

Guidelines for the preparation of a thesis

Department of Biochemistry

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IMPORTANT: Before beginning to write a thesis, students MUST consult the guidelines provided by the College of Graduate Studies and Research for comments and suggestions on style and form http://www.usask.ca/cgsr/for_students/etd.php. There are several subsections to this page including: **General Form and Style**, **Arrangement of Contents**, and **Specific Formatting Issues**. There are also instructions and guidelines for electronic submission of your thesis.

Furthermore, the Department of Biochemistry has clear guidelines for thesis preparation. These guidelines must be followed and are listed below. Most or all of these are consistent with CGSR guidelines.

The main point to keep in mind for thesis preparation is consistency of form and style throughout the thesis. Because form and style differ from department to department and from discipline to discipline, this document is intended to provide Biochemistry graduate students with guidelines on certain aspects of the thesis. This should provide clear instructions to students in preparing their theses, and result in more uniformity in theses submitted to the department. The College of Graduate Studies also requires that theses be submitted electronically. Information on the requirements for this can be obtained at http://www.usask.ca/cgsr/for_students/etd.php. It is recommended that you do not use the templates found at this site as student experience has indicated they can be frustrating to use.

Specific aspects of thesis preparation, style and form are commented on below. For those aspects not covered, students can assume that the College of Graduate Studies and Research guidelines cover it adequately. It is also recommended that you look at bound theses that can be found in the departmental office.

1. General formatting

- The body of the thesis should be 1.5 line spaced, with the exception of footnotes and long quotations, which must be single spaced. Quotations which are single-spaced should be indented and not enclosed in quotation marks. The references, figure legends, and other items such as appendices should be single spaced.
- The normal body text should be 12 pt size using Times New Roman font.
- The body of the thesis should be left- and right-hand justified.
- As per accepted English writing rules, two spaces are to be used after a period at the end of a sentence before the next sentence is started. The "two-space

after a period" rule should be generally applied throughout the thesis, in titles, figure legends, references, etc.

- Margins must be 2.5 cm, except for the left-hand margin, which should be 2.8 cm. Margin regulations must be met on all pages of the thesis including pages with figures, tables, and illustrations.
- The maximum length of the abstract is 350 words.
- Latin terms such as *in vivo* and *et al.* must be italicized. Please note that in "*et al.*", there is always a period after "*al.*". Restriction enzymes are also italicized, but only the name, not the number e.g. *EcoRI*
- Use a capital "L" for abbreviations milliliter (mL), microliter (μ L), etc. Always leave a space between the value and unit of measurement e.g. 10 mM, not 10mM.
- When describing centrifugations, give the centrifugal force (X g) rather than rpm.
- Data should be discussed in the Results section in the order in which they are presented i.e. data in Fig. 4.1 should be discussed before the data in Fig. 4.2.
- Figures and tables should be placed in the thesis immediately proceeding the first mention of them in the thesis. For example, if data from Fig. 4.3 is described on page 95, the figure itself should appear on page 96.
- Figure and table legends should provide sufficient information so that the data in the figure/table can be understood by the reader without having to refer to other parts of the thesis. Legends should describe the experimental design, but not the technique used. Legends should not be used to comment on or describe the data.
- Figures often do not copy well from the original; be sure that all copies of the thesis distributed to members of the examining committee are of good quality.
- For tables, the title and legend should appear above the table. For figures, the title and legend appear below the figure.
- Do not leave gaps on pages, unless it is at the end of a chapter. Figures and tables, if small, can be put on the same page as text at either the top or bottom of the page.
- Abbreviations and acronyms are generally overused, and can make the readability of a thesis extremely cumbersome. Here are some guidelines:

- Abbreviations of units of measurement and of physical and chemical quantities should be those defined by the International System of Units, listed on the webpage <http://www.jbc.org/misc/itoa.TI.shtml>. Note - all of the abbreviations at this site can be used without definition.
- The list of abbreviations only needs to include non-standard abbreviations. Thus, abbreviations like ATP, hr, min, mL, mg, single letter designation for amino acids, etc. do not need to be placed in the list. Rule of thumb; if you are in doubt about whether an abbreviation is non-standard, ask your supervisor. Generally, however, if you have any doubt, it's likely non-standard and therefore should be included in the list.
- Avoid abbreviating single words, instead limit their use to multiple word names. Example - don't abbreviate chlorophyll (Chl), but abbreviating bovine serum albumin to BSA is acceptable.
- Generally, only use an abbreviation if that word has been used more than 10 times throughout the thesis.
- For non-standard abbreviations, spell out the entire word the first time it is used in the thesis, followed by the abbreviation in brackets.
- Avoid the use of abbreviations in the abstract

- Listing of chemicals, materials - the source of common chemicals, reagents, or materials do not have to specifically listed. Examples would be Tris, SDS, NaCl, EthBr, polyacrylamide, restriction enzymes, nucleotides, etc. Specialty or uncommon reagents should be listed in a Table, providing the name of the supplier and their address (Mississauga, ON; street name and postal code is not necessary).

2. Bibliography and citations

The style and formatting to be used for both citing references in the text and generating the bibliography is generally that adopted by the journal *Molecular Cell*. However, since some inconsistencies have been noted in this journal, the following specific features are provided below:

- When citing references in the text, single author citations should be written as: (Smith, 1994); for two authors: (Smith and Johnson, 1994); for three or more authors: (Smith *et al.*, 1994) (Note the italics). When two or more citations are being simultaneously referred to, the order of citation should be by the year, with the earlier reference listed first e.g. (Smith, 1974; Johnson, 1983) and a semi-colon separating each citation. If there are two citations from the same year, they should be listed alphabetically. If there are two citations that are identical except for the year, they should be written as: (Smith *et al.*, 1988, 1992).

- For a list of Journal abbreviations, go the website:
http://www.efm.leeds.ac.uk/~mark/ISlabbr/J_abrvjt.html

- References should be listed in the bibliography in alphabetical order of the authors. If the authors for two different references are identical, then they should be listed by the year. If there are two references in the bibliography that will result in an identical citation within the text, they must be given an "a" and "b" designation. In the rare event that a reference has an extraordinarily large (e.g. 20 or more) number of authors, such as those that report genome or chromosomal sequencing, the reference should list the first three authors, followed by *et al.*

Example:

Wilson, J.E., Smith, B.B., and Johnson, E.J. (1990a). Gluconeogenesis for dummies. *J. Biol. Chem.* 270, 1220-1230.

Wilson, B.O., Webb, E.J., and Bondi, H.I. (1990b). Glycolysis: who cares? *J. Biol. Chem.* 269, 3333-3339.

Note - both of these would be cited in the text as (Wilson *et al.*, 1990) unless they were given the a and b designation. Thus, the citation in the text will be (Wilson *et al.*, 1990a) and (Wilson *et al.*, 1990b), allowing them to be distinguished.

Other examples of references:

Journal article

Suri, V., Lanjuin, A., and Rosbash, M. (1999). TIMELESS-dependent positive and negative autoregulation in the *Drosophila* circadian clock. *EMBO J.* 18, 675-686.

Book chapter

Dix, D.B., Thomas, L.K., and Thompson, R.C. (1990). Codon choice and gene expression: synonymous codons differ in translational efficiency and translational accuracy. In *The Ribosome. Structure, Function and Evolution*, W.E. Hill *et al.*, eds. (Washington, DC: American Society for Microbiology), pp. 527-533.

- If you are using a reference manager, you still have to check and proofread the bibliography that is generated, and the formatting of your citations in the text. The style of the references, and their accuracy, is only as good as what was originally downloaded into your reference manager, and sometimes the information that was downloaded is incomplete. References and citations, like the rest of the thesis, must be proofread!

Finally, before submitting the thesis, be sure that all citations in the text appear in the list of references, and that all references listed are actually cited in the text. We are finding that because of editing and multiple rounds of revision, that there are errors in referencing and citations. Checking them is tedious, but necessary.

3. On the copyright line at the bottom of the title page, they are to include the month and year that they were signed off to go to the bindery.
It should appear as:

© John Smith, October 2004. All rights reserved.

4. When you submit your thesis to the advisory committee for review and approval, please provide a paper copy, single-sided printing.