Instructions for Formatting your Thesis or Dissertation for Submission
to the College of Natural Sciences and Mathematics

REVISIONS WERE MADE TO THIS DOCUMENT IN APRIL 2015

A Master's or Ph.D. student who is prepared to submit a thesis or dissertation to the university should receive approval from the College of Natural Sciences and Mathematics. Your thesis or dissertation (also referred to as the "manuscript") should be submitted to the Dean's Office only after you and your committee members have carefully reviewed it to ensure that it is in complete compliance with the requirements stated in this document. Remember, your manuscript will be at some point publically available via the Texas Digital Library. Therefore, make sure that the product reflects well on you, your advisor and committee, and this university. Treat it as though it becomes a part of your resume on which your future depends.

Please consult the document called "Procedures for Submission of Theses and Dissertations" for information on the submission process to the College and to the Texas Digital Library.

ORDER OF PAGES
The manuscript must include the following required items in the order listed; no other order is acceptable. Only items in italics are optional.

Examples of the following pages are given at the end of this document. For items 2, 3, and 5 below, the format must be as shown in the examples.

1. Only for bound copies: A blank sheet of paper should be at the beginning (no page number shown and no page number assigned)

2. Title Page - Must show the month and year of your graduation. Only three months are acceptable: December for Fall graduation, May for Spring graduation, or August for Summer graduation. (Be sure and follow the format in sample 1 - no page number should be printed, but page i is assigned.)

3. Signature Page - At least one original must have the original signatures of the committee, the student, and the Dean of the College, preferentially in black ink. (Follow the format in sample 2 – note page ii is printed)

4. Acknowledgements, Preface, or Foreword [Optional (Sample 3)]

5. Abstract Title Page - Must show the month and year of commencement for your graduation. Only three months are acceptable: December for Fall graduation, May for Spring graduation, or August for Summer graduation. (Follow the format in sample 4)

6. Abstract – There should be only one abstract that summarizes the whole thesis/dissertation. The abstract must be double spaced and no longer than 350 words. (Sample 5). There should not be additional abstracts at the beginning of individual chapters.

7. Table of Contents – May be single spaced. All entries should match exactly the corresponding headings and subheadings in the manuscript. The page number listed for each entry must be correct. (Sample 6)
8. Lists (Figures, Tables, Schemes, Acronyms, Abbreviations, etc.) - Optional. Be consistent in your format. Page numbers must be included for lists of figures and tables; otherwise, they are of no benefit to the reader. Note: all figures, tables, etc. must be incorporated in the text, and not put at the end of the manuscript.

9. Text of Manuscript – Must be double spaced. The first page of the text should show the lower-case Arabic numeral 1. The manuscript's format must be consistent throughout the complete work.

10. Appendices – Supplemental information (e.g. extensive data tables, detailed methods, ancillary proofs) may be placed either before or after the references.

11. References or Bibliography – May be single spaced. Be consistent in your bibliographic format. Putting references at the end of the thesis/dissertation is preferred; however you may put references at the end of each section/chapter as an alternative.

12. Only for bound copies – A blank sheet of paper should be at the end of each copy submitted.

MARGINS
The following minimum margins are required:
- Left: 1.5 inch
- Right: 1 inch
- Top: 1 inch
- Bottom: 1 inch to the base of the page numbers. The text must be at least 1.25 inch from the bottom edge of the page.

All text, captions, and figures (including charts, graphs, maps, tables, and photographs) must be inside these margins. There are no exceptions.

Theses and dissertations with incorrect margins will be immediately rejected by NSM and will have to be resubmitted.

TITLING YOUR THESIS OR DISSERTATION
Your manuscript will be a valuable source for other scholars only if it can be located easily. Retrieval systems use the words in the title (and sometimes a few other descriptive words) to locate your manuscript. It is essential that the title be a meaningful description of the content of your research.

PREPARING THE ABSTRACT
An abstract should be a short version of the thesis or dissertation. All NSM theses and dissertations must have an abstract that contains no more than 350 words. It should contain the following: (1) statement of the problem, (2) procedures and methods, (3) results, and (4) conclusions But, the abstract should include only the most important things that can fit into these 350 words. That usually means talking more about the conclusions than the methods. A brief introduction of the problem may be necessary but it is important to get to the conclusions in short order. An abstract is not an advertisement or tease. As such, it should not have statements such as, “this work made several measurements, which allowed the formation of some important conclusions.” A sentence like that does no telling; the reader should not have to go elsewhere in the thesis to learn what measurements were made and what conclusions were formed. Statements about the work that is being abstracted should be clear and contain as much detail and precision as can be fit into 350 words. Landes (1951, Am. Assoc. Petrol. Geol. Bull., v.50, no. 9, page 1992) provides an excellent discussion of what should and should not be in a scientific abstract.

Mathematical formulas, diagrams, and other illustrative materials should not be included in the abstract. An abstract should be double-spaced and printed on one side of the paper only.
TEXT OF THE THESIS OR DISSERTATION

Previously published content
If you have previously published parts of your thesis or dissertation in scientific articles, you must indicate this in your document and give the reference(s). For example, you may cite your paper(s) on the front page of the relevant chapter(s) or at the beginning of the relevant section(s).

Style
A standard guideline is to prepare your manuscript following accepted requirements by any one of the leading American journals in your field, and apply that format consistently throughout the thesis or dissertation. Do not change formats between chapters or sections! Your advisor and research committee should help you arrive at an acceptable presentation.

Spacing: The abstract, acknowledgments, and main body of the manuscript must be double-spaced. The captions must be single spaced. The table of contents and the references may be single-spaced. If individual references are single spaced, you should double space between references.

Font: Make sure that the font size is legible. We recommend that you use the following typefaces used by NSF for formatting grant proposals, which are:

- Arial, Courier New, or Palatino Linotype at a font size of 10 points or larger;
- Times New Roman at a font size of 11 points or larger; or
- Computer Modern family of fonts at a font size of 11 points or larger.

Headings: Decide how you wish to structure your manuscript and be consistent throughout it. For example, if you use BOLD CAPITAL LETTERS for major headings, CAPITAL LETTERS for subheadings, and Normal Type for Sub-subheadings, be consistent throughout the manuscript. If you change font type or size for different headings, be consistent. Make certain that your table of contents agrees with the manuscript concerning page numbers and exact titles of headings.

Avoid sections that begin on the last line of a page or sections that end on the first line of a page.

Grammar: Edit your manuscript for proper English sentence structure, grammatical correctness, correct punctuation, spelling, and consistency. Consistency here means the following. If you hyphenate a word, join two words to make a new word, italicize a foreign word, or otherwise use language peculiar to your discipline, be consistent throughout the manuscript. Use a Spell Checker but do not rely solely on it. There is no substitute for careful editing. Have a colleague read your manuscript for clarity and correctness. Manuscripts with a large number of errors in the first few pages will be returned without further reading. Remember--your thesis or dissertation will become part of the public domain. Make sure that the product reflects well on you, your department, your advisor and committee, and this university. Treat it as though it becomes part of your resume on which your future depends.

Charts, Graphs, Tables, Photographs, Figures, and Captions
All figures, charts, tables, graphs, and tables must fit within the prescribed margins, and should be placed within the body of the manuscript and not at the end. If they are in color, they must be submitted as such to NSM, and not as black and white copies.

Captions: Captions should be single-spaced and complete enough to be self-contained (i.e. the reader should not have to go into the main text to understand the figure). If it is necessary to place a caption on a separate page to meet the margin requirements, turn the caption to face the figure and reverse the margins on the caption. By presenting the figure and caption this way, the reader sees
both at the same time. If the figure or caption is in landscape mode (rather than portrait), the bottom should be on the right (outside) edge of the page; however the margins remain the same and the page number remains at the bottom, as with all other pages.

**Numbering:** The style of numbering figures and tables should be consistent throughout the manuscript. Numbers can be consecutively numbered from beginning to end of the manuscript, or by chapter. If by chapter, however, there can be no duplicated figure numbers in the manuscript. For example, figure 1.1 can be for first figure in first chapter, figure 2.1 for first figure in chapter 2, etc. A similar numbering format should be used for tables. Figures in **appendices** should also have captions and numbers (e.g. figure A.1, A.2, or A1.1, A2.1)

**Lettering and Labels:** Graphs should have axis labels, including units. Scale bars should be provided, as appropriate. Maps should have scales and a north arrow. All lettering must be legible: letters should be at least 1 mm tall in the printed form. Be aware that figures obtained from other sources or screen shots may have been reduced such that the lettering is no longer legible. In this case, the lettering should be eliminated or the figure relabeled.

**Source:** If a figure or diagram is obtained from another source, that source must be cited in the caption and appear in the reference list.

**Oversize Pages**
Occasionally, charts, tables, maps, graphs, photographs, or figures that are larger than the standard page might have to be used in your thesis/dissertation. If so, they should be saved as a separate document for uploading. If you are binding copies of your thesis or dissertation, then the preferred method is to place the oversize pages in a pocket in the back of the document after it is bound. You may also have a fold-out page within the text; however remember to leave a space for binding when folded.

**NUMBERING THE PAGES**
Each page in the manuscript, beginning with the title page, must be assigned a number. Do not write the word “page” in front of the number. The following plan of page numbering is required:

1. Use lower case Roman numerals (i, ii, iii, iv, etc.) for the preliminaries (Title Page through Table of Contents, List of Figures, and List of Tables, if included). The title page is assigned page number i, but the number is not shown on the page. The printed numbering begins with ii on the signature page. All page numerals must be placed at the center bottom, with a one-inch margin measured from the bottom of the page number.

2. Use lower case Arabic numerals (1, 2, 3, 4, etc.) for the remainder of the manuscript, including the text, illustrations, appendices, and bibliography. Each page must be numbered consecutively. Avoid the use of letter suffixes, such as 10a or 10b. The numbering begins with page 1 on the first page of the text and runs consecutively to the end of the manuscript. All page numbers are placed at the center bottom, with a one-inch margin to the bottom of the page number.

3. If the description of an illustration or a caption for a figure is too long to be placed on the same page, it should be placed on the previous page. If you are binding your thesis or dissertation, make sure to turn the page such that the description is facing and is the same orientation as the figure or illustration. **Remember that facing pages must be numbered and have the margins reversed. Do not print any page double sided.**

4. When binding a manuscript, one volume cannot contain more than 400 pages. If your manuscript exceeds 400 pages, you should choose a suitable place to separate it into multiple volumes. Each volume should contain a title page duplicating the title page of the first volume. You should identify
them further as Volume I, II, etc. In any case, the page numbering may follow consecutively from one volume to another, or begin with Arabic number 1 at each new title page.

STYLE, REFERENCES, AND BIBLIOGRAPHY
As a rule, the format and style of presentation should conform to acceptable standards of scientific and scholarly writing in the discipline. At the minimum, the following information should be given:

- For journal articles: author(s), title of the journal, volume number, inclusive pages, year of publication;
- For books: author(s) or editor(s), title of the book, publisher, year of publication;
- For articles or chapter in book, authors of article, editors and title of book, publisher, year of publication;
- For conference proceedings: author(s), title of proceedings (may include location), volume number and inclusive pages (if available), and date of publication.

For the instance in which these rules are an inadequate guide, consult a recent edition of *The Chicago Manual of Style*, University of Chicago Press or *A Manual for Writers of Term Papers, Theses, and Dissertations* (7th edition) by Kate L. Turabian, University of Chicago Press. The latter is an abbreviated version of The Chicago Manual of Style. You may purchase it from the University of Houston Bookstore. *A Manual for Writers of Term Papers, Theses, and Dissertations* is the guide the college thesis and dissertation reader uses to resolve questions of grammar, punctuation, and usage.

You may choose headline or sentence style for titles in the references, but be consistent in your style. In headline style titles, all first letters are capitalized except for articles (a, an, and the) and prepositions of fewer than five letters. Prepositions with five or more letters may be capitalized. With hyphenated words, generally only the first word is hyphenated. In sentence style titles, only the first word of the title and proper nouns are capitalized. If journal abbreviations are used, make sure to use the same abbreviations consistently every time the journal name appears in the reference list.

Be sure and check that all references cited in the text are in the bibliography, and all references in the bibliography are cited in the text.

AVOIDING COMMON ERRORS
The page numbers given in the items below refer to *A Manual for Writers of Term Papers, Theses, and Dissertations* (7th edition) by Kate L. Turabian, University of Chicago Press.

- In a series consisting of three or more words, phrases, or clauses, separate the elements with commas.  
  Example: The elements included hydrogen, oxygen, and silicon. (See p.298, section 21.2.2, regarding commas in a series.)

- In headline-style capitalization (often used in titles, table of contents, and bibliographies), do not capitalize the second part (or subsequent parts) of a hyphenated compound unless it is a proper noun or adjective.  
  Examples: Self-regulated Genes; Genes that are Self Regulated; A Twenty-first-century History of Science; Helmholtz-Gibbs Equation (See p.314, section 22.3.1, for rules headline-style capitalization.)

- Use a semicolon between the clauses of compound sentences that are joined by conjunctive adverbs such as therefore, hence, however, nevertheless, accordingly, thus, and then. The semicolon precedes the adverb, and a comma usually follows it.  
  Example: The temperature was much lower than we anticipated; therefore, we did not go outside to work. (See p.301, section 21.3, for uses of the semicolon.)
• A comma should follow the words *namely, that is, for example, i.e., and e.g.* There must also be a punctuation mark before each of these expressions, but the kind depends on the nature and complexity of the sentence.
  Examples: a) The farmer brought several kinds of animals, namely, pigs, horses, and cows, into the classroom.
              b) The temperature in some areas of the world normally exceeds 100 F; for example, the average daytime temperature in Death Valley is 102 F. (See p. 300, section 21.2.4, for uses of the comma.)

• A verb should agree with its subject in person and number.
  Example: The employer of engineers and scientists has to be careful about hiring practices. (The word employer is a singular subject and requires the singular verb has. Do not confuse the subject with one of its modifiers.)

• A reference using *et al.* is correctly written as Brady *et al.*, not Brady, *et al.* or Brady *et. al.*

• If you punctuate mathematical or chemical equations (e.g. follow with a comma or period), punctuate them all and do it correctly. If equations are numbered, do so consistently.

• The word *data* is plural and requires a plural verb.
  Example: The data were inconclusive.

• An item in the list of figures need not contain the full figure caption, but the portion that is included should be accurate and representative of the content.

• If you hyphenate a word, be consistent throughout the manuscript.

• Do not confuse *whose* with *who’s* or *its* with *it’s*.

• The word *respectively* is set off with commas, or with a comma and a period, if it comes at the end of a sentence.

• On the signature page, the title of the college is Natural Sciences and Mathematics, not Natural Science and Mathematics.

**EXAMPLES OF PAGES**
Examples of the pages that precede the text in the thesis or dissertation follow. A brief description of the contents of the page appears at the top on [ ]. Each sample page represents an individual page.
[ONLY FOR BOUND COPIES: Blank sheet of paper at the beginning (no page number shown and no page number assigned)]
DEVELOPMENT OF A RADIOIMMUNOASSAY FOR THE DETECTION AND QUANTIFICATION OF IMMUNE COMPLEXES IN CANINE SERA BY A SOLID PHASE Clq BINDING ASSAY

A Dissertation (Thesis) Presented to

the Faculty of the Department of Biology

University of Houston

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy (Master of Science)

By

Betty Sharon Brown

December 1979
DEVELOPMENT OF A RADIOIMMUNOASSAY FOR THE DETECTION AND QUANTIFICATION
OF IMMUNE COMPLEXES IN CANINE SERA BY A SOLID PHASE C1q BINDING ASSAY

Betty Sharon Brown

APPROVED:

Dr. John Evans, Chairman

Dr. David S. Terman, Co-Chairman
Baylor College of Medicine

Dr. Alan Dudkiewicz

Dr. Peter Jurtshuk

Dr. John F. Oro

Dean, College of Natural Sciences and Mathematics
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DEVELOPMENT OF A RADIOIMMUNOASSAY FOR THE DETECTION AND QUANTIFICATION
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ABSTRACT

*Staphylococcus aureas* Cowan 1 strain (SAC) contains a cell wall protein that has an affinity for immune complexes and the IgG of most mammalian species. Dogs with spontaneous mammary adenocarcinoma whose plasma was perfused over immobilized SAC developed a potent, apparently humorally mediated tumoricidal response within hours after the perfusion. This response was accompanied by changes in the humoral concentrations of immune complexes, IgG, and tumor-specific antibodies. SAC efficiently removed the complexes from the plasma during the first 5-6 minutes of the perfusion, but as the perfusion continued, the concentration of complexes in the plasma immediately leaving the SAC filter equaled or exceeded the pre-perfusion values. Following the perfusion, the in vivo quantities of circulating immune complexes were elevated, the total serum IgG concentrations were depressed temporarily but rapidly rebounded to greater than pre-perfusion values, and the levels of tumor-specific antibodies became increased and remained elevated for varying periods of time. For these studies, a solid phase of Clq binding assay was shown to be reliable and reproducible in the quantification of canine immune complexes. This assay may also be useful in the identification of dogs with tumors that are amenable to the extra corporeal SAC perfusion treatment.
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