

BIOLOGY THESIS GUIDELINES AND TEMPLATE

Texas A&M University-Commerce Department of Biological and Environmental Sciences

General

The following guidelines are to be followed by all Masters students in the Department of Biological and Environmental Sciences (BESC). While other guidelines may be used, adherence to these guidelines will ensure that the thesis conforms to standards appropriate to the biological and environmental sciences and that are acceptable to the Graduate School and Thesis and Dissertation Services (TDS). Students should contact their research advisors if they have any questions.

Proposal

All students writing a thesis must submit a thesis proposal to the Graduate School at least one semester prior to graduation. This proposal, to be completed in consultation with the major advisor, must be approved by all members of the thesis committee, the Head of the Department of BESC, the Dean of the College of Science and Engineering, and the Dean of the Graduate School. To submit a proposal packet to the Graduate School/TDS for review and approval, complete the digital Thesis Proposal Packet form, upload the required documents, and submit the form. The thesis proposal form and instructions for what documents are required to upload are available on the TDS/Thesis web page: www.tamuc.edu/thesis

Human Subjects Protection

In preparing your thesis proposal, you should be aware that any research that involves human subjects must be in compliance with A&M-Commerce Rule 15.99.01.R1, “Human Subjects Protection.” A copy of that policy is available here:

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesProcedures/15ResearchPrograms/15.99.01.R1.pdf>

If you have questions concerning compliance, contact your major advisor or Chair of the Institutional Review Board (IRB).

Care and Treatment of Animals Used in Research

All students using live animals in their research must have an approved protocol on file with the Institutional Animal Care and Use Committee (IACUC) prior to starting their research. Students must be aware of and agree to comply with all local, state, and federal regulations. Students must be aware that the Department of BESC adheres to the guidelines set forth in the National Institutes of Health’s publication number 92-23, “Guide for the Care and Use of Laboratory Animals” and follows A&M-Commerce Rule 15.99.07.R1, “Use of Vertebrate Animals.” A copy of the rule is available here:

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesProcedures/15ResearchPrograms/15.99.07.R1.pdf>

Failure to ensure adequate care and minimization of suffering to research animals will result in immediate termination of that research. Questions about compliance should be addressed to the major advisor.

Use of Biohazardous Agents

All students using biohazardous agents in their research must have an approved protocol on file with the Institutional Biosafety Committee (IBC) prior to starting their research. Students must be aware of and agree to comply with all local, state, and federal regulations. Students must be aware that the Department of BESC adheres to the A&M-Commerce Rule 15.99.06.R1, "Use of Biohazards in Research Teaching and Testing." A copy of the rule is available here:

<https://inside.tamuc.edu/aboutus/policiesproceduresstandardsstatements/rulesProcedures/15ResearchPrograms/15.99.06.R1.pdf>

Questions about compliance should be addressed to the major advisor.

Preparation of Thesis

- Text of the document must be 12-point, Times New Roman, and double-spaced throughout, including the contents of tables.
- Major headings should be centered and in all capital letters. Do not bold major headings
- Each chapter begins on a new page.
- Subheadings are left justified and only the first letter is capitalized. All subheadings headings should be in bold font.
- Do not add extra spaces between paragraphs or after major or minor headings.
- Top, bottom, and right and left margins should be 1 inch. The only exception is the first page of the Abstract section, which has a top margin of 2.5 inches.
- All pages must be numbered at the top right corner of the page (in the header).
 - Page numbers are placed in the header in the upper right corner of the page, ½ inch from the top edge of the page and 1 inch from the right edge of the page.
 - The Title Page and the Signature Page have no page numbers.
 - The pages following the Signature Page begin with Roman numeral page number "iii." This style of page numbering is continued through the List of Figures (lower case Roman numerals iii, iv, v, vi, etc.).
 - Pages in the main body of the thesis (Introduction, Materials and Methods, Results, Discussion, Literature Cited, Appendices, Vita) should be numbered using Arabic numerals (1, 2, etc.), also positioned in the upper right corner of the page (in the header).

Organization of Sections

Follow the Biology template and, for more detailed instructions, refer to the Graduate School's [Thesis and Dissertation Formatting Guide](#).

The order of the complete thesis is as follows:

1. Title Page
2. Signature Page
3. Copyright Page (if copyrighting)

4. Abstract
5. Acknowledgments (optional)
6. Table of Contents
7. List of Tables (if applicable)
8. List of Figures (if applicable)
9. Body of document
10. Literature Cited
11. Appendices (if applicable)
12. Vita

Preliminary Pages:

TITLE PAGE

Follow the template and guidelines.

SIGNATURE PAGE

Follow the template and guidelines.

COPYRIGHT PAGE (optional)

Follow the template and guidelines.

ABSTRACT

Follow the template and guidelines.

ACKNOWLEDGMENTS

Follow the template and guidelines.

TABLE OF CONTENTS

Follow the template and guidelines.

LIST OF TABLES

Follow the template and guidelines.

LIST OF FIGURES

Follow the template and guidelines.

Body of Manuscript:

INTRODUCTION

Arabic page numbers (e.g. 1, 2, 3, etc.) are now used for page numbers, starting with 1. The page numbers continue and are numbered consecutively for the balance of the document. Page numbers are placed in the header in the upper right corner of the page, ½ inch from the top edge of the page and 1 inch from the right edge of the page. The first page of the manuscript should begin with page 1.

The major heading, INTRODUCTION, is centered at the top of the page in all capital letters. Normally, the introduction begins with a literature review. This should lead into a description of the purpose or objectives for the current study, significance, and the hypotheses to be tested.

Common names for organisms may be used, but the Latin name (genus and species) must be specified at their first mention. Latin names must be in italics. Use standard scientific abbreviations for units of measure. Do not use footnotes in the body of the thesis. Do not use direct quotes.

MATERIALS AND METHODS

This chapter has the heading, MATERIALS AND METHODS and is centered at the top of a new page. This section should describe all of the methods used to collect and analyze the data. Enough detail must be provided that anyone reading the methods should be able to replicate the study. Describe any apparatus that was used and provide figures as appropriate. Describe what was measured and how it was measured. For field studies there should be a description of the study areas used. For lab studies, the source of materials must be identified. Be sure to identify the make and model number of important pieces of equipment and the suppliers of critical reagents.

RESULTS

This chapter has the heading, RESULTS and is centered at the top of a new page. This section should describe the results of the study. For most projects, the data are presented as figures and tables. The text of the results section should describe the important trends and/or features shown by the figures and tables. **Do not simply reiterate all the details of the table or figure.** Provide statistical analyses whenever appropriate.

DISCUSSION

The last chapter of the document has the heading DISCUSSION and is centered at the top of a new page. This section describes the implications of the results relative to the existing literature. Provide interpretation of the results and support these statements with corroborative evidence from current literature. The final paragraphs should provide a brief summary of the study and possible future directions for research.

LITERATURE CITED

The section for LITERATURE CITED starts on a new page with the heading centered and is in upper case letters. The literature cited must be in alphabetical order and modeled after that used by a prominent biological journal using author surname alphabetized citation lists (e.g. Ecology).

FORMATTING OF THE BODY OF THE MANUSCRIPT

Major Headings:

The following are considered “major headings” in the document:

- TITLE of the thesis on the Title Page
- TITLE of the thesis on the Signature Page
- Headings ABSTRACT, ACKNOWLEDGMENTS, TABLE OF CONTENTS, LIST OF FIGURES, LIST OF TABLES
- CHAPTER HEADINGS
- LITERATURE CITED
- APPENDICES cover page and each APPENDIX title page
- VITA

The rules for major headings are:

- Headings are centered at the top of a new page, in ALL CAPITAL letters, and one inch from the top of the page
- Do not bold major headings.
- Major headings over one line are double-spaced between the lines with each line shorter than the one above it.
- The font must be the same size as the body text.
- Major headings may not be in italic type unless it is a Latin term.
- Do not use punctuation after a major heading.
- All major headings must be formatted consistently.

Note that the chapter headings are made up of INTRODUCTION, MATERIALS AND METHODS, RESULTS, and DISCUSSION. These form the body of the thesis.

Subheadings:

Subheadings should be used to organize your document. Please adhere to the following guidelines for formatting subheadings

- Subheadings are left justified and only the first letter is capitalized.
- Use the same font size for all subheadings.
- The style used for subheadings must clearly show their various subordination levels.
- Do not add extra spacing before and after subheadings.
- Subheadings and subsections do not begin on a new page.
- Subheadings near the bottom of a page must be followed by at least two lines of text.

Figures and Tables:

Color is acceptable in figures, but black and white is preferred for line and bar graphs. The minimum size for letters and numbers is 7-point type, but fonts equal to or larger than 11 point are preferred with the exception of footnotes. All lettering must be of publishable quality; this requirement includes scanned images. Images must be clear and without blurred or dark areas.

All figures and tables in the RESULTS section are placed on a separate page from the text and accompanied by an appropriate figure caption or table title. Figures and tables are placed in the thesis **on the page with or immediately following their first mention in the text of the thesis.**

Figure captions always go below the figure; they do not have to be double-spaced. Note that all drawings, figures, graphs, maps, etc. are labeled Figure 1, Figure 2, etc. and referred to as Figure 1, Figure 2, etc. in the text. **DO NOT** use any other terminology (e.g., Graph 1, Map 1, Chart 1, Picture 1, Drawing 1, etc.). Figures should be quality graphic images. Graphs must be computer generated and of at least 300 dpi density.

Tables are numbered as Table 1, Table 2, etc., and include a table title. The table number and table title are placed above the table; they do not have to be double-spaced. The top row of the table is called a table header and it contains column headings that identify the contents of each column. In the body of the table, if the text in any given cell of the table wraps within that cell, the text may be single-spaced; however, rows must be double-spaced. Tables must have a horizontal line above and below the top header row and at the end of the table. **Do not use vertical lines in tables.** Do not put a box around the table. Space the columns as evenly as possible. Columns of text are left justified, while columns of numbers should be decimal aligned and/or aligned by the one's column. Use footnotes on tables where appropriate. Make sure the font in the table is Times New Roman.

Landscape Orientation of Tables or Figures:

If the table or figure is placed lengthwise (landscape position), the top of the table or figure must be at the left-hand, "binding" side, of the page. The page number stays in regular (portrait) position. Use a text box and rotate it 90 degrees. The following website may help in positioning the page number: <https://uknowit.uwgb.edu/page.php?id=26346>

Tables and/or Figures Continued to Another Page:

Tables or figures longer than one page have the figure or table number on the continued page followed by the word "(continued)" and a period. Include the table title on the same line. For tables, include the top header row for ease of reading.

Examples of appropriately formatted tables and figure are shown on the following pages. Note that each is on a separate page positioned at the top of the page so that a 1-inch top margin is maintained. Note also that the table contains an appropriately formatted footnote. **Tables are the only place in the thesis where footnotes are allowed.** These footnotes can be either numerals or letters.

Table 1. Summary of the best fit logistic regression model based on AICc. This procedure was used to predict the survival of monarch eggs or larvae based on the abundance of arthropod groups found on control host plants where the proportion of predators to non-predators was low. Concordance of this model was 31.6%.

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiS q
Intercept	1	-1.2480	0.2236	31.1489	<0.0001
RIFA ^a	1	-3.6684	2.4628	2.2188	0.1363

^aParameter confidence interval approaches infinity and is overestimated.

Table 2 (continued). The fledging success of swallows nesting in culverts and bridges in northeast Texas between 1998 and 2002.

	Bridges (mean \pm std. dev)	Culverts (mean \pm std. dev)	Kruskal-Wallis Test X^2 (1 <i>df</i>)	p-value
2001 first broods (young chicks)	4.25 \pm 0.23	5.23 \pm 1.25	6.55	0.010
2001 second broods	3.61 \pm 0.33	4.77 \pm 0.56	1.12	0.320
2002 first broods	5.01 \pm 0.25	5.11 \pm 0.66	0.69	0.864
2002 second broods	2.69 \pm 0.52	3.50 \pm 0.97	1.35	0.264

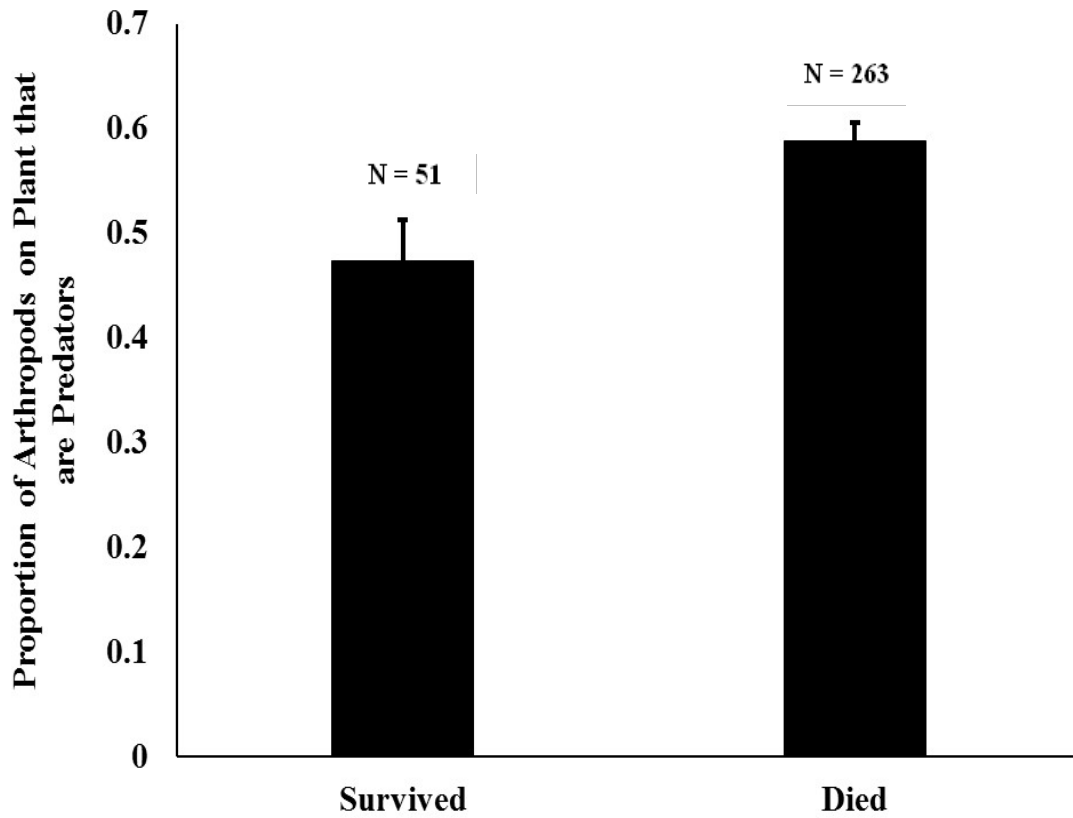


Figure 1. Control host plants upon which monarch larvae survived to the third instar had fewer predators relative to the total number of arthropods on the plant than did host plants upon which monarch larvae failed to reach the third instar. Kruskal-Wallis ANOVA, Chi-square Approximation, $X^2 = 6.7482$, $df = 1$, $p = 0.0094$. Numbers over bars are sample sizes.

LITERATURE CITED

Be certain that all citations in the text are included in the Literature Cited section and vice versa. In your Literature Cited section, alphabetize entries according to the last name of the first author of each work cited. Double-space all entries and use a hanging indent (with a .5 inch indentation).

If you have multiple sources from the same author(s), arrange by year (earlier first); if you have multiple sources from the same author(s), in the same year, add a lower case letter after the publication year to identify each when citing in the text and when making the bibliographical entry (Jones 1983a; Jones 1983b). If you have multiple papers using the same first author but different second authors, then they are listed after any single author papers by that author and in alphabetical order of the second authors and date (and so on if there are many multi-author papers by the same first author).

Consecutively-paged journal volumes and other serials should be cited by volume, number, and pagination. Serials with more than one number and that are not consecutively paged should be cited by number as well (Smithson. Misc. Coll., 37(3):1-30).

AVOID citing web pages. However if a journal article is downloaded from a web source, then the journal URL should follow the citation:

Example:

Wassenaar, L. I., and Hobson, K. A. 1998. Natal origins of migratory monarch butterflies at wintering colonies in Mexico: new isotopic evidence. *Proceedings of the National Academy of Sciences*, 95(26), 15436-15439. Retrieved on July 5, 2007 from: <http://www.pnas.org/content/95/26/15436.long>

Cite all references in text by author and year. If more than one citation then they should be in chronological (not alphabetical) order:

Jones (1971)
 Jones (1971, 1975)
 (Jones 1971)
 (Jones 1971, 1975)
 (Jones 1971, Smith 1973, Davis 1975)

If two authors for the paper:

Smith and Davis (1985) or (Smith and Davis 1985)

If more than two authors, use:

Jones et al. (1976) or (Jones et al. 1976).

Citations of publications by the same author(s) in the same year should be designated with lowercase letters following the publication year.

(Smith 1979a, 1979b).

Journal abbreviations in the Literature Cited section should follow those listed in Biological Journals and Abbreviations, which can be found here:

<https://cassi.cas.org/search.jsp>

The following are examples of a variety of citations:

JOURNALS ARTICLES:

- Jones, T. L. 1971. Vegetational patterns in the Guadalupe Mountains, Texas. *Am. J. Bot.*, 76(3):266-278.
- Smith, J. D. 1973. Geographic variation in the Seminole bat, *Lasiurus seminolus*. *J. Mammal.*, 54(1):25-38.
- Smith, J. D. and G. L. Davis. 1985. Bats of the Yucatan Peninsula. *Occas. Pap. Mus., Texas Tech Univ.*, 97:1-36.
- Tames, H. W., J. D. Smith, G. L. Davis, and R. W. Hoffstamer. Directional shifts in the magnetic compass of migratory insects. *J. Entomol.*, 85: 489-499.

BOOKS:

- Jones, T. L. 1975. An introduction to the study of plants. John Wiley & Sons, New York, xx+386 pp.

CHAPTER IN A BOOK:

- Jones, T. L., A. L. Bain and E. C. Burns. 1976. Grasses of Texas. Pp. 205-265, in *Native grasses of North America* (R. R. Dunn, ed.), *Univ. Texas Studies*, 205:xx+1-630.

APPENDICES

Appendices are **optional** and used for supplementary material. An APPENDICES cover page is required. The cover page should precede the appendices. The title, APPENDICES, appears in all capital letters in the middle of the page, centered vertically and horizontally. If you have only one appendix, replace the word APPENDICES with the word APPENDIX with no letter designation, and the appendix title follows one double space below the heading. The appendix designation and title are in all capital letters and centered vertically and horizontally on the page.

Use appendices only if necessary to include important data not included in the body of the thesis. Figures and/or tables placed in the appendices should be numbered separately from other tables or figures, but the general format of the tables or figures should remain the same as noted above.

If a table in the appendices is multiple pages, the table heading on subsequent pages should follow the same format as described in the Tables and/or Figures section above.

VITA

The vita is required. For the purposes of the vita, your information should be in paragraph form instead of the traditional resume format. A sample vita can be found in Appendix A of the Graduate School's [Thesis and Dissertation Formatting Guide](#).

BIOLOGY TEMPLATE FOLLOWS

This template is also provided separately as a Word document. Copy the template into new document and use for both the thesis proposal and final thesis.

BIOLOGY TEMPLATE: TITLE OF THESIS--MAKE SURE THE TOP LINE
IS LONGER THAN THE SECOND LINE


A Thesis

by

YOUR NAME

Submitted to the Graduate School
of Texas A&M University-Commerce
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE

[December] [May] [August] 20XX

BIOLOGY TEMPLATE:  TITLE OF THESIS--MAKE SURE THE TOP LINE
IS LONGER THAN THE SECOND LINE

A Thesis

by

 YOUR NAME

 Approved by:

Advisor:  Bob Brown

Committee: Jim Johnson
Jill Smith
Joe Perry

Head of Department: Kathy Jones

Dean of the College: Jane Doe

Dean of the Graduate School: Jennifer L. Schroeder

Copyright © 20XX

Your Name

 ABSTRACT

BIOLOGY TEMPLATE: TITLE OF THESIS--MAKE SURE THE TOP LINE
IS LONGER THAN THE SECOND LINE

Your Name, MS
Texas A&M University-Commerce, 20XX

Advisor: Name of Your Advisor,  or PhD



Text begins here, two double spaces below the advisor line. **Your proposal abstract should include the purpose, literature review, and procedures.**

In your final thesis, the results and conclusions are added. For many researchers, relevant articles are selected based on the material presented in the abstract; therefore, it is important to provide as much useful information as possible in as few words as possible. The abstract should be doubled-spaced and text left justified, as is the remainder of the thesis.

Keywords: Keywords are optional.

ACKNOWLEDGEMENTS

Although this page is optional, the Graduate School encourages you to thank those people who helped you along the way. In your proposal, include this page even if you do not fill it out until the final thesis. Please keep your acknowledgements to one page.

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Subsection (if applicable)	#
RESULTS	#
Subsection (if applicable)	#
Subsection (if applicable)	#
DISCUSSION	#
Subsection (if applicable)	#
Subsection (if applicable)	#
LITERATURE CITED	#
APPENDICES	#
Appendix	
A. Title of Appendix	#
B. Title of Appendix	#
VITA.....	#

LIST OF TABLES

TABLE

1. If a table title is 2 or more lines, the entry in the List of Tables should always be double spaced and aligned like this #
2. Replace words in red with your text #
3. #
4. #
5. #

LIST OF FIGURES

FIGURE

1. If a figure title is 2 or more lines, the entry in the List of Figures should always be double spaced and aligned like this #
2. Replace words in red with your text #
3. #
4. #
5. #

INTRODUCTION

Begin the details of the INTRODUCTION. Each chapter must be formatted in the same way with ALL pages numbered at the top right with Arabic numerals beginning on THIS page. All pages before THIS page are in lower case Roman numerals.

You are not required to use these exact section headings. Be sure to communicate with your advisor to determine which headings will best serve the purpose of the paper.

Normally, the introduction begins with a literature review that leads into a description of the purpose or objectives for the current study, the significance of the study, and the hypotheses to be tested.

Common names for organisms may be used, but the Latin name (genus and species) must be specified at their first mention. Latin names must be in italics. Use standard scientific abbreviations for units of measure. Do not use footnotes in the body of the thesis. Do not use direct quotes.

Review of the literature

This section consists of a minimum of 1-2 paragraphs discussing the statement of the problem as it relates to your research. References to scholarly literature that outline the problem and illustrate the need for further research are desirable.

Purpose of the study

This section consists of a minimum of 1-2 paragraphs addressing the purpose and justification for completing the study. Part of justifying the study is discussing relevant scholarly literature. You do not need to provide an exhaustive summary here, but maybe briefly mention researchers who have studied your problem/topic and state that the research will be discussed in more detail in the literature review.

Significance of the study

The significance of the study should accomplish three tasks:

1. Describe the gap in the literature.
2. Describe how this study proposes (at least partially) to fill that gap.
3. Demonstrate that the researcher is competent to conduct this study.

These tasks will require a reasonably thorough review of the literature to demonstrate knowledge of the subject to be studied. Some of the literature reviewed in next chapter may be contained in this section of the document as well.

Hypotheses and specific aims

The hypothesis is “the researcher’s prediction, derived from a theory or from speculation, about how two or more variables will be related to each other” (Gall et al. 2007). Always provide an introduction for numbered and bulleted lists:

1. Begin numbered lists at the ½-inch indent and continue the sentences aligned under the first letter of the first line.
2. If there is only one hypothesis, change the subheading to **Hypothesis** and do not number the hypothesis, include it as part of the paragraph.
3. Specific Aims
 - a. Below each hypothesis, state specific aim(s). Each hypothesis can have more than one specific aims. While formulating specific aims, independent and dependent variables must be selected carefully to match variables in hypothesis. Specific aims may state the primary methodology that been used.

MATERIALS AND METHODS

Pagination will always be at the top right on each page throughout the proposal or thesis through your Vita, which is the last page of your document.

This chapter should describe all of the methods used to collect and analyze the data. Enough detail must be provided that anyone reading the methods should be able to replicate the study. Describe any apparatus that was used and provide figures as appropriate. Describe what was measured and how it was measured. For field studies there should be a description of the study areas used. For lab studies, the source of materials must be identified. Be sure to identify the make and model number of important pieces of equipment and the suppliers of critical reagents.

Subtopic 1

Depending on your thesis topic, it may be helpful to you and the reader if the material is organized by topics and subtopics. Use of different levels of heading can help the reader comprehend the material more easily and it can help you, as the author, keep the information flowing smoothly.

Subtopic 1a

Maintain consistent capitalization and formatting for each level of subheading/subtopic.

Subtopic 1a1

Indentation, bold text, italicized text, and varied punctuation can help you to differentiate easily between different levels of heading.

Subtopic 1a2

Something to consider, however, is if you only use one subheading within a specific section, then perhaps the subheading is not needed.

Subtopic 1b

Beware of widows and orphans. Section headings should not be alone at the bottom of the page. If a page break separates the heading from its content, push the heading onto the next page.

As you write your thesis, consider what organization and information would make sense to the reader. Make sure your formatting choices are consistent and make it easy for the reader to read and understand the material.

RESULTS

This chapter should describe the results of the study. For most projects, the data are presented as figures and tables. The text of the results section should describe the important trends and/or features shown by the figures and tables. **Do not simply reiterate all the details of the table or figure.** Provide statistical analyses whenever appropriate.

All tables and figures must be mentioned no further than 1½ pages before the table or figure appears in the document. If a table or figure is embedded within the text of the document, insert at least three single-spaced lines before and after tables and figures. If a table must be converted to landscape format to make it fit on the page, the top of table should be oriented to the left margin. The page number on landscape pages should be formatted in the same place as other page numbers when the page is rotated counter clockwise. When the pages are printed in the bound copy, the page number needs to appear top right like the others. Here is a website that may help: <https://uknowit.uwgb.edu/page.php?id=26346>

All tables have a title that appears above the table that is written in sentence style. Number tables consecutively using Arabic numbers (1, 2, 3). Do not use vertical borderlines and use minimal horizontal borderlines. See the table examples on the following pages for reference. If a table is continued to another page or pages, include the table number followed by “(continued)” and a period. Include the table title and the top header row of the table. See the example on the following page.

All figures have a caption that appears below the figure that is written in sentence style. Number figures consecutively using Arabic numbers (1, 2, 3). Note, figures should not have an outside border nor should the figure caption be included in the figure itself.

Table 1. Summary of the best fit logistic regression model based on AICc. This procedure was used to predict the survival of monarch eggs or larvae based on the abundance of arthropod groups found on control host plants where the proportion of predators to non-predators was low. Concordance of this model was 31.6%.

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiS q
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^aParameter confidence interval approaches infinity and is overestimated.

Table 2 (continued). The fledging success of swallows nesting in culverts and bridges in northeast Texas between 1998 and 2002.

	Bridges (mean \pm std. dev)	Culverts (mean \pm std. dev)	Kruskal-Wallis Test X^2 (1 <i>df</i>)	p-value
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2002 first broods	5.01 \pm 0.25	5.11 \pm 0.66	0.69	0.864
2002 second broods	2.69 \pm 0.52	3.50 \pm 0.97	1.35	0.264

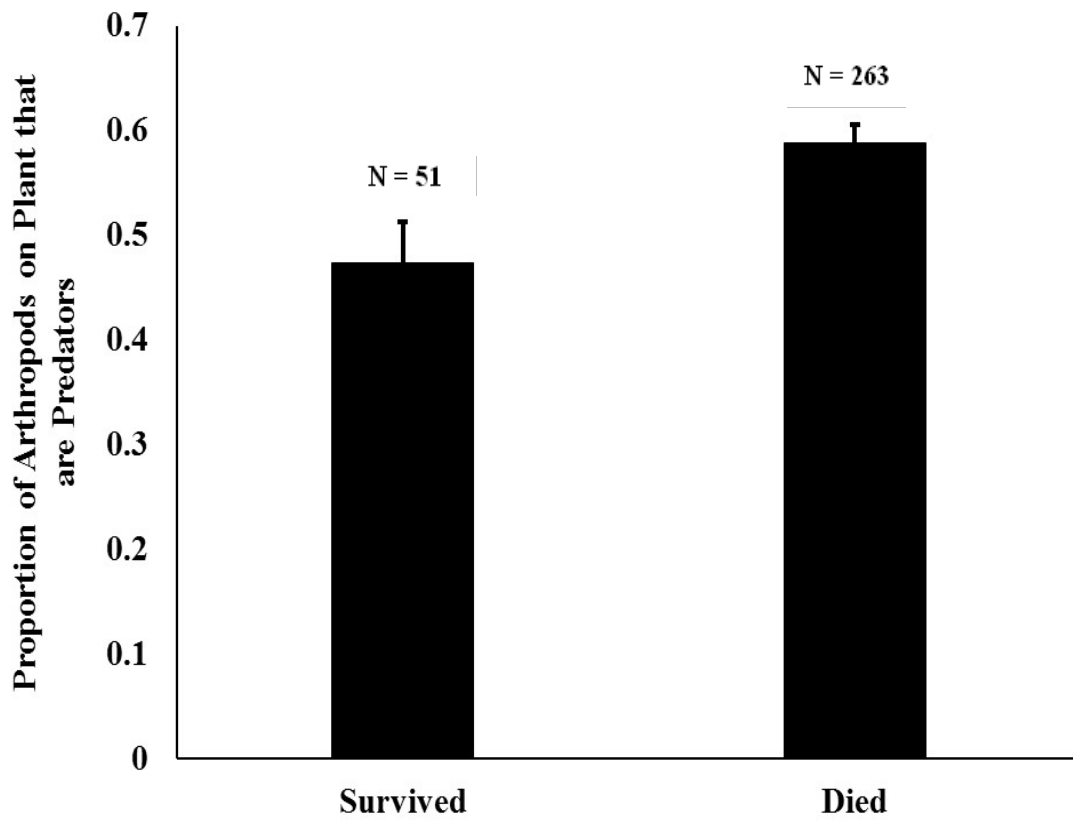


Figure 1. Control host plants upon which monarch larvae survived to the third instar had fewer predators relative to the total number of arthropods on the plant than did host plants upon which monarch larvae failed to reach the third instar. Kruskal-Wallis ANOVA, Chi-square Approximation, $X^2 = 6.7482$, $df = 1$, $p = 0.0094$. Numbers over bars are sample sizes.



You must be careful not to violate the copyright laws of the United States. The inclusion or adaptation of part or of an entire work (e.g., a figure, or data) by another author may require that written permission from the copyright holder be obtained. If copyright permission is required, include the author and source information as a note to the table or at the end of a figure caption and must state “Reprinted with permission” or “Adapted with permission.” See the [Publication of the Research: Copyright Issues](#)” in the Graduate School’s [Thesis and Dissertation Submission Guide](#) for more information regarding compliance with copyright laws.

DISCUSSION

This chapter describes the implications of the results relative to the existing literature. Provide interpretation of the results and support these statements with corroborative evidence from current literature. The final paragraphs should provide a brief summary and possible future directions for research.

LITERATURE CITED

Please format the literature cited section as explained in the Literature Cited section above. Use a hanging indent to format entries. The hanging indent can be accessed by selecting text, then right clicking, and going to “Paragraph.” At the “Indentation” section, click on the drop box under “Special” and select “Hanging.” Use .5 inches if as the indention setting if it does not default to that setting.

NOTE: As in text, widows and orphans in references are not acceptable. A new reference with only one line at the bottom of the page should be moved entirely to the next page.

Similarly, the last line of a reference should not be left to stand alone at the top of a page. Instead, move an additional line of text to accompany that line.

A three-line reference is sometimes difficult because you cannot leave one line on a page. At least two lines must be on each page so you may have to move the entire reference to the next page, leaving a blank line or two at the bottom of the previous page.

Appendices are **optional** and used for supplementary material. Include this cover page unless you have only one appendix, then use the format for an appendix title page, as shown on the next page, without the appendix designation.

APPENDICES

Each appendix must have a title page. Appendix title pages come before each appendix document. All appendix material must be within prescribed margins and be readable in size and legibility (no smaller than 7 pt. font). Tables and figures must conform to the same formatting requirements as when they are included in the body of the manuscript.

APPENDIX A

TITLE OF APPENDIX A

TITLE OF THE APPENDIX A DOCUMENT

Place the appendix title at the top of the first page only of the appendix document page. The title should be centered, in all capital letters and not bolded.

APPENDIX B

TITLE OF APPENDIX B

The logo for 'VITA' is presented in a yellow speech bubble with a black outline. The word 'VITA' is written in a bold, black, sans-serif font inside the bubble.

Though many students already have a resume-style vita, the Graduate School requires students to publish a *paragraph-style* vita instead. If you have difficulty drafting your vita, please contact TDS@tamuc.edu for a sample vita.

Some of the information you may want to include in your vita is as follows:

- your educational background for all previous degrees, beginning with your bachelor's degree and ending with the current degree you are obtaining from Texas A&M University-Commerce.
- professional experience,
- publications, and/or
- business or academic information.

Do not include personal information such as date of birth, parents' names, or your personal address in order to protect your privacy. Please ensure the name you include in your vita matches the name you have used on your title page.

Please include a permanent address (at the bottom of the page) that is good for two years. A professional/work address or A&M-Commerce department address are recommended rather than a personal address in order to protect your privacy.

Single-spaced at bottom of page
Contact information
Email: