delay the release of dissertations and theses to the public, with permission of the Dean. If this is an issue, legal advice should be obtained. (See section 11 below.)

Literature reviews are NOT sent to Proquest / UMI for microfilming. The consideration of copyright protection applies to these documents as well, however, and authors may want to secure copyright protection in their own name.

All copies of a thesis that are to be copyrighted should include a separate *copyright page* immediately after the *signature page*. (See section 2b.) This page should contain the following formula:

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11. Delayed publication (embargoed release)

In order to allow time for filing patent applications, submitting full-length publications to scholarly journals or other venues, or for other valid reasons, limited delays in publication of a dissertation or thesis or release of a dissertation, thesis or literature review by the Health Sciences Library may be allowed. Such requests must be made by petitioning the Dean *in writing* at least six months in advance of the anticipated graduation date. The petition must state explicitly the reason for the requested delay, the specific duration of the requested embargo, and a timeline for actions that the candidate will be taking to resolve the reason for the requested embargo. The Dean will make a ruling on the request, seeking input from the College's Office of General Counsel, Office of Research Administration, Patent Committee, and Graduate Faculty Council, as appropriate. In general, delays of six months, one year, or two years are made available by Proquest / UMI and the Health Sciences Library.

12. Submission to the GSBMS

Each copy of the document is placed in an individual large manila envelope or folder. Each envelope or folder should be labeled with the student's name and year of graduation. The folder or envelope containing the original should be indicated with the word "original." The folders or envelopes containing the photocopies should also indicate which copy number it represents and the total number of copies. Thus, the folders or envelopes should have the following information:

Student last name, Student first name
Year of graduation
Original *or* Copy x of y

N.B. If there is one original and 2 copies, $y = 3$ and $x = 2$ or 3 .

This information can be typed or written on a label or written on the folder or envelope itself. If the latter, be careful that the ink or marker used does not bleed through onto the document inside.

Appendices

I. Specific Page Formats

- 1. Title page**
- 2. Signature page**
- 3. Table of Contents**
- 4. Bibliographic citation format**

II. Forms

- 1. M.S. Thesis / Literature Review Committee Membership form**
- 2. NYMC Health Sciences Library Thesis / Dissertation Submission Form**
- 3. Approval of M.S. Literature review form**
- 4. Defense of Thesis Certification form**

**This is the Title of Your Thesis:
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Monty Vernon Gnu-York

A Literature Review in the Program in Basic Medical Sciences
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

20##
(year degree will be conferred)

**This is the Title of Your Thesis:
Use Title Case and a Large, Bold Font**

Monty Vernon Gnu-York

Charles E. Wincester III, M.D., Ph.D.
Sponsor

Margaret Houlihan, R.N., Ph.D.
Reader

Benjamin F. Pierce, M.D.
Reader

Date of approval

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Bibliographic citation format.

Style 1

Once upon a time one group reported some interesting data (2). But then some other investigators found conflicting results (1, 5). This situation caused confusion and frustration (4). Finally, some graduate students with a fresh perspective nailed it down and now we think we know why up is down and left is right (3).

References

1. **Afonina E, Neumann M, Pavlakis GN.** Preferential binding of poly(A)-binding protein 1 to an inhibitory RNA element in the human immunodeficiency virus type 1 gag mRNA. *J Biol Chem.* 1997;272:2307-2311.
2. **Gabriel G, Dauber B, Wolff T, Planz O, Klenk HD, Stech J.** The viral polymerase mediates adaptation of an avian influenza virus to a mammalian host. *Proc Natl Acad Sci USA.* 2005;102:18590-18595.
3. **Kuwahara S, Ikei A, Taguchi Y, Tabuchi Y, Fujimoto N, Obinata M, Uesugi S, Kurihara Y.** PSPC1, NONO, and SFPQ are expressed in mouse sertoli cells and may function as coregulators of androgen receptor-mediated transcription. *Biol Reprod.* 2006;75:352-359.
4. **Shav-Tal Y, Zipori D.** PSF and p54(nrb)/NonO--multi-functional nuclear proteins. *FEBS Lett.* 2002;531:109-114.
5. **Zolotukhin AS, Michalowski D, Bear J, Smulevitch SV, Traish AM, Peng R, Patton J, Shatsky IN, Felber BK.** PSF acts through the human immunodeficiency virus type 1 mRNA instability elements to regulate virus expression. *Mol Cell Biol.* 2003;23:6618-6630.

Style 2

Once upon a time, Gabriel *et al.* (2005) reported some interesting data. But then some other investigators found conflicting results (Afonina *et al.*, 1997; Zolotukhin *et al.*, 2003). This situation caused confusion and frustration (Shav-Tal and Zipori, 2002). Finally, some graduate students with a fresh perspective nailed it down and now we think we know why up is down and left is right (Kuwahara *et al.*, 2006).

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References

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- Gabriel G, Dauber B, Wolff T, Planz O, Klenk HD, Stech J.** The viral polymerase mediates adaptation of an avian influenza virus to a mammalian host. *Proc Natl Acad Sci USA*. 2005;102:18590-18595.
- Kuwahara S, Ikei A, Taguchi Y, Tabuchi Y, Fujimoto N, Obinata M, Uesugi S, Kurihara Y.** PSPC1, NONO, and SFPQ are expressed in mouse sertoli cells and may function as coregulators of androgen receptor-mediated transcription. *Biol Reprod*. 2006;75:352-359.
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Style 4

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References

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Gabriel G, Dauber B, Wolff T, Planz O, Klenk HD, Stech J. 2005. The viral polymerase mediates adaptation of an avian influenza virus to a mammalian host. *Proc Natl Acad Sci USA.* 102:18590-18595.

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Shav-Tal Y, Zipori D. 2002. PSF and p54(nrb)/NonO--multi-functional nuclear proteins. *FEBS Lett.* 531:109-114.

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- The references are listed in alphabetical order. In the first example, they are numbered. If you use names to cite the references in the text, the references may be numbered (Style 2) or numbers may be omitted (Styles 3 and 4).
- Author names are in bold font, separated by commas, with no periods after the initials except after the last name.
- Article title is in regular font.

- Journal title is in italic font, abbreviated, but with no periods except at the end of the title.
- After the journal title are listed the year – semicolon – volume – colon – inclusive pages – period.
- If you cite the references in the text by author name, you may list the year of publication immediately following the last author's name, rather than following the journal title (Style 4):

Shav-Tal Y, Zipori D. 2002. PSF and p54(nrb)/NonO--multi-functional nuclear proteins. FEBS Lett. 531:109-114.

APPENDIX II

FORMS RELATED TO PREPARATION AND SUBMISSION OF MASTER'S LITERATURE REVIEWS, MASTER'S THESIS AND DOCTORAL DISSERTATIONS IN THE GRADUATE SCHOOL OF BASIC MEDICAL SCIENCES AT NEW YORK MEDICAL COLLEGE

Rules Governing Composition of M.S. Literature Review / Thesis Committee in the Graduate School of Basic Medical Sciences of New York Medical College

1. The committee *must* comprise at least **two** qualified scientists for a literature review, and at least **three** qualified scientists for a research thesis.
2. The major advisor (sponsor) must be a member of the GSBMS Graduate Faculty (Regular or Mentor for a literature review; Mentor for a research thesis).
3. One qualified scientist from outside the Graduate Faculty or outside the university may serve as a full member of the committee.
4. The committee may include more than the minimum number of required members, including additional external scientists or NYMC faculty who are not members of the Graduate Faculty, if their inclusion is justified on scientific or educational grounds. At least half the Committee, however, *must* be on the Graduate Faculty.
5. For a literature review, the student's topic should be approved by the major advisor by November 15 for Spring graduation (or July 15 for completion in the Fall term). A detailed outline of the literature review must be approved by the entire committee by December 1 (or August 15 for Fall completion). **This form must be submitted to the Graduate School office by December 1** (the deadline to register for Spring graduation). **Students who do not meet this deadline will be removed from the graduation list.**
6. For a literature review, the sponsor and all other members of the Committee (readers) should each read the entire document. In addition, the entire Committee should discuss approval of the document as a group. The Committee should receive the document sufficiently in advance of the final deadline (April 1) so that recommended revisions can be made in time for final approval by the deadline.
7. For a research thesis, the Committee membership should approve the project or topic at an early date, in a manner similar to approval of a Ph.D. dissertation proposal. The Committee should be kept apprised of the project's progress.
8. For a research-based thesis, the Committee should examine the candidate as a group, in addition to reading the thesis. A format similar to that used in a doctoral dissertation defense is appropriate. A public defense is optional, but not required. The Committee should receive the document sufficiently in advance of the final deadline (April 1) so that such an oral examination can be held and recommended revisions can be made in time for final approval before the deadline.
9. Approval requires that there be no more than one dissenting vote from the committee. For a literature review with one sponsor and one reader, approval must be unanimous. Concerns regarding possible misconduct or other ethical breaches must be brought to the attention of the Dean of the Graduate School.

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GRADUATE SCHOOL OF BASIC MEDICAL SCIENCES
NEW YORK MEDICAL COLLEGE

DEFENSE OF THESIS CERTIFICATION

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Last First Middle

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NAME	TITLE AND DEPARTMENT	SIGNATURE

VERIFICATION:

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Graduate Program Director OR Chairperson Date