Literature Reviews and Theses Preparation Guidelines: Unabridged Version

Formatting Guide for Writing Literature Reviews/ Master's Research Thesis/ Doctoral Dissertations

TABLE OF CONTENTS

Part I. General Principles and Rules 3
1. Purpose of the Master's Literature Review, Thesis, or Doctoral Dissertation 3
2. Types of "Theses" 3
a. Master's Literature Review 3
b. Master's Thesis 4
c. Doctoral Dissertation 5
3. Role of Advisors 7
a. Role of the Master's literature review or thesis or Dissertation Advisors 7
b. Role of the Reader (Master's Literature Review) 8
c. Role of the Committee Members (Master's Thesis) 8
d. Role of the Dissertation Committee member 9
e. Additional Comments 9
f. Role of Program Directors: Master's student enrolled in Tracks A, B, C 10
Part II. Format Specifications And Guidelines 10
1. General Format Specifications 10
a. Font 10
b. Margins and line spacing 10
c. Pagination 10
2. Specific Page Formats 12
a. Title Page 12
b. Signature page 12

c. Copyright page 13
d. Acknowledgment page 13
e. Table of Contents 13
f. List of Tables and /or List of Figures and Illustrations 14
g. List of Abbreviations 14
h. Abstract 14
3. Chapter organization 15
a. Introduction 15
b. Tables, Figures, Illustrations 15
c. Methods 16
d. Results 16
e. Discussion 16
f. Appendices 16
g. Additional Comments 16
4. References/ bibliography and how to cite within the text 17
a. Reference list 17
b. How to cite within the text 18
5. Length 18
Part III. Submissions to the Graduate School of Biomedical Sciences 19
1. Submission Deadline Requirements 19
2. PDF Version of Final Approved Document 19
3. Turnitin Reports 19
4. Approval Form 20
5. Health Sciences Library Thesis Permission Form (Master's Thesis and Doctoral Dissertation only); Procedures for Required Submission to Touro Scholar 21
6. Thesis and Dissertation Binding 21
Appendices 23
I. Specific Page Formats 23

PART I. GENERAL PRINCIPLES AND RULES

1. Purpose of the Master's Literature Review, Thesis, or Doctoral Dissertation

Each of these undertakings provides graduate students an opportunity to demonstrate their analytical ability and comprehensive understanding of a subject. These documents allow each student to explore and analyze a problem relevant to the discipline of the student's graduate degree. They provide the student an opportunity to demonstrate achievement of the educational objectives of the Graduate School of Biomedical Sciences (GSBMS) 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 students to develop and demonstrate skills relevant to original laboratory research.

2. Types of "Theses"

In the GSBMS, 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 Research Thesis (hereafter referred to as 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 of the documents, however, are uniform for all these cases, with only some slight differences among the three types.

a. Master's Literature Review

Master's Literature Review may be used to fulfill a requirement for Master's students enrolled in either *Track A* or *Track C* of a Master's program offered by the GSBMS. 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 a faculty advisor, the student should define a suitable topic and, after conducting a little background research, create a brief proposal outline that will help act as a guide. The outline must be approved by the

student's advisor (a member of the GSBMS faculty) and at least one additional reader by the appropriate date indicated in the most recent version of the policy titled "Graduation Requirements and Deadlines". A form (*Master's Thesis / Literature Review Committee Membership*) should be used to indicate this approval and submitted to the GSBMS office as indicated in this policy. This form is available on the GSBMS website (Appendix II).

Students must also meet the deadline for applying to graduate; the deadline date will be indicated on the University Registrar's website. Similarly, the online application for graduation is available on the TOURO Portal.

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 non-didactic 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. Furthermore, XXXX-9700 may be taken only once.

The student should continue to consult frequently with their 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 advisor and at least one additional reader. The second reader must be a member of the NYMC College community. 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.

If there are only two members on the committee (advisor 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 GSBMS and may affect the final decision regarding acceptability of the document.

b. Master's Thesis

A Master's thesis is required for students who enter *Track B* of a Master's program. This option may also be used to fulfill a requirement for Master's students enrolled in either Track A or Track C of a Master's program in place of a Master's Literature Review. 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 their research and be their advisor. The student and the advisor 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 (committee 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 GSBMS 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.

Depending upon departmental/program requirements, the committee may opt to examine the student in a defense-of-thesis exercise, which may be 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. Depending on the department's procedure, the defense may be open to all members of the Graduate Faculty and 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, 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. When the thesis is approved pending minor changes, the advisor may be charged with the authority to approve the final changes on the Committee's behalf.

A student in Track B is not eligible to register for XXXX- 9700 as discussed above. A student in Track B may earn and count as many as five credits towards the Master of Science 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.

c. Doctoral Dissertation

This is a major component of all Doctoral programs, including Integrated or Advanced Standing 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, Dissertation Advisor. 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 Dissertation Advisor from among the eligible members of the Graduate Faculty – viz., those with faculty mentor status and active research programs.

The student and Dissertation Advisor 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 endpoint. This proposal is presented to a formal Dissertation Committee for their advice and approval.

The Dissertation Advisory Committee is selected jointly by the doctoral candidate and Dissertation Advisor within the first semester after the candidate passes the doctoral qualifying exam. The Dissertation Advisory Committee should consist of 4 to 5 graduate NYMC faculty members from different programs/departments who are selected based on their scientific expertise, which must be relevant to the student's dissertation project, rather than department/program affiliation. If needed, one external member who is not a part of NYMC or GSBMS faculty can be a member of the Dissertation Committee upon approval of the Dissertation Advisor and the Program Director. 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. The Dissertation Advisor cannot be a voting member of the committee to avoid any potential conflict of interest. Please, refer to the PhD Advisory Committee Policy for more detail.

After the Dissertation Advisory Committee has approved the proposal, the student conducts the planned research under the guidance of the Dissertation Advisor. The Dissertation Advisory 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 biannually to evaluate the candidate's progress. When the research reaches a logical endpoint, 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 Advisory Committee in advance of a public Defense of the Dissertation. The appropriate deadlines for scheduling Defense and submission of Dissertation are indicated in the most recent version of the policy titled "Graduation Requirements and Deadlines".

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 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.

3. Role of Advisors

a. Role of the Master's literature review or thesis or Dissertation Advisors

The advisor of a Master's literature review or thesis, or a doctoral dissertation must be a member of the Graduate Faculty. Only members of the Graduate Faculty with mentor status may serve as research sponsors for students conducting research for either a Master's thesis (Track B plan) or a doctoral dissertation. The advisor for the Master's Literature Review, Master'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 they have agreed to serve as the student's advisor.

2. Help the student select and develop a literature review or research topic.

3. Assist the student in selecting 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 GSBMS.

4. Guide the student in establishing a research methodology for the project (Master's Thesis and Doctoral Dissertation).

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. Critically review documents prior to submission to the GSBMS to assure compliance to GSBMS rules regarding formatting issues presented in this document.

8. Supervise the completion of any final revisions recommended by the readers, Dissertation Committee, or Academic Standards 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.

b. 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 their 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.

c. Role of the Committee Members (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 Master's thesis plan.

2. Review the thesis proposal and provide advice and guidance to the student with regards to the proposed research. If necessary, help guide the student in prioritizing among possible Specific Aims or experimental approaches in order to create a project with appropriate scope and focus.

3. The committee members may offer constructive criticisms or advice throughout the student's research and may give advice throughout earlier drafts of the thesis if they are 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 their particular expertise, or to discuss the relevant literature on the topic with the student.

4. Critically read the final draft of the Master's thesis and offer constructive criticisms as

appropriate. In consultation with the advisor and other committee member(s), recommend approval, approval with distinction, approval with suggested or required edits or additions, or disapproval.

5. Depending on the requirement of the student's program, examine the student in an oral defense-of-thesis examination.

d. Role of the Dissertation Committee member

1. Provide advice and guidance to the candidate with regards to the proposed dissertation research project. If necessary, guide the candidate in prioritizing among possible Specific Aims 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.

e. Additional Comments

Scientists from outside the GSBMS or the College can participate as additional readers of Master's literature reviews (1 reader must be a member of the college community) 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 for Master's literature reviews and the research advisors 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 GSBMS.

f. Role of Program Directors: Master's student enrolled in Tracks A, B, C

1. To help guide students towards potential advisors.

2. To assist the student in selecting other members of the Master's Literature Review or thesis committee.

3. To assure that students adhere to deadlines for submission of forms and documents.

4. To assure all advisors are aware of current GSBMS rules regarding literature reviews, theses and dissertations.

5. 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.

PART II. FORMAT SPECIFICATIONS AND GUIDELINES

1. General Format Specifications

a. Font

Times New Roman (12 pt), Calibri (12 pt), Arial (11 pt), or Helvetica (12 pt). Selected font should be used consistently, throughout the whole document.

b. 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 space between each reference.

c. 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.). Prefatory pages include, in order:

- The Title Page is considered page i, BUT IS NOT NUMBERED.

- The Signature Page is page ii and is the first numbered page. Should have signatures of all of the members of the Master's Literature Review / Research Thesis Committee or Dissertation Committee
- Copyright (optional)
- Acknowledgements (optional)
- Table of Contents
- List of Tables
- Lists of Figures and Illustrations
- List of Abbreviations
- 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.

Order of Text pages for Master's thesis or Doctoral Dissertation:

- Introduction and Background
- Methods
- Results
- Discussion
- Appendix (optional)
- References or Bibliography

Order of Text pages for Master's literature review:

- Introduction
- Subsections
- Conclusion
- Appendix (optional)
- References or Bibliography

2. Specific Page Formats

a. Title Page

The title should be a concise summary of the literature review or 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 (see Appendix I):

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 Biomedical 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: Basic Medical Sciences
Biochemistry and Molecular Biology Cell Biology
Clinical Laboratory Sciences
Microbiology and Immunology
Pathology
Pharmacology
Physiology

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 after 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 (an advisor and 1 or more readers for a Master's Literature Review, an advisor and 2 or committee members for a Master's Thesis, and an Dissertation advisor and 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 2020, with the degree conferred in 2021]. See the example in Appendix I for the required format.

The submitted document must contain the signature page, with signatures.

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. Acknowledgment 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. See Appendix I for an example.

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

A List of Tables and/or List of Figures should follow the Table of Contents and conform to the same style. Both, list of Tables and/or List of Figures, can be paced on the same page. Be sure that the title used to introduce each table or figure are also indicated in the List of Tables/Figures. The rest of the figure legends (other than the title) should not be included in the List of Figures and Illustrations. The format for these Lists should be the same as that used for the Table of Contents. Include page numbers to indicate the page where each figure and table are found.

g. List of Abbreviations

This section should be included if abbreviations and acronyms are used repeatedly throughout the document. The items should be listed alphabetically, with the abbreviation on the left and the "definition" on the right. **Reserve the use of abbreviations only if you use an abbreviated term more than twice.** When only planning on using an abbreviation once or twice, simply write out the term. Within the text, an abbreviation should be introduced the first time the phrase is used and should be defined. Avoid using abbreviations in the abstract. All abbreviations used in a figure or table should be defined in the legend, regardless of whether it was previously defined in the text. When referring to proteins, use all CAPS for the protein name, not in italics. For mRNA and genes, the name is spelled in *italics*.

All abbreviations, including internationally accepted biochemical abbreviations, should be defined.

h. Abstract

Each dissertation, thesis, or literature review must include an abstract as the last component of the prefatory section 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. The text of the abstract should be no more than 775 words in length. No citations are allowed in the abstract. Avoid using abbreviations.

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. Chapter organization

There is some leeway about 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/References

a. Introduction

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.

b. Tables, Figures, Illustrations

Tables, Figures, Illustrations should be referred to within the text of specific sections. Do not simply include figures or tables without linking them to specific sections in the document. Intersperse tables and figures throughout the text; do not place them in an appendix. Figures and Tables should be numbered consecutively and embedded in the text portion of the document near where they are first mentioned, not at the end. Figures and tables should be legible. Only panels of figures that are referred to in the text should be included.

Figure legends should be typed out using the same font used throughout the text. Line spacing being single spaced. Use same format to cite figures and tables as done within the text; citations should be included in the Reference list/Bibliography. If one did not receive permission to used figures or tables, cite as 'Figure taken from…'. If legends are not original, cite as 'Figure and Legend taken from…' and place the figure legend in quotes. If the figure or legend is modified by the student, then the citation should read "Modified from…".

c. Methods

Methods or Methodology chapter includes detailed descriptions of all the methods used in the study, including materials and instruments, procedures and data analysis. This section should also clearly indicate where the experiments were conducted, in case part of the study was carried out outside of NYMC. Data analysis should include a description of the statistical approach used for each general category of data.

d. Results

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 statistical test used to reach a conclusion should accompany the data presentation, either in the text or in the legend.

e. Discussion

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.

f. Appendices

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.

g. Additional Comments

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 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, there should be an Introduction that outlines the scope and purpose of the review and a rationale 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.

4. References/ bibliography and how to cite within the text

a. Reference list

Works cited in the text should be listed in the References/Bibliography in alphabetical order by the last name of the first author. Do not number each reference. If two or more citations begin with the same last name, the order is then determined by the alphabetical order of the last name of the second author, etc. If two or more citations begin with the same last name, the order is then determined by the date; the earliest first. If these citations were published in the same year, identify them as 'a' or 'b' [example, Smith AA. (2003a). How to cite articles. *Chironian* 15: 4-8.].

1. Include all authors' names in the reference list.

2. Use only initials of each author's given names; no spaces or periods between initials.

3. Year of publication should follow authors' names without a period in between; the year should be placed in parentheses.

4. Title of the article should follow the published year

5. Title of the journal should follow the title of the article.

6. With respect to a journal article, include volume number and full-page numbers. If the article is published in an electronic journal, follow the citation with a doi number. Do not include the doi number for articles with complete page numbers.

7. Book citations must include the publisher's name and location.

8. End with a period

9. Online sources should be kept to a minimum and used only if they are credible sources (to be discussed with your advisor). If online citations are used, include the web-address and the date accessed. Recognize that many online sources are not archivable, making it difficult for someone reading your review in years to come assess the validity of your comments. If used, monographs from online sources should be included as an appendix, which is placed prior to the reference list.

10. Use the following examples to cite from specific sources:

    - **Published article with page numbers**

    Cuesta R, Gritsenko MA, Petyuk VA, Shukla AK, Tsai CF, Liu T, McDermott JE, Holz MK (2019). Phosphoproteome Analysis Reveals Estrogen-ER Pathway as a Modulator of mTOR Activity Via DEPTOR. *Mol Cell Proteomics*. 18:1607-1618.

- **Published articles – e journals**

Berman AY, Manna S, Schwartz NS, Katz YE, Sun Y, Behrmann CA, Yu JJ, Plas DR, Alayev A, Holz MK (2017). ERRα Regulates the Growth of Triple-Negative Breast Cancer Cells via S6K1-Dependent Mechanism. *Signal Transduct Target Ther.* 2, e17035. DOI: 10.1038/sigtrans.2017.35.

- **Book citations**

Hsieh T-C and Wu JM (2018). Unraveling and Trailblazing Cardioprotection by Resveratrol. In JM Wu & T-C Hsieh (Eds), Resveratrol: State-of-the-Art Science and Health Applications (pp 1-28). Hackensack, NJ: World Scientific Publishing Co.

- **Online source**

American College of Cardiology/American Heart Association (2019). 2019 ACC/AHA Guideline on the primary prevention of cardiovascular disease. Retrieved from http://www.onlinejacc.org/sites/default/files/additional_assets/guidelines/Prevention-Guidelines-Made-Simple.pdf (accessed 18 February 2022)

b. How to cite within the text

The work in the text should be cited in parentheses 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 italicized and used when there are three or more authors. If two or more citations begin with the same last name, the order is then determined by the date; the earliest first. In the case of multiple entries, use suffixes appended to the year, as in (Jones and March 2005a; Jones and March, 2005b). When citing multiple authors in text, citations should be listed in alphabetical order.

You should only cite literature/resources that you read. If you are referring to a study that is discussed within another published document (i.e., citing indirect sources/ secondary sources), you can cite in one of two ways: (Fried as cited in Etlinger, 2000; or cited in Etlinger, 2000). The use of secondary sources is useful if the original article is not available or is not written in English. In this case, only the secondary source is listed in the reference list. Please use secondary sources sparingly. Works cited in the text should be listed in the Bibliography in alphabetical order by the last name of the first author.

Review articles should be used only as a primary source when the conclusions of the review article is being used for the citation. If data from the review article is being cited, the primary source (see above) should be used.

5. 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. The length requirements refer to the written text of the document, which includes figures or tables, but not references and prefatory pages. As a rough guideline:

- Literature Reviews are usually between 30 and 100 pages
- Master's Theses are usually 40-100 pages.
- Doctoral dissertations are usually 80-250 pages long

PART III. SUBMISSIONS TO THE GRADUATE SCHOOL OF BIOMEDICAL SCIENCES

1. Submission Deadline Requirements

On the submission deadline indicated in the most recent version of the policy titled "Graduation Requirements and Deadlines", the following documents must be submitted (in separate pdf files) by email to the designated members of the GSBMS administrative staff:

- PDF of Literature Review, Thesis or Dissertation, final approved version with all committee signatures on signature page
- Turnitin plagiarism check report
- Appropriate approval form:
  - Master's Literature Review Approval Form
  - Defense of Thesis Certification Form (for Master's Thesis or Doctoral Dissertation)
- Health Sciences Library Thesis Permission Form (Master's Thesis or Doctoral Dissertation only)

2. PDF Version of Final Approved Document

All students must submit their literature reviews, theses and dissertations in a *pdf* version of the *final* approved document, which includes all committee signatures on the signature page. This must be sent to the designated members of the GSBMS administrative staff by the stated thesis submission deadline.

3. Turnitin Reports

All literature reviews, Master's theses, and Doctoral dissertations must be submitted to Turnitin prior to submission of the approved document. "Similarity Reports provide a summary of matching or highly similar text found in a submitted paper. When a Similarity Report is available for viewing, a similarity score percentage will be made available." https://help.turnitin.com/feedback-studio/turnitin-website/student/the-similarity-report/interpreting-the-similarity-report.htm

TITLE		SIMILARITY
Submission	No matching text	0%
Submission	One word to 24% matching text	1-24%
Submission	25-49% matching text	25-49%
Submission	50-74% matching text	50-74%
Submission	75-100% matching text	75-100%

https://help.turnitin.com/feedback-studio/turnitin-website/student/the-similarity-report/interpreting-the-similarity-report.htm

It is important to stress that the originality report is not checking for plagiarism per se; a high similarity score may be simply a reflection that there are too many quotations or too much cutting and pasting. A Turnitin report may be a helpful guide throughout the process. It is useful for the committee to assess whether the literature review/thesis is an acceptable academic document. It also will be evaluated by the academic standards committee.

The reports should be submitted to the GSBMS with your final version. All students have access to Turnitin on Student Resources on Canvas. Please make sure you submit your document to Turnitin without the Reference/Bibliography list.

4. Approval Form

Each document must be accompanied by an *approval form.* This is either (a) an *Approval of Master's Literature Review* form or (b) a *Defense of Thesis Certification* . These forms are located on the GSBMS section of the NYMC website, under Academics/Guidelines for Theses and Dissertations:
https://www.nymc.edu/graduate-school-of-basic-medical-sciences-gsbms/gsbms-academics/guidelines-for-theses-and-dissertations/

These forms can be also found on the GSBMS section of the NYMC website, under Policies/Forms:
https://www.nymc.edu/graduate-school-of-basic-medical-sciences-gsbms/policies/

In either case, this form must be submitted as a separate pdf file and 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.

5. Health Sciences Library Thesis Permission Form (Master's Thesis and Doctoral Dissertation only); Procedures for Required Submission to Touro Scholar

It is a requirement of the GSBMS and the Health Sciences Library that each student who submits Master's research thesis or Doctoral dissertation must submit a pdf of their final, approved, thesis or dissertation to Touro Scholar, NYMC's open access, institutional repository.

Students who submit their thesis or dissertation to the GSBMS, should also complete the *HSL Thesis/Dissertation Permission Form*. On this form, the student may choose to (a) make their document available to anyone who requests it, (b) restrict access to just the NYMC community, or (c) embargo access until a specified date. These options allow the student to secure copyright or patent protection, if needed. All students who display previously copyrighted work must obtain appropriate permissions when uploading to Touro Scholar. This includes permissions to use any previously copyrighted material that might be included in the document, such as figures or tables from published articles or books. Please contact the Health Sciences Library with questions regarding the procedure for acquiring permission to use previously copyrighted material.

This HSL Thesis/Dissertation Permission Form must be signed by both the student and the advisor. This form gives the following options:

Access:
Full-text open access (available to the public) or
Full-text access available only to New York Medical College and Touro Constituents

Theses and Dissertations must have obtained and attached all necessary written permissions from the owners of copyrighted matter to be included in the thesis or dissertation. Theses and Dissertations can be made accessible by either option.

Optional embargo period: The GSBMS allows an embargo period of up to 12 months for a thesis or dissertation.

Here is the link to the HSL Thesis/ Dissertation Permission Form (to be used for all documents, theses and dissertations:
bit.ly/thesis-permission

Here is the link to the procedures for uploading your document to Touro Scholar:
https://guides.library.nymc.edu/c.php?g=1205546&p=8816588#s-lg-box-27956886

1. **You will first need to create an account on Touro Scholar.**
2. **You will then need to upload your thesis and the Thesis Permission Form as separate pdf files.**

6. Thesis and Dissertation Binding

The GSBMS will arrange for the binding of each Master's Thesis and Doctoral Dissertation. Master's Literature Reviews are no longer bound. Please note that students can arrange to

have their literature reviews bound on their own, through outside services, such as Staples.

Three copies of each Thesis or Dissertation will be bound, at no charge to the student. These will be distributed as follows:

- Advisor
- Departmental Office
- One personal copy for the student
- Optional: If a student requests additional personal copies to be bound, they must request these from the GSBMS office and pay the appropriate binding fee (currently $50 per copy).

APPENDICES

I. Specific Page Formats

1. **Title page**
2. **Signature page**
3. **Table of Contents**

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

Monty Vernon Gnu-York

A Literature Review in the Program in Basic Medical Sciences
Submitted to the Faculty of the
Graduate School of Biomedical 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.
Advisor

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

_____
Benjamin F. Pierce, M.D.
Reader

_____
Date of approval

Table of Contents

Signature page ii
Acknowledgements iii
Table of Contents iv
List of Tables vi
List of Figures and Illustrations vii
Abbreviations x
Abstract x
I. Introduction 1
1. Central question 1
2. Scientific background 2
3. Previous work characterizing the diabetic mouse model 29
II. Specific Aims 34
III. Materials and Methods 37
1. Transgenic mice models 37
2. Surgical preparations 38
3. Metabolic and chemical assays 39
4. Receptor binding assays 41
5. Experimental protocols 42
6. Statistical methods 46
IV. Results 47
1. Characterization of the transgenic mice 47
2. Effects of exercise 49
3. Effects of statins on the exercise response 52