THESIS GUIDELINES AND FORMAT INSTRUCTIONS

Nicholls State University

Graduate Studies

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Revised Fall 2025

MASTER'S DEGREE THESIS HANDBOOK

This handbook was written for students preparing to complete thesis requirements toward the M.S., or M.A., degrees at Nicholls State University. Requirements herein have been established by University Graduate Studies and the Department of Biological Sciences Graduate Committee.

Please read and follow the thesis format instructions outlined in this handbook. **Your thesis must be formatted to these requirements to be approved by the Graduate Program Coordinator and Director of University Graduate Studies**. You should NOT use a previous thesis as a guideline for your work as formatting guidelines have changed and the format of other theses may not be correct.

PURPOSE OF THE THESIS

Demonstration of scientific proficiency and literacy through the reporting of original research and scholarship.

GENERAL CHARACTERISTICS OF THE THESIS

- Comprised of disciplined scientific writing and data presentation.
- May describe more than one topic or investigative strategies.
- Reports all or most original data collected during student's master's degree work.
- Clarifies problem researched: why selected, how answered, and what learned.
- Reviews work that supports original findings: literature on background, supporting, and similar studies.
- Includes conclusions and recommendations.

SPECIFIC UNIVERSITY AND DEPARTMENT REQUIREMENTS FOR THESIS DEVELOPMENT AND REVIEW

- The thesis committee consists of a thesis advisor (chair) that is a Regular Member of the Graduate Faculty in the student's department and at least two additional committee members, with at least one that is a Regular Member of the Graduate Faculty within the student's department. A minimum of three committee members must have a Ph.D. All members of the thesis committee must be a current Nicholls State University Graduate Faculty member approved by the University Graduate Council.
    - Complete the *Thesis Committee Appointment Form* located on the University Graduate Studies website.
- **Thesis Proposal**
    - A formal proposal describing the scientific problem to be addressed during the graduate study, the hypothesis, the methods to be employed, and the expectations from results.
    - PowerPoint presentation of thesis proposal to committee members is required.
    - Strongly recommended to be completed before research begins, following selection of major professor and committee.
    - Requires approval of all committee members, then submitted to Graduate Coordinator. Complete the *Approval of Thesis Proposal* form located on the University Graduate Studies website.
    - Must be completed by the end of the student's second semester.

- **Final Examination**
    - Consists of committee oral examination on research and course work and a public oral thesis defense, which must be publicly announced two weeks prior to date of thesis defense.
    - **Contact the Graduate Coordinator at least two weeks before your public and private thesis defense and provide the full title of the thesis, names and position titles of all committee members, and date, time, and location of the defense.**
    - The Graduate Coordinator will complete the *Final Thesis Format and Examination Report* and *Report of Thesis Defense Results* forms and give to the student's thesis advisor before the private defense.
    - Deadlines: see current university calendar for specific dates.
        - Your thesis committee should be provided a copy of the completed thesis at least two weeks before the scheduled thesis defense.
        - Final date to submit a thesis for thesis committee approval is typically eight days prior to first day of finals.
        - Final date for filing a committee approved thesis with University Graduate Studies is the last regular class day of the semester.

CONTENT OF A THESIS MANUSCRIPT

The contents of the thesis must be in the order listed below.

- Title page (see specific format)
- Certificate (see specific format)
- Abstract
- Acknowledgements
- Table of Contents
- List of Tables
- List of Figures
- List of Abbreviations (optional)
- Body of Thesis (see specific format)
    - Introduction
    - Methods
    - Results
    - Discussion
    - Recommendations (optional)
- Literature Cited
- Appendix (optional)
- Biographical Sketch
- Curriculum Vitae

The "**No Spacing**" option in Microsoft Word must be used in order to produce the proper single and double spacing needed (not the default "Normal" option). All formatting and spacing instructions provided in this document are predicated on the "No Spacing" option.
To select the "No Spacing" option:

- Select the **Design** tab.
- Select the **Paragraph Spacing** drop down menu.
- Select **No Paragraph Spacing**.

Margins

- All margins must be 1" (left, right, top, and bottom).
- Left justification.
- Margins must be the same throughout the thesis including literature cited, figures, tables, and appendices.

Font

- Times New Roman.
- Font must be 12 point throughout the thesis including figure and table captions.

Pagination

- Single sided only.
- Every page must be numbered except the title page. The title page is still page i even though it is not shown.
- All page numbers should be centered on the bottom of the page.
- Ensure that page numbers are the same font (Times New Roman) and size (12 point) as the rest of the thesis. Changing text font to Times New Roman does not automatically change page number font to match.
- Page numbers should be lowercase Roman numerals for the preliminary material (certificate, abstract, acknowledgements, table of contents, list of tables, list of figures, and list of abbreviations), beginning with ii for the certificate page.
- Beginning with the introduction, Arabic numbering should be used starting with 1 until the end of the document.

Spacing

- Remember to select the "No Spacing" option in Microsoft Word (see above).
- The thesis must be double spaced throughout with certain exceptions.
- Always single space the following:
    - Long thesis and chapter titles.
    - Certificate page.
    - Table and figure captions.
    - Table and figure descriptions in list of table and list of figures sections (single space within a description, double space between different figure and table descriptions).
    - References in the literature cited section (single space within a reference, double space between references).

Title Page

- Center justification for all lines.
- The title page is page i but the page number is not displayed.
- The thesis title is single spaced and only the first word and proper names are capitalized (do not bold).
- Make sure to include your full name.
    - Christopher instead of Chris, Jeffery instead of Jeff, etc.
- Follow the **EXACT** title page format provided on page 6 (highlighted text on sample title page not included) with the exact spacing, capitalization, and organization.
    - Do not place a comma between the graduation semester and year.
    - Do not include degree major, only the degree itself.
        - **Incorrect**: B.S., Marine Biology, Nicholls State University, 2018
        - **Correct**: B.S., Nicholls State University, 2018
- Do not include highlighted text on the example title page.

Certificate

- Fill in your thesis title and full name in the paragraph.
- Follow the exact paragraph wording on the example certificate page on page 8.
- List your committee chair and members and titles.
- Thesis committee must sign the form before printing.

Abstract

- Same format as thesis body.
- Abstract should not exceed 450 words.

Acknowledgements

- Same format as thesis body.

Table of Contents

- Do not use bold within the table of contents.
- Must use dot leaders from the end of the last word in a heading or subheading to the corresponding page number.
- The main headings and subheadings in the table of contents should match what is in the thesis body.
- If subheadings are included, they should be indented to differentiate from headings.
- Single space between subheadings and its parent heading, double space between headings.
- Do not allow a long heading or subheading to run into the page number at the end of the line. Continue the heading or subheading on a second line with the page number on the second line.

Thesis title

-Nine lines-

A Thesis

-Nine lines-

Submitted to the Graduate Faculty
of Nicholls State University
in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Marine and Environmental Biology

-Nine lines-

by
Your Name
Your previous degree, Institution, Graduation year

-Nine lines-

Semester and year of graduation

Population characteristics of red swamp crayfish *Procambarus clarkii* from hydrologically impaired locations in the Atchafalaya River Basin

-Eight lines-

A Thesis

-Eight lines-

Submitted to the Graduate Faculty
of Nicholls State University
in Partial Fulfillment
of the Requirements for the Degree
Master of Science in Marine and Environmental Biology

-Eight lines-

by
Lauren Kong
B.S., Mills College, 2013

-Eight lines-

Fall 2017

Certificate

This is to certify that the thesis entitled “Your thesis title” submitted for the award of Master of Science to Nicholls State University is a record of authentic, original research conducted by Mr. or Ms. Your Name under our supervision and guidance and that no part of this thesis has been submitted for the award of any other degree, diploma, fellowship, or other similar titles.

APPROVED: DATE:

_____ _____

Christopher Bonvillain, Ph.D.
Director of University Graduate Studies,
Associate Professor and
Graduate Program Coordinator of Biological Sciences
Committee Chair

_____ _____

Timothy Clay, Ph.D.
Assistant Professor of Biological Sciences
Committee Member

_____ _____

Allyse Ferrara, Ph.D.
Jerry Ledet Endowed Professor of Environmental Biology,
Professor of Biological Sciences
Committee Member

Table of Contents
(example without chapters)

Certificate ii

Abstract iii

Acknowledgements v

Table of Contents vii

List of Tables viii

List of Figures ix

Introduction 1
Study Area 5

Methods 8
Sample Locations and Field Collections 8
Hemolymph Collection and Processing 10
Data Analysis 11

Results 13
Water Level and Physicochemistry 13
Flood Pulse Characteristics 13
Population Characteristics 20
Procambarus clarkii Population Characteristics 20
Procambarus zonangulus Population Characteristics 24

Discussion 42

Future Recommendations 51

Literature Cited 54

Appendix A 62

Appendix B 66

Biographical Sketch 72

Curriculum Vitae 73

Table of Contents
(example with chapters)

Certificate ii

Abstract iii

Acknowledgements v

Table of Contents vii

List of Tables viii

List of Figures ix

Chapter 1: History of the Diambondback Terrapin (*Malaclemys terrapin*) and conservation needs in coastal Louisiana 1

Literature Cited 7

Chapter 2: Population demographics of Diambondback Terrapin (*Malaclemys terrapin*) in coastal Louisiana 11

Introduction 11

Methods 16
Study Sites 16
Surveys 16
Statistical Methods 18

Results 22
CPUE and Population Characteristics 22
Population Models 23

Discussion 31

Literature Cited 54

Chapter 3: Mitigating mortality of Diambondback Terrapin (*Malaclemys terrapin*) with bycatch reduction devices and potential impacts of Louisiana's Atlantic Blue Crab fishery on local populations 47

Introduction 47

Methods 51
Study Site 51
Crab Trap Sampling 51
Statistical Methods 54

Results....56
Sampling....56
Bycatch Reduction Devices....56
Terrapin Captures....61

Discussion....71
Bycatch Reduction Devices....71
Seasonality and Habitat....74

Literature Cited....79

Biographical Sketch....84

Curriculum Vitae....85

List of Tables and Figures

- List of tables goes before list of figures.
- Table and figure descriptions should be the exact caption accompanying the table or figure used in the thesis.
- Single space within a table or figure description, double space between descriptions.
- Follow instructions for dot leaders and long descriptions described in Table of Contents section.
- An individual figure or table description should not run onto two pages.

Main headings

- Include Certificate, Abstract, Acknowledgements, Table of Contents, List of Tables, List of Figures, Introduction, Methods, Results, Discussion, Recommendations, Literature Cited, Appendix, Biographical Sketch, and Curriculum Vitae.
- All main headings should be bolded and centered. Capitalize as listed in previous bullet.
- All main headings and accompanying sections begin on a new page.

Subheadings

- Primary subheadings are left justified and underlined. Do not bold.
- Secondary subheadings are left justified and italicized. Do not bold.
- Capitalize all words in primary and secondary subheadings (only minor words lower cased, e.g., a, an, and, or, of, etc except if they are the beginning word).
- Double space between primary and secondary subheadings and paragraph.
- Subheadings DO NOT begin on a new page.

Tables and Figures

- All photos, figures, tables, etc. must appear on their own page.
- Tables and figures should be placed on their own page **immediately following the first mention in the text**. For example, if page 15 in your results mentions figures 2, 3, and 4 for the first time, page 16 should be figure 2, page 17 should be figure 3, and page 18 should be figure 4. Your results can then continue on page 19.
- Never group tables and figures at the end of a section or the thesis.
- Table numbers and description appear **above** the table.
- Figure numbers and description appear **below** the figure.
- Table and figure captions are single spaced and left justified.
- Tables and figures (not table and figure descriptions) should be centered on the page.
- In a figure or table description, the first word should be Figure or Table, followed by the figure or table number, then a period. These three items should be bolded. The table and figure description then follows and is not bolded (examples below).
    - **Figure 1.** The Atchafalaya River Basin in south-central Louisiana.
    - **Table 4.** Annual mean (±SE) physicochemical parameters at intensive and extensive sample locations during the 2016 and 2017 sampling seasons.
- Figures with multiple parts must be labeled a, b, c, etc. or A, B, C, etc.
- No vertical lines should appear in a table. Horizontal lines should only be placed at the top and bottom of the table and below major headings. Horizontal lines should not appear between data presented in the table. See examples on page 11.
- Long tables or figures can be placed in landscape orientation.

Table 1. This is an example of a thesis table format. Notice the table description is left aligned and the table is centered on the page.

Experiment	Dissolved Oxygen (mg/L)	Temperature (ºC)	pH
1 h	1.98 ± 0.04	24.91 ± 0.07	7.50 ± 0.02
12 h	1.93 ± 0.04	24.67 ± 0.06	7.33 ± 0.02
24h	2.05 ± 0.03	24.59 ± 0.08	7.28 ± 0.03
48 h	2.09 ± 0.03	23.88 ± 0.06	7.22 ± 0.02

Table 2. Another table example. These tables would not appear on the same page in the thesis, each would be on a separate page. Note the single spacing in the table description.

	2008		2009	
Physicochemical variable	PC1	PC2	PC1	PC2
Dissolved oxygen	0.54		0.59	
pH	0.51		0.56	
Turbidity	0.44		0.55	
Temperature		0.57		0.65
Specific conductance		-0.63		-0.68

Literature Cited

- Single space within a citation, double space between citations.
- Citations: Must follow name-date style described in Format of Literature Cited in a Master's Thesis section below.
- See the specific format examples listed below.
- Make sure to not include the journal *issue* number in some references and not in others, be consistent. It is typically accepted to not include issue numbers as some journals do not have individual issues.
- Do not use ampersand (&) in multiple author references.

Appendix

- Appendix is optional.
- Same format as tables and figures.
- Appendices are numbered with upper case letters, e.g., Appendix A, Appendix B, etc., and bolded and centered.
- Title of appendix is single spaced below the Appendix and is bolded, centered, and capitalized like sub-section headings.
- Tables and figures within an appendix are labeled with the appendix letter and number followed by the table or figure description and are formatted the same as thesis table and figures.

Biographical Sketch

- 200 word limit.
- Do not include your complete birthdate for security reasons.
    - Incorrect: Bruce Wayne as born on January 1, 1990 in Gotham City.
    - Correct: Bruce Wayne was born in January 1990 in Gotham City.

FINAL THESIS DOCUMENT FILE NAME

- The final theses document should be saved with the following format:
    - Last name, First name semester graduating2-digit year (example below)
    - Use full first name, Christopher instead of Chris
        - Inselman, Rissa Spring20
        - Doe, Johnathan Summer18
- The final thesis Word document is submitted to the Graduate Program Coordinator for format edits and approval. Student will receive a final grade in BIOL 599 after final approval of the thesis by the Graduate Program Coordinator.
- The Graduate Program Coordinator will send a pdf of the final thesis to the library for online publication on the library's website.

Appendix A
Cultch Composition and Historical LDWF Oyster Reef Restoration Projects

Table A.1. List of crushed stone and RIP-RAP grades used in industrial projects. (Ponchartrain Materials Corporation 2020).

Cultch Type	Size Classification
Stone	
Crushed Stone #5	1 inch down to fine particles
Crushed Stone #67	¾ inch down to fine particles
Crushed Stone #1	2 to 4 inches
Crushed Stone #8	3/8 to ½ inch
Crushed Stone #3	½ to 2 inches
Crushed Stone #10	Screenings or dust
Crushed Stone #57	¾ inch
Crushed Stone #411	Mix of stone dust and #57 stone
RIP-RAP	
Class 1 RIP-RAP	No more than 10% of the stone will have a diameter greater than 12”; no more than 50% of the stone will have a diameter less than 10”; no more than 10% of the stone will have a diameter of less than 6”
Class 2 RIP-RAP	No more than 10% of the stone will have a diameter greater than 16”; no more than 50% of the stone will have a diameter less than 12”; and no more than 10% of the stone will have a diameter of less than 6”
Class 3 RIP-RAP	No more than 10% of the stone will have a diameter greater than 22”; no more than 50% of the stone will have a diameter less than 16”; and no more than 10% of the stone will have a diameter of less than 8”
Class 4 RIP-RAP	- No more than 10% of the stone will have a diameter greater than 27”; no more than 50% of the stone will have a diameter less than 22”; and no more than 10% of the stone will have a diameter of less than 10”
Class 5 RIP-RAP	No more than 10% of the stone will have a diameter greater than 34”; no more than 50% of the stone will have a diameter less than 27”; and no more than 10% of the stone will have a diameter of less than 16”

Table A.2. Louisiana cultch plants constructed by the Louisiana Department of Wildlife and Fisheries from 1994 – 2018. Cultch types include O= oyster R=reef, S=shell, L=limestone, C=concrete, CC=crushed concrete, and FS=fossilized shell.

Year	Location	Cultch Type	Cultch Volume		Cultch Plant Area		Cultch Coverage/Area	
			m^3	yd^3	Hectares	Acreage	m^3/hectare	yd^3/acre
2009	MS Sound - 3-mile Bay	L	17059	22312	18.2	45	936.8	495.8
	Lake Chien	L	8676	11348	8.9	22	974.5	515.8
	Sister Lake	L	17277	22597	63.1	156	273.7	144.9
	Calcasieu Lake	L	5759	7533	5.7	14	1016.5	538.0
	Black Bay	L, S	17244	22554	98.3	243	175.3	92.8
2011	Mississippi Sound	CC	23936	31308	117.8	291	203.3	107.6
	California Bay	S, L	21398	27988	122.2	302	175.1	92.7
2012	Lake Fortuna	CC	21888	28629	121.4	300	180.3	95.4
	Hackberry Bay	L	19944	26086	80.9	200	246.4	130.4
	Sister Lake	L	28809	37681	144.9	358	198.9	105.3
	Bay Crabe	L	15423	20172	80.9	200	190.6	100.9
2013	MS Sound - 3-mile Pass	L	30967	40504	63.9	158	484.3	256.4
	Drum Bay	L	14000	18312	80.9	200	172.9	91.6
	South Point of Marsh Island	L, S	2122	2775	10.1	25	209.7	111.0
2014	Hackberry Bay	L	2875	3761	12.1	30	236.8	125.4
2015	Calcasieu Lake	L	9555	12497	26.3	65	363.2	192.3
2017	Calcasieu Lake	L	10255	13413	40.5	100	253.4	134.1
	Lake Fortuna	S	12351	16155	40.5	100	305.2	161.5

Appendix B
Cultch Reef Placement and Planting



Figure B.1. Collection of cultch material to be used for density regression analysis and experimental material in cultch cages (photo credit: Earl Melancon, 2018).

PRINTING A MASTER'S THESIS (OPTIONAL)

- Bound copies of the final thesis are no longer required and are optional.
- If you want a bound copy(ies) of the thesis:
    - All thesis copies should be printed on a white, 25% minimum cotton, acid free paper.
    - The *Certificate* page should be printed on same paper and appear in all printed copies of the thesis.
    - Printing supplies and printing of the document are the responsibility of the student.
    - All copies are sent to the bindery through the Ellender Memorial Library (3rd floor). Cost of binding is the responsibility of the student.

TWO ACCEPTABLE FORMS OF THESIS BODY

Traditional Style: Typically used for most thesis publications when the research encompasses one large study.

- Abstract
- Introduction
- Materials and Methods
- Results
- Discussion
- Conclusions/Recommendations

Chapter Style: Typically used when reports from thesis research are journal published prior to completion of final thesis manuscript, or when research is comprised of multiple smaller studies.

- A single, unifying abstract must still be included.
- Although a research chapter that has already been published in a journal may be included, formatting must still follow the guidelines set forth in this document.

Chapter 1: General introduction chapter.

- Introduction
- Literature Cited

Chapter 2

- Introduction
- Materials and/or Methods
- Results
- Discussion
- Literature Cited

Chapter 3

- Introduction
- Materials and/or Methods
- Results

- Discussion
- Literature Cited

Last Chapter: Conclusions/Recommendations (optional)

GUIDE FOR WRITING THE MAJOR THESIS SECTIONS

- **Title:** The title is the first thing people look at when trying to decide if a paper is worth the time to continue reading. If the title does not grab their attention, they are unlikely to read any further. The title should accurately reflect a paper's content. The best titles are usually short (a dozen words or less) and crisp.

- **Abstract:** The abstract is the second thing a person looks at when trying to decide if reading a paper is worth the time to continue reading. Most of the time an abstract is the only section read and needs to provide all the necessary information from the study. The abstract should include:

    - Problem studied or hypothesis tested: Identify the problem or hypothesis and explain why it is important. Indicate new data, concepts, or interpretations.
    - Pertinent methods: State methods used to achieve the results summarized in the results (keep the methods brief unless a new or greatly improved method is reported).
    - Results: Emphasize the most important results, positive or negative.
    - Conclusions: Summarize the major conclusions reached from your data.
    - Purpose/Significance: Explain how, when, where, and by whom data or interpretations can be applied.
    - Literature citations, footnotes, abbreviations and acronyms (unless used more than five times) should not be put into an abstract.

- **Introduction:** An introduction should set the context/stage for the work performed. The introduction should establish the purpose and importance of that work and demonstrate the authors' awareness of the most pertinent (and recent) literature, including review articles. However, some literature might be reserved for the discussion section if it is more appropriate. Lastly, the introduction should clearly state the objectives of the study.

- **Methods:** Methods should be brief and include:

    - A description of the study site
    - Sampling dates and durations
    - Sampling schemes
    - Research or experimental design
    - Data analyses (including statistical probability of error used).

  Write the method section in active voice. Previously published descriptions of equipment and procedures may be cited by reference, unless they are in a source of limited

availability. Identify new or modified methods and explain them in detail. The method section can be tedious to read, but it is better to be overly explicit than to omit details needed by a reader to evaluate the data or repeat the study. Clarity of expression is as important in the methods section as it is elsewhere in the paper. If the experimental protocol and equipment are particularly complex, they can be displayed in a table or figure. Similarly, the numerous variables needed for some mathematical model or equation may be listed and defined in a table. The methods section can be broken into subheadings to keep different aspects of the experiment organized. These subheadings can be used in the results as well to connect the experiment with the methods.

- **Results:** Present results in a clear, simple, concise, and organized fashion (use subheadings if necessary). Avoid overlapping text with information in tables and figures; do not explain analyses that should have been described in the methods section. Reserve comments on interpretation of results for the discussion section. Display data in tables if precision is important and in a figure if trends are observed. Although long lists of raw data are undesirable (they can be included in an appendix), basic data should not be refined to the degree that a reader can not verify the analyses or use the information for other purposes. Statistical testing is an important part of most analyses, but it should not obscure biological insight. Always try to describe the magnitude of the biological effect in addition to the results of statistical analyses. For example, terms such as "fewer" or "smaller" tell us little, and stating that something was "statistically different ($P < 0.01$)" without giving the actual difference conveys little meaning to the reader. Most importantly, the statistical designs and models used should be appropriate for the study.

- **Discussion:** The discussion provides an opportunity for interpreting data and making literature comparisons. The value of a paper can be greatly enhanced by a good discussion. Begin the discussion by synthesizing your results with regard to your objectives and then relate your work to other literature and research. Do not repeat results in this section, and comment on only the most important results. The quality of a discussion is inversely related to redundancy, wordiness, and unfounded speculation. The work of others, when cited, should be attributed carefully and accurately. Transitions from evidence to intuition need explicit identifications.

- **Conclusion (optional, can be merged with discussion):** This section gives a chance to relate the results and major findings to their use in various political, social and technical arenas. In addition, if appropriate, proposals for further actions in research, management and politics are made. Highlight the important shortcomings of your work that could be addressed by further research, or to indicate directions that further work could take.

- **Recommendation (optional but suggested):** This section allows the student to make suggestions for future studies or actions based on their research findings.

FORMAT OF LITERATURE CITED IN A MASTER'S THESIS

- **Journal Article**
    - Remember that issue numbers are optional, just be consistent.

Single Author

Author, A.B. Year. Article title. Journal Name Volume(Issue):Pages.

With issue number:

Hamilton, J.B. 2005. Distribution of anadromous fishes in the upper Klamath River watershed prior to hydropower dams—a synthesis of the historical evidence. Fisheries 30(4):10-19.

Without issue number:

Hamilton, J.B. 2005. Distribution of anadromous fishes in the upper Klamath River watershed prior to hydropower dams—a synthesis of the historical evidence. Fisheries 30:10-19.

In-text citation:

(Author Year) (Hamilton 2005)

Anadromous fishes, such as Pacific Salmon, spend most of their lives in salt water and migrate up freshwater rivers to spawn and die (Hamilton 2005).

Multiple Authors

Oren, Z. and Y. Shai. 1996. A class of highly potent antibacterial peptides derived from pardaxin, a pore-forming peptide isolated from Moses solefish *Paradachirus marmoratus*. European Journal of Biochemistry 237:303-310.

or

Bonvillain, C.P., D.A. Rutherford, W.E. Kelso, and C. Green. 2012. Physiological biomarkers of hypoxic stress in red swamp crayfish *Procambarus clarkii* from field and laboratory experiments. Comparative Biochemistry and Physiology A 163:15-21.

In-text citation:

(Author and Author Year) (Oren and Shai 1996)

Amines added at the C-termini of peptides increased alpha-helical content of peptides 25-80% (Oren and Shai 1996).

or

(Author et al. Year) (Bonvillain et al. 2012)

Hemolymph protein concentration is a reliable biomarker of crayfish health and fluctuates in response to chronic hypoxia exposure in *P. clarkii* (Bonvillain et al. 2012).

Multiple In-Text Citations: List in chronological order then alphabetical order of first author's last name.
Researchers have examined the effects of environmental hypoxia on various fishes and piscine parasites in the Atchafalaya River Basin (Landry and Kelso 1999; Aday et al. 2000; Fontenot et al. 2001; Rutherford et al. 2001; Troutman et al. 2007).

- **Book**

Organization or Author, A.A., Author, B.B. Year. Title of book, Edition. Publisher, Place of publication.

Schlesinger, W.H. 1997. Biogeochemistry: an analysis of global change, 2nd edition. Academic Press, San Diego, California.

In-text citation:
(Author Year) (Schlesinger 1997)
Subsidence is a natural process that is expedited by anthropogenic activities, such as fluid withdrawal, and contributes to coastal land loss (Schlesinger 1997).

- **Article/Chapter in a Book**

Organization or Author, A.A. Year. Title of article. Pages xx-xx *in* editor(s). Title of Book. Publisher, Place of publication.

Lambou, V.W. 1990. Importance of bottomland hardwood forest zones to fishes and fisheries: the Atchafalaya Basin; a case history. Pages 125-193 *in* J.G. Gosselink, L.C. Lee, and T.A. Muir, editors. Ecological Processes and Cumulative Impacts. Lewis Publishers, Chelsea, Michigan.

Reynolds, J.D. 2002. Growth and reproduction. Pages 152-191 *in* D.M. Holdich, editor. Biology of Freshwater Crayfish. Blackwell Science Ltd, Oxford.

- **Thesis/ Dissertation**

Author, A. Year. Title of thesis. Degree and type of thesis. Name of University, City, State (only if needed to locate city).

Kong, L. 2017. Population characteristics of red swamp crayfish *Procambarus clarkii* from hydrologically impaired locations in the Atchafalaya River Basin. Master's Thesis. Nicholls State University, Thibodaux, Louisiana.

Freeman, S. 1990. Molecular systematics and morphological evolution in the blackbirds. Doctoral dissertation. University of Washington, Seattle.

- **Government Publication/Report**

Government publication: author(s) or agency. Year. Title. Type and number of publication, city; state, country (only if needed to locate city).

EPA (U.S. Environmental Protection Agency). 1986. Quality criteria for water. EPA, Report 440/5–86–001, Washington D.C.

Schick, R.S., Edsall A.L., and Lindley S.T. 2005. Historical and current distribution of Pacific salmonids in the Central Valley, CA. U.S. Department of Commerce, National Marine Fisheries Service, Santa Cruz Laboratory. Report nr NOAA Technical Memorandum NMFS-SWFSC-369, Santa Cruz.

In-text citation:
(Organization Year) (EPA 1996)
92-95% of isolated were confirmed as *E. coli* (EPA 1996)

- **Contract Report**

Author, A. Year. Title of report. Organization that issued report (if different from author), organization that received report, city, state.

Smith, A.B. 1986. Turbine-induced fish mortality at Highrise Dam, 1985. Report of Robertson Consultants to Prairie Utilities, Jonesville, Alberta.

- **Website**

Author or Agency. Year. Title of document. Publisher. Available: URL. Month and year accessed.

Smith, J.O. 2008. Birds commonly observed flying. Ornithological Society of North America. Available: www.osnabirds.org. (January 2001).

LIST OF ABBREVIATIONS AND FORMATTING ISSUES

Numbers, Variables, and Statistical Elements

- Longitude and latitude: l48°N, 78°W or 29°55’07”N, 90°52’43”W (no periods).
- Percentages and degrees: use symbols (15%, not 15 percent).
- Fractions: may be spelled out (one-half, one-third) unless used with units of measure (0.5 mm or 0.5 years).
- Decimal point: insert 0 before a decimal point (0.4, not .4).
- Dates: day, month, year (e.g., 6 October 1987).
- Numbered lists: for the most part, avoid the use of numbered lists in the text. “We used x, y, and z to take soil samples” rather than “We used three techniques to take soil samples: (1) . . . , (2) . . . , and (3) . . . .
- Insert a space between numbers and the unit of measure (6 m, 14 mL).
- Define all variables used in an equation.
- With the exception of Greek letters, do not italicize all single-letter variables in equations. Do not italicize variables with more than one letter (e.g., “RU” meaning reproductive units as opposed to *RU*, in which *R* and *U* are separate interacting variables).
- Complete words used as a variable should be lowercase (e.g., species). Each letter in multiple-letter abbreviations that are not complete words should be capitalized (e.g., acceptable, AMF for area of managed forest; unacceptable, PATCH for patch area).
- Do not italicize Latin words (except scientific names) or abbreviations such as i.e., e.g., et al., etc.

Abbreviations

spp, species
ssp, subspecies
P, probability
df, degrees of freedom
χ^2, chi-square
F_{ST}, genetic variance contained in a subpopulation relative to the total genetic variance
CI, confidence interval or credible interval
SE, standard error
SD, standard deviation, e.g., mean (SD) = 44% (3) or mean of 44% (SD 3) or 44% (±3).
mg L^{-1}, milligrams per liter

m, meter
m s^{-1}, meters per second
s, second(s)
min, minutes(s)
hr, hour(s)
d, day(s)
wk, week(s)
mo, month(s)
yr, year(s)
ln or $\log_e$, logarithm (base *e*)
$\log_{10}$, logarithm (base 10)
cal or J, calorie (Joule)
max., maximum
°C, Celsius
t, metric ton
coeff., coefficient
min., minimum
CI, $a \leq x \leq a$, confidence interval
CL, $x \pm a$, confidence limits
R, correlation, simple
>, more than/greater than
R^2, determination, multiple
R^2, multiple correlation
r^2, determination, simple
no., number (of items)
diam, diameter
ppt, parts per thousand
ppm, parts per million
ppb, parts per billion
dbh, diameter, breast height
N, S, E, W, NE, NW, etc., directions
eq(s), equation(s)
N, true population size
n, sample population size
x, sample mean (of x)
g, gram
ha, hectare
ht, height
temp, temperature
vs., versus

kcal, kilocalorie
V, volt
LC50, lethal concentration, 50%
vol, Vol., volume
LD50, lethal dose, median
wt, weight
<, less than
sex: ♀ female, ♂ male (in tables, figures, hybrid crosses)
T, Wilcoxon test
lim, limit
L, liter

Prefixes

giga (10^9) G
mega (10^6) M
kilo (10^3) k
milli (10^{-3}) m
micro (10^{-6}) µ
nano (10^{-9}) n
pico (10^{-12}) P

USEFUL WEBSITES

Integrated Taxonomic Information System (ITIS): www.itis.gov
NSU Department of Biological Sciences: www.nicholls.edu/biology/
NSU Ellender Memorial Library: www.nicholls.edu/library/
Biological Journals and Abbreviations: http://home.ncifcrf.gov/research/bja/

MARINE AND ENVIRONMENTAL BIOLOGY MASTER'S DEGREE CHECKLIST

Committee selection

- ☐ During first semester, form a committee (three to five members).
- ☐ Committee must have a minimum of three approved Graduate Faculty.
- ☐ Two members must be regular graduate faculty within the Department of Biological Sciences.
- ☐ Fill out, sign, and have committee sign *Approval of Committee Members* form and submit to Biology Graduate Coordinator.

Proposal

- ☐ Written research proposal presented to committee members for review **before the end of the second semester**.
- ☐ Hold a formal proposal defense meeting for committee.
- ☐ The accepted proposal and the *Approval of a Thesis Proposal* form should be signed by committee members.
- ☐ Submit proposal and signed *Approval of Thesis Proposal* form to Biology Graduate Coordinator.

Research

- ☐ Register for the Thesis course, BIOL 599, in the major department for your last semester.

Thesis

- ☐ *Thesis Guidelines and Format Instructions* and all departmental requirements have been followed regarding format (margins, font, style manual, etc.).
- ☐ Submit thesis to committee <u>at least</u> two weeks prior to scheduled defense (to be discussed next).

☐ All corrections of thesis are made and submitted to the committee for approval. The deadline is in the University calendar as "Final date to submit a thesis for approval."

Final Exam

☐ Student schedules a meeting for defense of thesis. Present will be committee and will be open to public.

☐ Student contacts the Biology Graduate Coordinator at least two weeks before the scheduled public and private defense and provides date of the defense, thesis title, and full names and position title of all committee members.

☐ Oral comprehensive exam will be given to the student in private after presentation to public.

☐ Thesis is successfully defended.

☐ *Final Examination Report for Thesis* form is signed by committee and turned in to Biology Graduate Coordinator.

☐ Have committee members sign *Report of Thesis Defense Results* and turn in to Biology Graduate Coordinator.

☐ Thesis certificate page is signed by committee members.

Submission of Thesis

☐ Submit approved thesis in final form to the Director of Graduate Studies for signature. The deadline is in the University calendar as "Final date for filing an approved thesis."

☐ If you want a bound copy of your thesis, copies are taken to Danny Gorr (x4676) on the third floor of the Library for binding. An account will be opened with the bindery in the name of the student.