

RESEARCH MANUAL 2021

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Foreword

This manual is produced by the College of Computer Studies in its effort to unify the standards for writing the Capstone and Senior Project Theses as a course requirement for the undergraduate level for the programs BS Information Systems and BS Computer Science, respectively.

This contains the revised set of guidelines on the organization and style of the manuscript, and the process of application, presentation, and submission of the research projects.

The College trusts that this manual will serve its purpose of standardizing research produced by the College of Computer Studies and will contribute to the Institution's thriving research culture.

Copyright Page

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Introduction

The Naga College Foundation, Inc. requires students to create original research that demonstrates their skills and competence to carry out and present quality written outputs that will add to the advancement of knowledge in their respective disciplines. It is important that the chosen research topic of the thesis falls within the program research agenda as defined by the institution (see Appendix 1: NCF Research Agenda).

In writing a thesis for their Capstone or Senior Project, students shall observe the standards and guidelines set by the institution as indicated in this manual. They are responsible for consulting their college regarding the requirements for writing their manuscripts and are discouraged from just following the format of another thesis.

The college thesis evaluation committee has the right to accept or reject manuscripts that deviate from the guidelines presented in this manual.

Students are advised to read this manual carefully, with respect to manuscript preparation, including the samples given in the Appendices.

Additionally, students are responsible for ensuring that their manuscript follows conventional rules of grammar, punctuation, and spelling. Hence, they are encouraged to seek the help of a professional editor to help them improve their work.

NCF Vision-Mission

Naga College Foundation is a transformative learning institution that develops God-loving, globally competent, ethical and socially responsible individuals and leaders who will create a positive influence and impact for the sustainable development of society.

Core Values

QuEST

Quality—Excellence—Service—Truth

CCS Vision

To be Bicol's leading provider of high quality, transformative, industry-oriented and affordable information technology education that is constantly responsive to the demands of the highly competitive global community.

CCS Mission

We are committed to develop God-loving, highly competent, ethical, socially responsible, and globally-aware information technology professionals who will be the pro-active partners of society in nation building.

Policies for Capstone and Special Project Thesis Writing

These policies and guidelines were formulated with the objective of helping the BS Information Systems and BS Computer Science students of the Naga College Foundation to deliver useful Capstone and Special Projects on time.

Comments and suggestions are continually welcome for the betterment of the BSCS and BSIS programs.

As Digested From:

CMO 25 Series of 2015

Outcomes-Based Practical Guide to Thesis and Capstone Project Writing in Computing by Laviña et al

Prepared By:

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Rationale and Background

The Commission on Higher Education has approved programs for Computer Science, Information Technology, and Information Systems. These shall henceforth be referred to as Computing Programs. This shall also include programs that may be endorsed by the Technical Panel for Information Technology Education (TPITE), and subsequently approved by CHED.

The Thesis (Senior Project) / Capstone Project are required for candidates for graduation in all Computing Programs. Both the THESIS and CAPSTONE PROJECT are terminal project requirements that would not only demonstrate a student's comprehensive knowledge of the area of study and research methods used but also allow them to apply the concepts and methods to a specific problem in their area of specialization.

BS Computer Science students are required to complete a thesis that is focused on the theories and concepts of computing in the form of a scientific work.

BS Information Systems students are required to complete a thesis that is focused on the application of information systems to business processes .

It is expressly understood that Computing Thesis and Capstone Projects need not require surveys, statistics, and descriptive methods unless appropriate.

HEIs are required to include thesis and capstone projects in their curricula. The Policies and Standards for Undergraduate Thesis intends to serve as a guide for administrators, faculty and students alike in determining what are allowable standards or capstone projects in the context of undergraduate studies in Computing.

Definitions

A Thesis is a terminal technical report on a systematic investigation of a problem that can be solved using computing. It may include a solution, an approximate or partial solution, a scientific investigation, or the development of results leading to the solution of the problem. A computer science thesis in a Senior Project course must be anchored on computer science principles. Similarly, an information systems thesis in a Capstone Project course must be anchored on information systems principles.

Scope of Thesis Projects

The Thesis for Senior or Capstone Project should integrate the different courses, knowledge, and competencies learned in the curriculum. The students are encouraged to produce innovative results, generate new knowledge or theories, or explore new frontiers of knowledge or application.

A Thesis Involving the Development of Software Systems should involve algorithm-based research and development founded on computer science principles. This should be reflected in the final report.

A Capstone Project should involve strategic application of information systems policies and procedures that will improve the study's current business processes. This should be founded on the principles of integrating information systems in business. The final report may consider a software development output, an information systems strategic plan, or an analysis conducted leading to the implementation of an information systems.

Parts of a Proposal Defense Documentation

The proposal defense shall contain the following parts

Quantitative Research	Qualitative Research
Preliminaries <ul style="list-style-type: none">Title Page	Preliminaries <ul style="list-style-type: none">Title Page
1 INTRODUCTION <ul style="list-style-type: none">Discussion on the Background of the ProblemThematic/topical organization of literature shall be followedSynthesis of the State-of-the-ArtGap bridged by the StudyTheoretical FrameworkConceptual FrameworkStatement of the ProblemAssumptionsHypothesis (if any, depending on the nature of the problem)Scope and Delimitations of the StudySignificance of the StudyDefinition of Terms	1 INTRODUCTION <ul style="list-style-type: none">Discussion on the Background of the ProblemThematic/topical organization of literature shall be followedSynthesis of the State-of-the-ArtGap bridged by the StudyTheoretical FrameworkConceptual FrameworkStatement of the ProblemAssumptionsHypothesis (if any, depending on the nature of the problem)Scope and Delimitations of the StudySignificance of the StudyDefinition of Terms
2. METHODOLOGY	2. METHODOLOGY

Quantitative Research	Qualitative Research
<ul style="list-style-type: none"> • Methods of Research • Respondent of the Study • Data Gathering Procedure • Research Tool • Statistical Tool • Systems Design • Systems Architecture • End Notes 	<ul style="list-style-type: none"> • Methods of Research • Respondent of the Study • Data Gathering Procedure • Research Tool • Statistical Tool • Systems Design • Systems Architecture • End Notes

Parts of a Thesis Pre-Oral and Oral Defense Documentation

The thesis for pre-oral and oral defense shall contain the following parts

Quantitative Research	Qualitative Research
Preliminaries <ul style="list-style-type: none"> • Title Page • Compliance of the Secretary's Report • Table of Contents • List of Figures (if any) • List of Tables (if any) 	Preliminaries <ul style="list-style-type: none"> • Title Page • Compliance of the Secretary's Report • Table of Contents • List of Figures (if any) • List of Tables (if any)
1. INTRODUCTION <ul style="list-style-type: none"> • Discussion on the Background of the Problem • Thematic/topical organization of literature shall be followed • Synthesis of the State-of-the-Art • Gap bridged by the Study • Theoretical Framework • Conceptual Framework • Statement of the Problem • Assumptions • Hypothesis (if any, depending on the nature of the problem) • Scope and Delimitations of the Study • Significance of the Study • Definition of Terms 	1. INTRODUCTION <ul style="list-style-type: none"> • Discussion on the Background of the Problem • Thematic/topical organization of literature shall be followed • Synthesis of the State-of-the-Art • Gap bridged by the Study • Theoretical Framework • Conceptual Framework • Statement of the Problem • Assumptions • Hypothesis (if any, depending on the nature of the problem) • Scope and Delimitations of the Study • Significance of the Study • Definition of Terms
2. METHODOLOGY <ul style="list-style-type: none"> • Methods of Research • Respondent of the Study • Data Gathering Procedure 	2. METHODOLOGY <ul style="list-style-type: none"> • Methods of Research • Respondent of the Study • Data Gathering Procedure

Quantitative Research	Qualitative Research
<ul style="list-style-type: none"> • Research Tool • Statistical Tool • Systems Design • Systems Architecture 	<ul style="list-style-type: none"> • Research Tool • Statistical Tool • Systems Design • Systems Architecture
3. RESULTS and DISCUSSIONS <ul style="list-style-type: none"> • Available Discussions on SOP or Objectives of the Study • Research Tool Validation Results • (Only the main topics per problem shall appear as headings. The number of subheadings shall be consistent with the number of subproblems posed in Item 1.) 	3. RESULTS and DISCUSSIONS <ul style="list-style-type: none"> • Available Discussions on SOP or Objectives of the Study • Research Tool Validation Results • (Only the main topics per problem shall appear as headings. The number of subheadings shall be consistent with the number of subproblems posed in Item 1.)
References (APA latest edition)	References (APA latest edition)
Appendices <ul style="list-style-type: none"> • Instruments Used • Correspondence • Interface and Design • Matrix of Initial Test Results 	Appendices <ul style="list-style-type: none"> • Instruments Used • Correspondence • Strategic Plan Output (if applicable) • Interface and Design (if applicable)

Parts of a Thesis Final Oral Defense Documentation

The thesis for final oral defense shall contain the following parts

Quantitative Research	Qualitative Research
Preliminaries <ul style="list-style-type: none"> • Title Page • Compliance of the Secretary's Report • Abstract • Acknowledgment • Table of Contents • List of Figures (if any) • List of Tables (if any) 	Preliminaries <ul style="list-style-type: none"> • Title Page • Compliance of the Secretary's Report • Abstract • Acknowledgment • Table of Contents • List of Figures (if any) • List of Tables (if any)
1. INTRODUCTION <ul style="list-style-type: none"> • Discussion on the Background of the Problem • Thematic/topical organization of 	1. INTRODUCTION <ul style="list-style-type: none"> • Discussion on the Background of the Problem • Thematic/topical organization of

Quantitative Research	Qualitative Research
<p>literature shall be followed</p> <ul style="list-style-type: none"> • Synthesis of the State-of-the-Art • Gap bridged by the Study • Theoretical Framework • Conceptual Framework • Statement of the Problem • Assumptions • Hypothesis (if any, depending on the nature of the problem) • Scope and Delimitations of the Study • Significance of the Study • Definition of Terms 	<p>literature shall be followed</p> <ul style="list-style-type: none"> • Synthesis of the State-of-the-Art • Gap bridged by the Study • Theoretical Framework • Conceptual Framework • Statement of the Problem • Assumptions • Hypothesis (if any, depending on the nature of the problem) • Scope and Delimitations of the Study • Significance of the Study • Definition of Terms
<p>2. METHODOLOGY</p> <ul style="list-style-type: none"> • Methods of Research • Respondent of the Study • Data Gathering Procedure • Research Tool • Statistical Tool • Systems Design • Systems Architecture 	<p>2. METHODOLOGY</p> <ul style="list-style-type: none"> • Methods of Research • Respondent of the Study • Data Gathering Procedure • Research Tool • Statistical Tool • Systems Design • Systems Architecture
<p>3. RESULTS and DISCUSSIONS</p> <ul style="list-style-type: none"> • Discussions on SOP or Objectives of the Study • Research Tool Validation Results • (Only the main topics per problem shall appear as headings. The number of subheadings shall be consistent with the number of subproblems posed in Item 1.) 	<p>3. RESULTS and DISCUSSIONS</p> <ul style="list-style-type: none"> • Discussions on SOP or Objectives of the Study • Research Tool Validation Results • (Only the main topics per problem shall appear as headings. The number of subheadings shall be consistent with the number of subproblems posed in Item 1.)
<p>4. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS</p> <ul style="list-style-type: none"> • Summary of Findings • Conclusions • Recommendations 	<p>4. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS</p> <ul style="list-style-type: none"> • Summary of Findings • Conclusions • Recommendations
<p>References (APA latest edition)</p>	<p>References (APA latest edition)</p>
<p>Appendices</p> <ul style="list-style-type: none"> • Instruments • Correspondence 	<p>Appendices</p> <ul style="list-style-type: none"> • Instruments • Correspondence

Quantitative Research	Qualitative Research
<ul style="list-style-type: none"> • Interface and Design • Sample Source Code • Curriculum Vitae 	<ul style="list-style-type: none"> • Strategic Plan Output (if applicable) • Interface and Design (if applicable) • Curriculum Vitae

Suggested Areas for Thesis Projects

The following is a list of some suggested areas per program. The specific areas identified for each degree may also be considered or the other computing degree programs, depending on the scope, limitations, and approach and following the principles stated in preceding sections.

Computer Science and Information Systems	Foundations of Computer Science	Human Computer Interaction
Software Development and Theory Mobile Computing Systems Software Extensions or Plug-ins Expert Systems and Decision Support Systems Systems Software Intelligent Systems Game Development Computer Vision Image/Signal Processing Natural Language Processing Pattern Recognition and Data Mining Bioinformatics Cloud Computing Parallel Computing Embedded Systems Emerging Technologies	Automata and Formal Languages Data Structures and Algorithm Design and Analysis Web Semantics Coding Theory Programming Languages Visualization Systems Computer and Architecture Modeling and Simulation	Usability Affective Computing Emphatic Computing

Composition of Thesis / Project Groups

Students should preferably work individually or in teams of two (2) members depending on the complexity of the project. The TECHNICAL ADVISER should be able to determine whether the team (proponent) can complete the project on time. Multidisciplinary teams are also encouraged if team members will work on their area of specialization per program, i.e., data analytics for computer science, information management for information systems.

Committee Members

The Thesis is prepared under the guidance of a TECHNICAL ADVISER and presented and accepted by a PANEL composed of five(5) Committee Members that includes the Technical Adviser.

ADVISER: The Adviser will guide the proponent/s throughout the whole project life cycle, including the Thesis / Capstone Project Defense/s and possible project deployment. The Adviser will be the one to approve if the proponent/s is/are already eligible for defense.

PANEL MEMBER: The Lead Panel shall critique both the output and the documentation of the project.

PANEL MEMBER: The Panel member shall also critique the software output presented by the proponent/s.

CHAIRMAN: The overall supervision of the defense is to be represented by the Dean of the college. He/She acts as the moderator that will facilitate the defense scheduling and project compliance requirements.

SECRETARY: Summarizes the decisions including the comments and recommendations of the committee members.

Project Stages / Schedule

The entire course program officially starts upon successful defense of the project proposal and ends with the submission of an approved document and other deliverables. The Thesis has four (4) stages (Proposal, Preliminary Oral Defense, Oral Defense and Final Oral Defense).

The proponent/s is/are given three (3) terms or semesters to finish their Thesis. Proposal Defense is part of the Methods of Research final requirements. The pre-oral defense is part of Thesis 1 and Capstone Project 1 requirement. Oral and Final Oral

Defenses are part of the Thesis 2 and Capstone Project 2 requirements. Upon completion of the pre-oral defense, schedules for oral defense schedules are announced at the start of the Thesis 2 and Capstone Project 2 term while the final oral are announced a month before the term ends.

Verdicts

ACCEPTED: The project proposal is immediately approved by the panel members.

ACCEPTED WITH REVISION/S: The revisions are necessary but they do not have to be presented in front of all panel members. The corrected version will only be examined by the Technical Adviser and Head Panel, after which the panel members will just affix signature on the approval sheet.

REDEFENSE: The revisions will be presented and checked by all panel members. If indeed necessary that another defense session may be required by the panel in order to further clarify the objectives and scope of the project, the proponent/s need/s to re-apply for another defense but need not re-pay defense fees.

NOT ACCEPTED: The proposed project/topic is rejected.

Verdicts for every defense will be posted at the College Bulletin board by the Special Project Coordinator few days after the scheduled defense. The verdict is a unanimous decision among the members of the defense panel. Once issued, it is final and irrevocable.

Once approved, **NO ITEM** may be modified or removed from the Project and Software Objectives and Scope.

Grading System

GRADING SCHEME: The grading scheme for the course is illustrated below:

Mechanics	15 %
Organization	15 %
Research Content Quality	40 %
Researcher's Ability to Defend the Project	30 %
Total	100 %

GRADE SUBMISSION (Thesis1/Capstone Prooject1): The student researcher will only be given a passing grade if he or she had successfully defended and passed the **PRE-ORAL DEFENSE**.

GRADE SUBMISSION (Thesis2/Capstone Project2): The student researcher will only be given a passing grade if he or she had successfully defended and passed the **FINAL ORAL DEFENSE**. A **SIGNED and APPROVED** manuscript documentation is expected to be submitted on or before practicum deployment.

Citation

The proponent/s is/are required to put citation for every support in their documentation. Any arguments, claims, or solutions must be properly anchored or based on published materials such as books, journals, articles, thesis, dissertations, etc ... For every support from published materials, the proponent/s needs to cite the references. A citation to a reference in the body of the text is indicated by a bracket with APA in-text citation format corresponding to the details presented in the references section. Example:

"During high stress periods, individuals should focus on the situation-specific tasks rather than rely on general knowledge structures (Romulo, 2022)".

Any online or baseless web references including blogs sites, wikipedia, are not allowed to be cited unless justifiable enough that the information gathered was/were reliable.

Intellectual Property Rights (IP)

All Thesis must not infringe on existing IP. All prior works, including open source, open content, and creative commons content shall be properly cited.

Copyright and other Intellectual Property Rights arising from the Thesis shall be bound by the IP Policies of the HEI, provided that any such policies shall not be grossly disadvantageous to the creators of IP.

Procedural Steps

Eligibility. Only students who are enrolled in the Methods of Research subject (BSCS or BSIS) are eligible to undergo the research project.

Proposal. Student(s) must conceptualize and submit a research project proposal to the teacher in-charge of the methods of research class.

Defense Schedules. As a general rule, the academic department sets the schedule for the project proposal defense, pre-oral defense, oral defense, and final defense.

Proposal Defense. Student(s) is/are not allowed to go through the proposal defense without the following: (a) duly accomplished application form duly approved and signed by the methods of research adviser (b) prescribed preliminary documents for proposal defense (c) proposal defense fees. The panelists can come up with any of the three possible verdicts: (1) Acceptance of the Proposal/Acceptance of Proposal with Revision(s), (2) Re-Defense, (3) Non-Acceptance. The decision of the panelist is final.

Preliminary Defense. The preliminary defense is the time when the student orally presents his/her/their project output before the research committee. The requirements for the pre-oral defense are: (a) duly accomplished application form duly approved and signed by the adviser (b) prescribed documentation except source code and (c) compliance with the recommendations and requirements given by the panelists during the proposal defense.

Oral Defense. The oral defense is the first step towards completion of the research project. The oral defense determines whether or not the student has successfully complied with all the requirements for the completion of the project. Student(s) shall not be allowed to go through oral defense without the following (a) duly accomplished application form duly approved and signed by the adviser (b) complete manuscript documentation (c) full compliance of all the recommendations and requirements given by the panelists during the preliminary defense, and (d) IMRAD documentation. Student(s) shall be evaluated, and his/her/their performance graded based on complete acceptable deliverables, well-prepared and delivered presentation, and productive Q & A portion. Passing grade for the research project is 75%.

Final Oral Defense. The final defense is the last step towards completion of the research project. The final defense determines whether or not the student has successfully complied with all the requirements for the completion of the project. Student(s) shall not be allowed to go through final defense without the following (a) duly accomplished application form duly approved and signed by the adviser (b)

complete manuscript documentation (c) full compliance of all the recommendations and requirements given by the panelists during the preliminary defense (d) poster presentation, (d) user's guide, and (e) IMRAD documentation. Student(s) shall be evaluated and his/her/their performance graded during the final defense is based on complete acceptable deliverables, well-prepared and delivered presentation, and productive Q & A portion. Passing grade for the research project is 75%.

Failure to Defend. A researcher who did not apply for any of the defense, or has applied for a defense but failed to show up during the defense schedule or showed up late for the defense, shall receive a numeric grade of 60.

Panelist. As a general rule, only full-time members with a relevant graduate (**Masteral** and/or **Doctoral**) degree of the Faculty of the College of Computer Studies may serve as a panelist. However, external panelist may be invited in case of a multi-disciplinary research project, subject to the approval of the members of the committee and will be asked to give a quantitative evaluation or grade. To uphold the academic integrity of the panel members and to prevent any undue influence or any impropriety, students are prohibited from consulting with their panelists outside of the actual oral defense. The panelists for the proposal defense, unless replaced for cause, shall serve as panelists until conclusion of the project defense. A panelist may also be replaced upon voluntary inhibition.

Adviser. The adviser shall be the first instance of quality assurance of the research project, ensuring that the project scope and its complexity is sufficient for the research(s) as it is also within acceptable level of standards, and that the project is doable within the given time frame. The adviser shall oversee the entire conceptualization and development of the project.

Schedule of Fees. Each panelist including the secretary shall be paid Three Hundred Pesos (**Php 300.00**) for serving as such for each defense. The chairman shall be paid Five Hundred Pesos (**Php 500.00**) for each defense. External panelist shall be paid Three Hundred Pesos (**Php 300.00**) for each defense. The adviser shall be paid One Thousand Pesos (**Php 1,000.00**) for each defense. In addition, the adviser may be replaced at the instance of the student, upon voluntary inhibition, or upon separation from service, disability or death.

Research Colloquium. The researcher(s) shall present their final research output before the public. There shall be a question-and-answer portion that is open to any attendees of the colloquium.

Duty of The Researcher. It is the duty of the researcher(s) to comply with all the requirements for the successful completion of the research project. The research(s) is/are expected to work independently on his/her/their project. Outsourcing of research deliverables such as documentation and/or

software/hardware output is not allowed.

Required Defense Attire. The student should come for the defense in business attire. Business attire is defined as dress or suit for women and barong or long sleeves with tie for men. Women may wear leather or fabric shoes. Men should wear leather shoes. Under no circumstance shall anyone be allowed to go through defense without the proper attire.

Requirements for Submission. For purposes of obtaining clearance for the release of diploma and academic records, the student must, relative to the research project, submit the following: (1) five (5) of hardbound manuscript documentation, paper size is short bond paper substance 20, and (2) soft copy of the project files and documentation in a compact disk (installer, source code, manuscript, user's guide, poster, IMRAD). These requirements should be submitted within 7 days after a successful presentation in a research colloquium.

Grading Scheme. The grade shall be computed as follows: 25% Chairman, 25% Panelist 1, 25% Panelist 2 and 25% Adviser.

Table 1. Grading Scheme (Chairman, Panelists, & Adviser)

CRITERIA	WEIGHT	CHAIRMAN	PANEL1	PANEL2	ADVISER
1. MECHANICS (General appearance, sentence structure, semantics, grammatical correctness, referencing such as bibliographic entries, end notes, pagination, appendices)	15 %				
2. ORGANIZATION (Coherence, clarity, emphasis, unity of ideas, logical presentation, unity of structure)	15 %				
3. QUALITY OF RESEARCH CONTENT (Originality, use of presentation materials, appropriateness of statistical treatment, depth of interpretation of findings, relevance of conclusions and recommendations to the problem)	40 %				
4. RESEARCHER(S) ABILITY TO DEFEND HIS/HER/THEIR PROJECT (Mastery of the content, knowledge of the problem areas and allied fields, clarity in the presentation of the research, ability to answer questions, ability to demonstrate professional attitudes toward suggestions and revisions)	30 %				

Submission of Grade. No student shall be given a passing grade if the above-mentioned requirements are not complied with.

Manuscript Preparation

Paper and Printing Specifications.

Print the final copy with a laser printer using only one side of a standard-sized NCF template (8.5 x 11 inches).

Font Specifications.

Use 11-point Verdana font throughout the thesis except when compressing a large table.

Spacing

Double-space the text; single-space long quotations, table and figure captions, and similar special materials (e.g., table legend). Type triple-spaced from the top margin, centered, boldfaced, and in ALL CAPS all headings of the preliminary section (except the Copyright Page and Title Page) and all chapter titles.

Margins

Leave 1.5 inches for the left margin to allow for binding and trimming and 1 inch for the top, bottom, and right margins.

Page Numbering

Paginate the preliminaries by using lowercase Roman numerals.

Use Arabic numerals to paginate the text, references, and appendices. Number all the pages consecutively starting at number 2 on the second page of the first chapter. The first page of each chapter, though counted, shall not be numbered.

Type the page number at the upper right-hand corner of the paper.

Preliminaries

The preliminaries include the title page, certification-and-approval sheets, acknowledgments, abstract, table of contents, list of tables, and list of figures.

Cover and Title Pages

Follow the instructions on the attached sample-form pages. Note which items are in ALL CAPS and which are not. Note the approximate size of the print (see Appendix 1: Cover Page Format; and Appendix 2: Title Page Format).

Certification-and-Approval Sheet

Prepare a Certification-and-Approval Sheet. Refer to the attached sample for the wording and format that shall be followed faithfully. Include this sheet in each final copy of the research.

The **CERTIFICATION** is an attestation by the Thesis Evaluation Committee that the paper has been examined and recommended for oral examination.

Type triple-spaced from the top margin, centered, boldfaced, and in ALL CAPS the heading **CERTIFICATION**.

The **APPROVAL** contains the formal approval or commendation of the Panel on Oral Examination (three members for a thesis and five members for a dissertation, both headed by a chair). (See Appendix 3: Certification-and-Approval Format.)

Acknowledgments

Type triple-spaced from the top margin, centered, boldfaced and in ALL CAPS the heading **ACKNOWLEDGMENTS**. Double-space the text that begins three single spaces from the heading.

Abstract

The abstract is a brief descriptive summary of the thesis or dissertation. It contains the main objective of the study, a brief description of the research method, major findings, conclusions or main arguments, and recommendations.

Type triple-spaced from the top margin, centered, boldfaced, and in ALL CAPS the heading **ABSTRACT**. Type triple-spaced from the heading the following data that are double-spaced, flush with the left margin: thesis title, researcher's name, type of document, name of granting institution, city, region, year of completion, and adviser's name.

The abstract, which shall not exceed 250 words, is double-spaced, except the title of the thesis which is typed single-spaced. A minimum of five (5) keywords shall be written on the lower part of the abstract page. (See Appendix 4: Abstract Format)

Table of Contents

The Table of Contents comes after the abstract. Type triple-spaced from the top margin, centered, boldfaced, and in ALL CAPS the heading **TABLE OF CONTENTS**. Type double-spaced from the heading. It shall list all elements of the preliminaries, chapter titles, main headings, references, and appendices. The beginning page

number of each section is indicated along the right margin. The numbering of the chapters and the wording, capitalization, and punctuation of titles and headings, shall be exactly the same as they are in the text.

Below is the format for four levels of heading adapted from the APA Publication Manual Style 6th Edition.

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List of Tables

Type triple-spaced from the top margin, centered, boldfaced, and in ALL CAPS the heading LIST OF TABLES. Type double-spaced from the heading the following data in three columns: number, title, and page. The title of each table must be centered, boldfaced, and in title case. Single-space must be observed within the title, but double-space between titles.

An example is given below.

LIST OF TABLES

Table	Title	Page
1	Level of Acceptance Along Functionality	35
2	Summary Table for Level of Acceptability	37

The Text or Body of the Paper

Below is the APA Publication Manual Style 6th Edition format of five levels of heading that will be used in writing the text or body of the paper.

Levels	Format
1	Centered, Boldface, Title Case
2	Flush Left, Boldface, Uppercase and Lowercase heading
3	Indented, Boldface, Lowercase paragraph heading ending with a period
4	<i>Indented, italicized, boldfaced, lowercase paragraph heading ending with a period</i>
5	<i>Indented, italicized, lowercase paragraph heading ending with a period</i>

Heading and Subheadings

Begin each chapter on a new page.

Capitalize the heading and left-aligned. Both the heading and subheadings are typed in bold font. Verdana font.

Use Arabic numerals for the item numbers

Type triple-spaced from the top margin and centered the chapter number heading. Type double-spaced below the chapter heading the title of the chapter.

Example:

1 INTRODUCTION

Type the subheading or the first line of the introductory paragraph of the chapter three spaces below the chapter title. Subheadings of a chapter are typed in boldface, flush with the left margin, capitalizing only the first letter of the word and all major words. They do not have any end punctuation.

Example:

Statement of the Problem

Definition of Terms

Only the variables or key terms included in the study shall be defined.

Acronyms need not be defined if their meanings have been mentioned in the text.

A term shall be defined operationally (i.e., how it is used in the study), or theoretically/conceptually (i.e., how it is defined in published resources such as dictionaries or researches).

Definitions taken from published source shall bear an appropriate in-text citation and have a corresponding entry in the reference list/works cited.

The terms shall be sequenced starting from the title keywords, then in alphabetical order.

If the terms consist of more than one word, capitalize every major word.

The term to be defined shall be indented, typed in a bold face, and punctuated with a period. Two spaces shall separate the period from the definition.

Each definition shall be expressed in a complete statement and NOT in phrases.

Symbols and abbreviations shall be enclosed in parentheses following their spelled-out nomenclatures.

Related Literature and Studies

The Related Literature and Studies shall be organized thematically/topically; therefore, the subheadings will be based on the themes/topics. A synthesis of the reviewed literature and studies should be placed at the end of the thematic discussions.

Except for classical theories and any other relevant literature, all the literature and studies included in the review shall have been published or written (if unpublished, such as theses and dissertations) at least ten (10) years before the conduct of the current study.

Except for exploratory studies, the minimum number of literature and studies to be reviewed shall be pegged at thirty (30) or more. Fifteen (15) for local studies and related systems, fifteen (15) for foreign studies and related systems.

Tables and Figures

Type above every table its number and title.

Type the table number at the center and triple-spaced from the last line of the immediately preceding paragraph.

Type the title of the table right after the table number, centered and bold faced.

Remove the left and right borders of the table.

Example:

Table 1 Total Number of Sample Inside the School

Program	Population	Percentage
CFMO Personnel	4	1.56%
Security Personnel	23	5.99%
School Driver	4	1.04%
Teaching Personnel	237	61.72%
Non-teaching Personnel	114	29.69%
Total	384	100%

Typed triple-spaced from the last line of the immediately preceding paragraph its figure number and title.

Example:

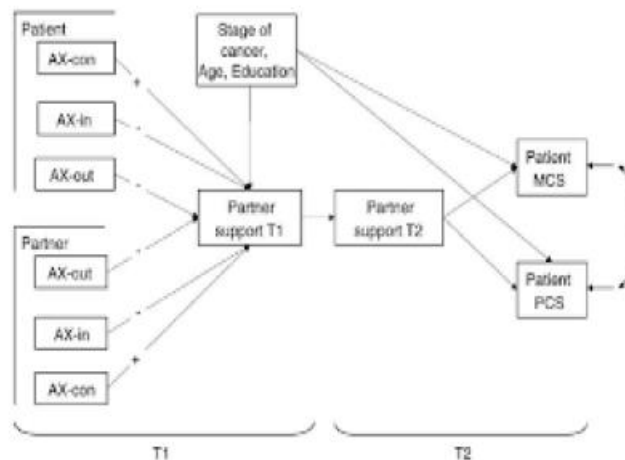


Figure 1 Theory through a Set of Path Models

If the title is long, align to the first word of the title the rest of the title.

Use the landscape page layout for large tables.

If the table is still too large to fit a single page, reduce the Arial font to a minimum of 8 points.

If the table does not fit the page even after the font-size reduction, continue the rest of its part to the next page, but the cut part shall bear the subtitle,

'Continuation' flush with the left margin (e.g., Continuation of Table 14). The cut part/s shall also show the column headings and the legend (if any) like those in the first part of the table.

Put two or more small tables or figures on a single page if the page is big enough to accommodate them all.

Have small tables and figures appear on the same page along with the text; however, leave three spaces between every table/figure and the texts above and below it.

The width of the table shall be dependent on the length of its title.

References

The American Psychological Association (APA) shall be used.

The References should contain the author's name, date of publication, title of the work, and publication data.

Invert all authors' names; give surnames and initials for up to and including seven authors (e.g., Author, A. A., & Author, B.B.) When authors number eight or more, include the first six authors' names, then insert three ellipsis points and add the last author's name.

Spine Format

Spine format: The number of bars on the spine represents the level of program. Hence, it shall have one bar to represent the the BS Computer Science and BS Information systems undergraduate programs.

Color: Green book for both programs with Yellow Gold letterings.

Front Cover: Should contain the Thesis Title in inverted pyramid format, Name of School, Name of Researchers (Authors) and Year graduated.

The sample layout is shown in the succeeding images.

AUTHORS
NAME

TITLE

YEAR

THESIS TITLE

A Special/Capstone Project
Presented to the Faculty of College of
Computer Studies
Naga College Foundation, Inc.

In partial fulfillment of
the Requirement for the Degree
Bachelor of Science in Computer Science/
Bachelor of Science in Information Systems

AUTHOR

YEAR

APPENDIX A

NCF RESEARCH AGENDA

NAGA COLLEGE FOUNDATION. INC.
COLLEGE OF COMPUTER STUDIES



Capstone and Senior Project

**RESEARCH MANUAL
2021**