

Thesis (BMS 580) Formatting Guidelines for Hood College BMS Students*

Organization of the Thesis Document**

The first page of your document is the title page (see sample, page 6). Following this page, the document is organized in two parts: (1) preliminary pages and (2) main body text. Each part contains primary section headings, on separate pages. These headings are centered using uppercase, bold, letters.

Primary Section Headings for Preliminary Pages

- Statement of Use and Copyright (see sample, page 7)
- Dedication (optional page)
- Acknowledgements
- Table of Contents (see sample, page 8)
- Abstract (150 words maximum)
- List of Tables (with first sentence of legend, see sample, page 9)
- List of Figures (with first sentence of legend, see sample, page 10)
- List of Abbreviations (optional page) (see sample, page 11)

Primary Section Headings for Main Body

- Introduction
- Materials and Methods
- Results
- Discussion
- References
- Appendix (optional section)

Basic Settings for Word Processor

- Font type: Times New Roman
- Font size: 12 point (exception, 11 point for page numbering)
- Line Space: Double
- Margins: 1.50 inches left margin, 1.00 inch other three sides
- Justification: Full (exception, References section is left justified)

*Adapted from resources available from the Association of Biology Laboratory Education, Bates College (Department of Biology), and Union College (Department of Biology).

**Consult the BMS 580 “word template” for additional details on organization and formatting requirements. This template is available from the BMS program director and the Graduate School website.

Page Numbering

All numbers are located at the bottom (footer) center of each page using an 11-point font. Preliminary pages are numbered using lower-case Roman numerals. The title page (cover sheet) is counted as page “i” but is not numbered. The main body pages are numbered in Arabic numerals. The first page of the “Introduction” is counted as “1” but is not numbered.

Section Headings

Use no more than three levels of organization: primary headings as described above (centered, uppercase, bold letters), secondary headings (left-hand margin, bold, first letter of each word is uppercase), and tertiary headings (left-hand margin, italics, first letter of each word is uppercase). It is not necessary to have secondary or tertiary headings unless the complexity of the text requires this.

Paragraphs

- Indent the first line of each paragraph 0.50 inches.
- Do not add a space between paragraphs.
- Italicize all Latin words (*et al.*), including scientific names (*Escherichia coli*).
- Do not begin sentences with acronyms or abbreviations (“Human immunodeficiency virus is associated with...” not “HIV is associated with...;” “*Escherichia coli* is used to express...,” not “*E. coli* is used to express...”).
- Hyphenate compounds used as adjectives (130-kDa protein, 10-ml pipette, antibody-based treatments).
- Leave two spaces after the “period” that ends sentences and only one space after colons, semicolons, commas, and other internal punctuation marks.
- If quotation marks are used (note: not a common practice), periods and commas should be placed within closing quotation marks.

Numbers

- Use decimals rather than fractions, except in equations. Decimals not preceded by a whole number should always be preceded by a zero (0.78).
- Use numerals for numbers greater than nine except when starting a sentence (associated abbreviation should be spelled out as well: “Eleven grams was added to the buffer...,” but “After the addition of 11 g to the buffer...”).
- Spell out numbers one through nine except when used with units of measure or time (“6 mm,” “4 years” but “five students,” “eight observations”), or in a series that includes at least one number greater than nine (“1 syringe,” “3 beakers,” and “35 test tubes.” Use commas in numbers of four digits or more (1,000) except in catalog numbers.

Tables and Figures

You have the option to incorporate tables and figures immediately after the first paragraph they are mentioned. Alternatively, you may place tables and figures on a separate page. In all cases, center the table or figure within the page. Tables and figures are numbered consecutively (Arabic numerals) and the numbering is independent (start at Table 1 and Figure 1, etc.).

Table legends are single spaced and are centered at the top of the table. Figure legends are single spaced and centered at the bottom of the figure. In the majority of cases, legends are composed of two or three sentences that summarize and explain the contents of the table or figure. Each legend should be composed of:

- A title sentence – summarizes the results presented in the table or figure, and when possible, should include the variables investigated and the organism studied (for example, “The effects of ethanol and caffeine on the heartrate *Daphnia magna*.” Note: it is not acceptable to simply restate the axis labels with a “versus” between the variables.
- Additional sentence(s) – includes further explanatory information, like descriptions of samples used for gel electrophoresis, culture conditions (temperature, media, etc.), sample sizes, and descriptive statistics (where applicable).

The information displayed in tables and figures should not be smaller than a 10-point font nor greater than a 12-point font. See pages 12 and 13, for a sample table and figure, respectively.

References

There are two components for this section, the proper way to cite a reference in the text and the format for the final list of references (your bibliography). You are required to follow the “name-year system” and to employ the Council of Science Editors (CSE) format.

Common examples for citing references in the text:

- If the author’s name is part of the sentence, use the form “Bagni (2002)” and “(Bagni 2002)” if it is not.
- For more than two authors, use the form “Chakiath *et al.* (2009);” however, include all author names in the actual reference listed in your bibliography.
- List multiple citations in alphabetical order; for example, “(Boyd 2002; Pace-Templeton *et al.* 1997; Rossio 2009).”
- If you cite two works by the same author, use the form “(Laufer 1998, 2003).”
- If you cite two works by the same author in the same year, use the form “(Hirschhorn 2001a, 2001b).”

The website <http://library.osu.edu/help/research-strategies/cite-references/cse#Books> provides multiple examples for the CSE formatting of journal articles, books, and internet references. In addition, the following website is a resource to find journal abbreviations: http://images.webofknowledge.com/WOK46/help/WOS/A_abrvjt.html.

Common examples for the list of references:

- Journal Article

Chakiath C, Lyons MJ, Kozak RE, Laufer CS. 2009. Thermal stabilization of *Erwinia chrysanthemi* pectin methylesterase A for application in a sugar beet pulp biorefinery. *Appl Env Microbiol* 75(33):7343-7349.

- Journal Article - Internet

Tripp S, London T, Spend DT. 2005. Greeting the protein. *J Growth* [Internet]. [revised 2006 Dec 1; cited 2007 Feb 20]; 10(9):2022-2030. Available from: <http://www.growth.com/2005109/tripp.htm>.

- Book

Becker WM, Kleinsmith LJ, Hardin J, Bertoni GP. 2009. *The World of the Cell*. 7th ed. San Francisco (CA): Pearson Benjamin Cummings.

- Book - Internet

Rollin, BE. 1998. *Structure and Function of Nucleic Acids* [Internet]. Ames (IA): The Iowa State University Press; [cited 2007 Aug 27]. Available from: <http://www.netlibrary.com>.

- Part of Book

Becker WM, Kleinsmith LJ, Hardin J, Bertoni GP. 2009. *The World of the Cell*. 7th ed. San Francisco (CA): Pearson Benjamin Cummings. Chapter 4, Cells and organelles; p. 75-105.

- Contribution to a Book

Boyd A, Glaser R. 1987. Mapping EBV early antigens in human cells after microinjection of subgenomic DNA clones. In: Levine P, Glaser R, editors. *Epstein-Barr and Human Diseases*. Clifton (NJ): Humana Press. p. 145-149.

Document Printing and Title Page Signatures

Two copies of the thesis document are required to be submitted by the student to the graduate school by the due date published on the Hood College academic calendar. The minimum paper requirement is a 20-pound bond, 25% rag or cotton-content paper with a “bright white” color and watermark. The first copy is for the Hood College Library, the second copy is for the Department of Biology. Title pages for both of these copies must bear original signatures (in black, ball-point ink) of the adviser, committee members, program director, and dean of the graduate school. Additional copies can be made at the discretion of the student.

Common Symbols and Abbreviations

These symbols and abbreviations are used without spelling the complete term:

Term	Symbol or Abbreviation
alpha	α
amperes	A
base pair	bp
beta	β
centimeter	cm
dalton	Dal
days	d
degrees Celsius	$^{\circ}\text{C}$
degrees of freedom	df
deoxyribonucleic acid	DNA
<i>et alii</i> (and others)	<i>et al.</i>
figure	Fig.
gram	g
greater than	>
hour	h or hr
kilobase	kb
kilobase pair	kbp
kilodalton	kDal
kilogram	kg
less than	<
liter	l or L
maximum	max
meter	m
micromolar	μM
microgram	μg

Term	Symbol or Abbreviation
microliter	μl or μL
milliliter	ml or mL
millimeter	mm
millimolar	mM
minimum	min
minutes	min
molar	M
mole	mol
month	mo
nanogram	ng
nanometer	nm
nanomolar	nM
optical density	OD
parts per thousand	ppt
percent	%
prime	'
ribonucleic acid	RNA
seconds	s or sec
species (plural)	spp.
species (singular)	sp.
standard deviation	SD
standard error	SE
volts	V
volume	vol

Sample for Title Page

**THIS IS THE BOLD, CAPITALIZED, AND DOUBLE-SPACED TITLE OF A
THESIS TOPIC I HAVE INVESTIGATED**

by

Iam A. Hoodgradstudent

B.A. (Hood College) 2004

THESIS

Submitted in partial satisfaction of the requirements

for the degree of

MASTER OF SCIENCE

in

BIOMEDICAL SCIENCE

in the

GRADUATE SCHOOL

of

HOOD COLLEGE

March 2010

Accepted:

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Sample Page for Copyright Waiver (note: choose one option for your document)

STATEMENT OF USE AND COPYRIGHT WAIVER

I authorize Hood College to lend this thesis, or reproductions of it, in total or part, at the request of other institutions or individuals for the purpose of scholarly research.

or

I do not authorize Hood College to lend this thesis, or reproductions of it, in total or part, at the request of other institutions or individuals for the purpose of scholarly research.

Sample Page for Table of Contents**TABLE OF CONTENTS**

	Page
ABSTRACT	vi
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ABBREVIATIONS	ix
INTRODUCTION	1
Literature Review	1
Study Rationale	15
Objectives	19
MATERIALS AND METHODS	22
Objective I	25
Objective II	28
Data Analysis	32
RESULTS	35
Objective I	35
Objective II	48
DISCUSSION	60
Conclusion	74
Future Work	78
REFERENCES	85
APPENDIX	96

Sample Page for List of Tables**LIST OF TABLES**

Table		Page
1	Summary of gene and primer information used for qPCR to validate the microarray analysis.	7
2	Groupings of viruses based on insect vector transmission.	10
3	Summary of data analysis plan.	12
4	Mean ages of study participants by gender and hormone treatment.	15
5	Results of <i>t</i> -test analysis comparing the effects of caffeine and ethanol on the heartrate of <i>Daphnia magna</i> .	23

Sample Page for List of Figures**LIST OF FIGURES**

Figure		Page
1	The effects of glucose and maltose on fermentation by <i>Saccharomyces cerevisiae</i> .	6
2	Strategy for conducting site-directed mutagenesis of plasmid clone pHOOD-GFP.	9
3	Flow chart for purification of GFP using hydrophobic interaction chromatography.	12
4	Electron micrograph of baculovirus type A.	15
5	SDS-PAGE analysis of proteins expressed by larvae of <i>Trichoplusia ni</i> .	23

Sample Page for List of Abbreviations**LIST OF ABBREVIATIONS**

AMV	avian myeloblastosis virus
BSA	bovine serum albumin
cDNA	complementary DNA
EDTA	ethylenediamine tetraacetic acid
ELISA	enzyme-linked immunosorbent assay
GFP	green fluorescent protein
MHC II	major histocompatibility complex class II
PAGE	polyacrylamide gel electrophoresis
PCR	polymerase chain reaction
PME	pectin methylesterase
qPCR	quantitative polymerase chain reaction
SDS	sodium dodecyl sulphate
T _m	melting temperature

Sample Table

Table 1. Summary of gene and primer information used for qPCR to validate the microarray analysis.

Gene	Function	Forward Primer	Reverse Primer
<i>Actb</i>	Regulation of actin cytoskeleton	CTGTGTGGATTGGTGGC TTCT	AGAAAGGGGTGTAAAACGC AGTT
<i>Gapdh</i>	Glycolysis	GGATACTGAGAGACAAG AGGAGACG	GAGGTATTCGAGAGAGA AGGGAGG
<i>Cdt</i>	DNA replication	TTAAGCTTCCCTGTCT GCATCA	TCCAGAGTTACGTCCCCT ATAGC
<i>Slc39a10</i>	Metal ion transporter	CTACACCGGTACCATA GCTGC	ACGTCTTACACGTCCTG CACC

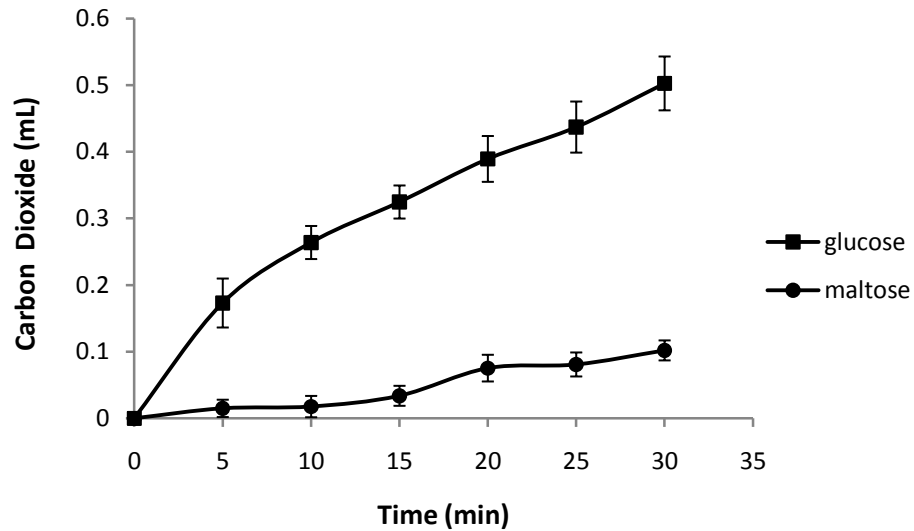
Sample Figure

Figure 1. The effects of glucose and maltose on fermentation by *Saccharomyces cerevisiae*. The volume (mL) of carbon dioxide gas produced by fermentation was measured at 5-minute intervals using a respirometer as described in Materials and Methods. The mean production of carbon dioxide gas (± 1 standard deviation) was based on four samples.