



COLLEGE OF EDUCATION & HUMAN SERVICES

**MASTER OF SCIENCE
IN ADMINISTRATION**

CENTRAL MICHIGAN UNIVERSITY

The Student Guide to the MSA Capstone Project

Part 1: The Research
Proposal and the
Research Project

Central Michigan University
July 2016

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WELCOME TO THE MSA 699 PROJECT

MSA 699 is designed as the culminating activity in the Master of Science in Administration degree program of Central Michigan University. Unlike most courses you have taken, MSA 699 will be completed on an individual basis. 24 hours will be taken in a classroom setting. Much of the planning, organizing, research, analysis, and writing will be done independently in close association with the MSA 699 monitor. The MSA 699 monitor is the instructor of your course.

This guide has been prepared to provide you with assistance in a readily accessible form; use it for specific guidance as you undertake your MSA 699 project.

Important note:

Do not assume that your MSA 600 research proposal will be accepted as the basis of your MSA 699 project. The MSA 600 research proposal is intended to familiarize you with the parts of the proposal and develop your skills in writing and using the APA format. For a variety of reasons an acceptable MSA 600 proposal may not be viable for a Capstone project. It may be too broad in scope, written permission may not be available from your organization, or the methodology impractical for a project that must be completed within a semester. Certainly, a well-designed research proposal might be approved by the MSA 699 monitor for use as the basis of the final project, but there is never an implicit guarantee. Your MSA 699 monitor will make the final determination.

What is the MSA 699 Project?

The MSA 699 project is a managerial research activity designed to accomplish three specific goals. First, it provides an opportunity for you to bring together the concepts, information, and methodologies learned in the MSA core and the concentration courses. The course is taken toward the end of your program, after you have completed the required core courses with a “C” or better, MSA 600, MSA 602 and MSA 603, and at least 15 additional semester hours of other core and concentration courses. As you begin the project, review notes, texts, and papers you have written so your project will benefit from your previous learning experiences.

Second, the project challenges you to apply what you have learned to your profession. Academic learning becomes increasingly valuable when used to solve administrative problems. Ideally, the project you undertake will relate directly to your professional activities in such a way that you, your employer, and the organization in which you work will benefit directly. The project should focus on a subject of personal or potential professional value to you (where your particular situation makes this possible). Its principal purpose is applying administration theory and research to practical issues and problems found in occupational situations. In addition, the project should be directly related to your MSA concentration. This is why the project is done later in your program after you have taken a number of concentration courses.

Third, the project paper will demonstrate that you understand the literature and have knowledge of the subject area you studied, and that you can apply that knowledge both analytically and practically. The recommended action proposed in your project report also demonstrates your ability to define an issue/problem, carry out necessary applied research using appropriate methodologies, report your conclusions, and present your recommendations to management in a professional and persuasive manner.

You are advised to consult others while developing and working on your project. No senior decision-maker works in isolation and neither should you. Discuss your ideas with colleagues at work, with your spouse, and with other students. Be open to their ideas; at the same time be discriminating. **Because the MSA 699 monitor has final authority over your project, it is important that you confer regularly with him or her.** However, please note that your monitor does not grant research approval. This approval will come from either the MSA office or the IRB.

Part I of this guide presents the basic requirements for successful completion of your MSA 699 project and its associated report. Part 2 covers the Research Review Application process and includes sample application forms, frequently asked questions, MSA 699 registration information, and library information. If required to do complete CITI training, you should consult the MSA Student's Guide to CITI. If required to seek IRB approval, you should consult the MSA Student's Guide to IRBNet (Part 1 and Part 2). All publications can be found at the [MSA Capstone Guide and RRA web site](#): (*Important Note: Either Research Review Application approval or IRB approval must be obtained before you begin to collect data.*)

OVERVIEW OF THE MSA 699 PROJECT

This section discusses four issues. First, a description is given of the content and procedures for the MSA 699 project. The second part discusses ethics and plagiarism; the third addresses the research proposal and the fourth outlines the paper.

The MSA 699 project report is a decision oriented research paper which addresses an issue in an existing organization. In doing the paper, the student applies the knowledge that he or she has gained in the MSA program to determine appropriate administrative action.

For purposes of the MSA 699 project, *research* refers to any systematic and organized effort to investigate a specific problem or issue. That problem/issue must be a practical one (related to the concentration and, ideally, the work place). Generally the researcher must:

1. Know what she or he wants to study.
2. Gather information about what has occurred and was said (written) in the past.
3. Define a methodology by which the problem can be studied.

4. Collect the data from appropriate sources.
5. Analyze, interpret, draw conclusions and make recommendations on the basis of the findings.

The problem/issue to be used for MSA 699 research should meet three criteria. It should:

1. Be a problem identified by the student and defined in researchable terms.
2. Be concentration related or work related with a focus on the student's concentration — it does not have to be from the student's immediate job or work but should be from that organization or company.
3. Be administrative in content. It must deal with a management/administrative problem — resource allocation and/or utilization.

MSA 699 students who are not employed should focus on developing concentration related projects with an administrative focus.

The goals of the MSA 699 research project are to:

1. Provide the student with an opportunity to create a synthesis of the concepts, information and methodologies learned in the MSA core and concentration courses.
2. Challenge the investigator to apply theory to the world in which he or she functions.
3. Produce a document that demonstrates professional competence and warrants the awarding of the MSA degree.

As such, the final report should reflect an understanding of the relevant literature; knowledge of the area investigated, skill in conducting the study, ability to analyze data and to apply knowledge and theory, and should report conclusions and recommendations to specific management personnel in a professional, coherent, logical and persuasive manner.

Since MSA 699 is an *integrative* project, the student is expected to apply skills and theory acquired in the various courses of the program, including quantitative/financial techniques learned in at least one of the following courses: HSC 544, MSA 600, or MSA 602. Also of importance is the application of the knowledge and judgment learned in other core courses, specifically, how different environments impact the organization, as in MSA 603, and how modern concepts of management, learned in MSA 601 and MSA 604, apply. Concentration courses, too, can provide insight into psychological, sociological, industrial engineering, human resource management, and other theories that can be applied to the topic under investigation.

Several drafts and rewrites are often needed before the report is ready for final submission. It is the student's responsibility—not the monitor's—to ensure that spelling, syntax, structure and other aspects of the report are correct. Instructors usually return poorly

prepared reports unread. To avoid the loss of time that occurs in this situation, it is always wise to have someone read the report for content, technical and other errors before submitting it to the instructor.

PLAGIARISM AND ETHICS

Plagiarism

Merriam-Webster (<http://www.merriam-webster.com/dictionary/plagiarize>) gives the following definition for the word plagiarize: “to steal and pass off (the ideas or words of another) as one's own” or “to use (another's production) without crediting the source. “

Plagiarism is unacceptable for this or any other project or paper you write in the MSA program. Whenever you use the ideas of others, you must cite the source. Exact words must be quoted and cited. Any ideas or conclusions presented as yours must be your own. Please review the academic integrity policy found in your CMU Bulletin.

Ethics

Ethics are an important aspect of research. The primary ethical principles, which must be considered in all research involving human subjects, include:

1. Maintaining subject autonomy.
2. Maintaining the safety of subjects.
3. Promoting benefit to the subjects and larger community.
4. Conducting research in a fair and equitable manner.
5. Honoring commitments made to subjects in a study.

THE RESEARCH PROPOSAL

The research proposal consists of the following components:

- Title Page
- Table of Contents
- Chapter 1: Definition of the Problem
- Chapter 2: Literature Review
- Chapter 3: Methodology
- References
- Appendices

An explanation of each of these follows.

Title Page

The title page contains the following essential information: title of the proposal project, name of the student, date of submission, and the instructor's name. The title should be brief, but descriptive and suggest the project's purpose. An example of a title page is given on page 17.

Table of Contents

The table of contents shows the location of all the structural elements of the report, that is, the location of chapter headings and major topics within chapters, the references and various appendices. If a section continues for a number of pages, only the initial page is given.

Chapter 1: Definition of the Problem

Problem Statement

The administrative problem, its organizational context and its significance should be described. The problem statement is a description of the organizational problem or issue the student is studying. Generally, it is accepted that if the researcher cannot state the issue or problem clearly and succinctly, she or he does not understand what she or he is attempting to study. It provides fundamental direction to the project. **Chapter 1 focuses on WHAT is to be researched.**

Research Objective

The research objective flows from the problem statement. It explains what research question(s) should be examined to address the organization's administrative problem. The research question(s) can be broken down further into more precise sub-questions or research proposition statements.

Assumptions

Careful researchers, particularly those in an academic setting, set forth statements of assumptions as the basis upon which their study rests. Assumptions are like axioms in geometry-self evident truths. The assumptions must be valid in order for the research to have meaning. In your research, it is essential that others know what you are *assuming* to be true with respect to your study. To help bring your assumptions into clear view, ask yourself What am I taking for granted with respect to my problem?

Definition of Terms

Many studies have words and terms that are not widely known or recognized by persons who may read your work. A complete listing of unique and important terms and definitions should be included. Terms should be defined as they are used in the study. Operational definitions (how to measure) should be included when appropriate.

Limitations and Delimitations

No study is perfect; all research studies have their limitations. The sincere investigator recognizes that readers may need help in judging the study's validity and reliability. The limitations of the study are those characteristics of design or methodology that set parameters on the application or interpretation of the results of the study. The most obvious limitation would relate to the ability to draw descriptive or inferential conclusions from sample data about a larger group.

Nor should any study attempt to accomplish too much or answer too many questions. A good researcher must establish the limits or boundaries of his or her study (delimit). A section or statement should also be included to make explicit what the researcher does not intend to investigate or accomplish (or what the design of the study inherently will not allow). Like some other sections of the proposal, such a statement will benefit the writer as much as the reader.

Chapter 2: Literature Review

The proposal should contain all major research studies that are relevant to the student's research question(s). Literature that can be used falls into three categories. One is information from published articles in academic and trade journals and from books. Most issues are not totally new and other managers have encountered and coped with them. The published literature gives their experiences and prevents duplication of effort. Another source is the organization's formal and informal written documentation. This includes policy and procedures manuals and the correspondence and various papers which, in one form or another, set the norms, policies and practices of the organization. A third source, which should be used sparingly, is preliminary interviews with experts on the topic. **Chapter 2 focuses on WHAT OTHERS have found that relates to the topic being researched.**

Chapter 3: Methodology

The methodology chapter addresses how the researcher will study the problem that has been identified. Organize this chapter in a logical manner. The chapter includes, as a minimum, the research approach, procedures, decision criteria, and reliability and validity of instruments. Some studies may require a hypothesis statement. These topics include the respondents, how and why these were chosen, the type of data that will be collected, the sources of these data, and how the information collected will be analyzed. Descriptions are chronological and so detailed that, if someone wishes to do so, she or he can replicate the study exactly. Also, if a questionnaire or survey is utilized, the reasons for inclusion of each question and the reliability and validity of the instrument are described. The section usually concludes with a scope and limitations statement. A timetable for completing the work can be given if the student or instructor so desires. **Chapter 3 focuses on HOW the research is to be done.**

Research

A number of methodological approaches are available to the researcher. Included are feasibility study, benefit/cost or cost effectiveness approach, hypotheses testing, operations research, policy analysis, and program design or evaluation (see page 19). The methodology should be appropriate to the study of the problem chosen. Students should consult with their instructor before selecting the methodology for their projects.

This is an integrative paper, therefore, at least one application of a quantitative technique is preferred. A technique appropriate to the research may be one of the many covered in MSA 600, MSA 602, MSA 634, MSA 635, MSA 640, MSA 603, HSC 544, or other quantitative courses. Many MSA 699 projects involve a survey or questionnaire of some sort. An example of the application of quantitative techniques would be to provide statistical validity to the interpretation of questionnaire results, using such common concepts as measures of central tendency, dispersion, significance levels, confidence levels or intervals.

Data Collection

In the data collection portion of the methodology statement, it is customary to include any or all of the following:

- Categories of data to be collected
- Likely sources of these data
- How the information is to be collected
- Objectives and rationale for questionnaires, surveys, interviews, and other data gathering instruments (and for the various parts or questions)
- Whether individuals, groups, or other types of units will be utilized in the research, if respondents or participants are to be used
- How many respondents will be utilized
- How respondents will be selected and assigned
- The underlying reasoning for this selection or assignment

Note: Before collecting data, students must obtain either Research Application Review approval or IRB approval. See Part 2 of this Guide for information about the Research Review Application process.

Data Analysis and Synthesis

In the data analysis and synthesis portion, it is customary to include the following:

- Tools and techniques of analysis (e.g., t-tests, ANOVA, economic forecasting, trend analysis, etc.) and their limitations
- Models to be used in interpreting data
- Appropriate degrees of rigor in validating conclusions
- Anticipated cause-effect or chain sequences, if any

Reliability and Validity

Generally, students do not have too much difficulty in developing methodologies which identify data they will collect. Many, however, have difficulty describing how they are going to acquire reliable and valid data. *Reliability* describes the accuracy or precision of the research instrument (questionnaire, survey, etc.) and *validity* describes the extent to which the instrument measures what it is presumed to be measuring. A watch, for example, can be reliable or not reliable (it keeps time accurately or inaccurately). The watch also is accepted as an instrument for telling time; it, therefore, is valid for this purpose. A barometer, which measures pressure, also can be reliable (be precise and accurate in measuring pressure) or not reliable. It, however, would not be a good instrument to use for telling time. If a researcher reported that he had used a barometer for telling time, this research instrument would lack validity. A sundial, on the other hand, would be a valid instrument for telling time; it, however, would be less reliable than a watch. The same principle applies with research instruments. Some measure the concept under study very accurately; that is, they are reliable. If they measure what they are supposed to be measuring, they are valid instruments.

Scope and Limitations

The scope and limitations statement describes: the limits and boundaries within which data will be collected, analyzed and interpreted; the ability to generalize the research results; and other information that in any way limits or controls the way information is collected, interpreted and presented.

References

Each proposal must have a list of *references* — a listing of the books, articles and other sources that the researcher has used, and which are cited by name within the proposal. Endnotes are also occasionally used to give additional information or explanation. Endnotes may be incorporated at the appropriate point in the text. Where these are placed should be governed by what would be most convenient to readers. **All MSA 699 students must use the current edition of the APA Style Manual for references. (see this [website](#) for APA assistance)**

Appendices

Anything which might be distracting, or which is not needed in the body of the proposal, is placed in the Appendices. Included are copies of permission letters, IRB or RRA approvals, questionnaires, models, computer programs designed for the researcher's study, analytical formulas and calculations, and detailed descriptions of tests or equipment used.

Timetable

Some monitors want students to include a time line suggesting appropriate times for developing each section and writing the final report and others do not. You should ask your instructor for her or his preference.

THE RESEARCH PAPER

Note: When there is a disagreement between the Student Guide and the APA Manual, please follow the guidance in the APA Manual.

The Structure of the Paper

The usual structure of the paper is as follows:

- Blank sheet
- Abstract/Executive Summary (not included in page numbering or page count) (APA uses the term "abstract". **Either Abstract or Executive Summary is acceptable**)
- Title Page (page 1, per APA, 6th Ed.)
- Table of Contents (this should be page 2, per APA, 6th Ed.)
- List of Tables (if any are presented in the text) (continue with numbering 3, 4, etc.)
- List of Figures (if any are presented in the text) (continue with numbering 3, 4, etc.)
- Body of the report (continue with numbering 3, 4, etc.)
- References (continue Arabic page numbers)
- Appendices (continue Arabic page numbers)

Each of the parts mentioned above starts on a new page. A discussion follows.

Abstract

The abstract appears first. It is a one or two-page description of the research that was undertaken, the findings and the recommendations. The abstract provides the busy executive with a comprehensive synopsis of what the research covers so that he or she may determine whether to give additional attention to the paper. Because it *sells* the paper, all important details should be described. To do this, planning, condensing and a number of rewrites often are necessary. **Because the abstract is not a direct part of the study undertaken, it is neither numbered nor counted as a page.**

Title Page

The title page is the first page of the project read by the reader. It identifies the title of the paper, purpose for which it is submitted, institution to which it is submitted, name of monitor, student's name and affiliation, concentration, and date of completion. Material that appears on the page should be centered horizontally and vertically. (See example on page 18)

Clearance (included in appendices)

CMU requires students who use an organization's information/data or use an organizations' employees, members, customers, etc. as subjects in their papers to obtain the appropriate release or clearance to do this. Also documentation of either Research Review Application approval or IRB approval should be included in the paper.

Table of Contents, Tables and Figures

The table of contents shows the location of all the structural elements of the report, that is, the location of chapter headings and major topics within chapters, the references and various appendices. If a section continues for a number of pages, only the initial page is given. The list of tables and the list of figures state the page on which each table or figure can be found.

Body of the Paper

The body of the paper contains five main components which are as follows: (These are the preferred headings. Check with your monitor on deviations):

- Chapter 1: Definition of the Problem
- Chapter 2: Literature Review
- Chapter 3: Methodology
- Chapter 4: Data Analysis
- Chapter 5: Summary, Conclusions and Recommendations

The above or similar headings are always used. Each chapter starts on a new page. Consult the APA Style Manual for further direction on handling headings and subheadings.

A common error made by students preparing the paper is to assume the reader knows as much about the topic as does the student. This, of course, is not true. Care must be taken to use a systematic and detailed approach to describing all facets of the report, including interpreting and analyzing the data. An effective technique for testing understanding and readability is to have an uninvolved but interested third party, such as a friend, read the report and provide feedback on its meaning.

No page requirements have been set for the final report but the student will have difficulty meeting substantive requirements if the presentation is less than 30 written pages excluding tables, graphs and appendices.

Chapter 1, "Definition of the Problem," is often a rephrasing of Chapter 1 from the research proposal. Since the research is now complete, the discussion is either in the present or past

(rather than future) tense and the coverage reflects a completed rather than a planned action. Some fine-tuning of the issue definition also may be required.

Chapter 2, “Literature Review” presents a summary of the information/concepts derived from the published literature and from the review of organizational documents. Of central importance is a demonstration of the literature’s relevance to the study.

Chapter 3, “Methodology” includes the research strategy, data collection methods, rationale for questionnaires and interviews, information about respondents or participants, methods used in the quantitative and/or qualitative analyses, and methods of evaluating alternatives.

The fourth and fifth chapters have not been discussed previously. In Chapter 4, “Data Analysis,” the information derived from interviews, questionnaires, documents, observations, analysis of symptom — cause or chain sequences is presented and analyzed. Tables, charts, illustrations and other visual means are used to present the information and analyses in a meaningful and persuasive manner. Usually the chapter begins with a description of the sources of data, such as the personnel interviewed and/or surveyed. This is followed by summaries of the results of the data collection.

The data analysis chapter contains a summary of the collected data and its technical interpretation. Sufficient background information is given to allow the reader, should he/she wish to do so, to make calculations and draw conclusions. Generally, too, pertinent data are given in the body of the report. If these are excessive, less relevant materials can be placed in the appendices. Charts, tables, illustrations that are pertinent to the analysis generally appear within the body of the report on the next page following their first mention. These, however, do not take the place of the written description. In fact, the data should be described so comprehensively that if the tables and charts were removed, the reader could understand the analysis and its interpretation.

Chapter 5, “Summary, Conclusions and Recommendations,” provides the essence of the study. First, the summary gives the context (introduction), the problem, research objective, methodology, the decision criteria (if applicable), and the findings. The conclusions section discusses the root causes of the problem and the bases for opportunity. While no data or analyses are presented in this chapter, references are made to the information and technical conclusions that were determined in Chapter 4. All conclusions should grow out of the data presented in Chapter 4.

The recommendation section highlights the proposals that the researcher has for resolving the problem that was stated in the first chapter. The recommendations *are based on the analysis of the data* and the literature that was reviewed and should be related to the conclusions that were drawn from the analysis. They should be specific, realistic, practical (possible to accomplish) and measurable to the extent possible. An action plan follows each recommendation. They must have reasonable likelihood of implementation and result in

solving the researched problem. Recommendations and action plans are usually addressed to the various bodies or levels within the hierarchy of the organization which are empowered to act upon them. In providing recommendations, the researcher should have considered all opposing views and be prepared to stake his or her professional reputation on the feasibility and implementability of the recommendations and the action plans.

A WORD OR TWO OF ADVICE

Because this is an integrative project, library research or that which is limited to summarizing company annual reports or public relations publications is not sufficient. **Information must be collected, interpreted, and analyzed** — by studying records and documentation, by interviewing or surveying respondents, by observations, and so forth.

A good approach to take in outlining (and doing) your research is to assume that you are an external consultant presenting proposals and findings to a “lay” board of directors. Be objective; avoid the use of the first and second person; and define all terms that may not be known by the lay person.

The monitor who is assigned to work with you has the final authority to approve the work that you have outlined in the proposal. Considerable revision may be necessary before research can begin. The monitor is not your proof reader. Carefully prepare and review all information before submitting any draft to the monitor. Questionnaires and/or surveys must not be distributed or interviews conducted without first seeking and receiving either Research Review Application approval or IRB approval. All approval notifications are by e-mail either from the MSA office or through IRBNet.

Unlike your other courses, the capstone course is less structured and you will be required to be self-motivated. Put into practice all of the time management tips that you already utilize at work, such as setting small goals, sending reminders to yourself, and assessing your progress. In addition, coordinate with other students in your course and do “peer” reviews. Find yourself a good editor—someone who is a good writer and is willing and able to provide an objective critical review.

Remember that the MSA 699 syllabus is your contract with your instructor. Study the syllabus carefully, ask for clarification, if needed, and be cognizant of deadline requirements. The MSA 699 project can be finished in a semester. If you need additional time, be sure that you understand what your instructor requires for you to receive an incomplete grade. In most cases, this will be an approved research proposal and completion of either the Research Review Application process or the Institutional Review Board process. Keep the communication lines open with your instructor. For example, if you must miss a scheduled class session, advance notice is best. If that is not possible, contact him or her as soon as possible.

CMU Writing Center Information:

Online service is available for students enrolled in online or off campus courses. For questions about this service, call 989-774-2986. Additional information can be found at <https://www.cmich.edu/academics/colleges/liberal-arts-social-sciences/centers-institutes/writing-center>.

Here are some things to keep in mind when you submit your materials to the Writing Center. First and foremost, you alone are responsible for your final project. This includes appropriate citations, grammar, and formatting. The Writing Center consultants will review 10 pages at a time. Because of the volume received, typically, 50 minutes is spent on each submission. The consultant will focus on the most pressing issues in the paper unless you request review on specific issues. The emphasis is on overall writing style, although the consultant will often point out grammar or sentence structure errors and give examples of correct usage. It is your responsibility to apply the feedback to your entire paper as the Writing Center consultant will not point out every instance of an error. The Writing Center consultation is intended to help you become a better writer and is not responsible for proofing your paper and correcting all errors.

(SAMPLE PROPOSAL TITLE PAGE)

NEW OPPORTUNITIES FOR SERVICE BY THE XYZ AGENCY:
RECOMMENDATIONS FOR THE CHIEF OF AGENCY

PROPOSAL FOR MSA 699 PROJECT

Submitted by
John D. Smith
Student ID #
Concentration

January 15, 20xx

Instructor
Dr. Jane R. Jones

Page 1 (*formatted the same as the remainder of the proposal—upper right of page*)

(SAMPLE PROJECT PAPER TITLE PAGE)

NEW OPPORTUNITIES FOR SERVICE BY THE XYZ AGENCY:
RECOMMENDATIONS FOR THE CHIEF OF AGENCY

MSA 699 Project Report

Submitted in Partial Fulfillment of Requirements
for the Degree of
Master of Science in Administration
(Concentration in General Administration)

by
John D. Smith
Student ID#
Concentration

Project Instructor
Dr. Jane R. Jones

May 15, 20xx

Page 1 (*formatted the same as the remainder of the project—upper right of page*)

SUGGESTED FORMATS FOR FREQUENTLY-OBSERVED RESEARCH TYPOLOGIES

The following information is taken from *Master's Thesis: Procedures and Approaches Manual* (1993) by John T. Cirn, Ph.D., with the assistance of Bruce C. Stuart, Ph.D. Reprinted by permission of John T. Cirn, Ph.D. The section dealing with feasibility studies was developed by MSA adjunct faculty.

1. HYPOTHESIS TESTING

- a. Formulation of the hypothesis
- b. Research design
- c. Operational definitions and data
- d. Statistical methods
- e. Findings
- f. Discussion and conclusions
- g. Significance

Typical title: "The Effect of Three Different Styles of Packaging on Buyer Behavior"

Hypotheses are formal statements about the relationship of two or more variables, events, or concepts. They are expressed in the form of conditional statements such as: "If X increases, then Y will decrease, other things being equal." To test hypotheses, the terms (such as X and Y) must be clearly defined and measurable. Data must be systematically collected and analyzed. Statistical analyses are then typically performed to help decide whether expected relationships are supported by the data. The techniques of inferential statistics may be used to draw conclusions about a population on the basis of data from a carefully selected sample. Among the elements of a hypothesis test may be the following:

- a. Formulation of the Hypothesis
Specification of the research problem and research objectives and development of the one or more hypotheses to be tested. This may include a discussion of how the hypothesis has been derived deductively from theory, generated from previous hypothesis tests, or simply based on observations of social phenomena. The relationship of the hypothesis to the pertinent literature should be specified and analytically examined.
- b. Research Design
Description of the overall research strategy (cross-sectional, longitudinal, experimental, survey, etc.), and discussion of the strengths and weaknesses of this strategy. This discussion may include a description and defense of the populations chosen for investigation, and the criteria and methods for sample selection.
- c. Operational Definitions and Data
Translation of concepts in each hypothesis into measurable terms (operationalization). Also, description and defense of the types and sources of data, and the methods and instruments used for data collection (including assessment of measurement reliability)

and validity).

d. Statistical Methods

Description and rationale for the statistical techniques used for data reduction and analysis.

e. Findings

Verbal and tabular presentation of results of the data analysis, generally refraining from interpretations.

f. Discussion and Conclusions

Reaching of a judgment as to whether the hypothesis is supported or refuted. There may be a discussion of how the findings: (a) are consistent or inconsistent with the findings of previous hypothesis tests; (b) support, extend, specify, or undermine the theory from which the hypothesis was deduced; (c) suggest one or more new theories or explanations that may account for the findings; and/or (d) suggest the need for more research, and if so, of what type.

g. Significance

Discussion of the relevance and practical benefits of the findings and conclusions to clinicians, administrators, policymakers, members of the general public, or other possible audiences besides researchers.

2. COST/BENEFIT OR COST-EFFECTIVENESS STUDY

a. Alternatives

b. Accounting perspective

c. Identification of benefits and costs, including direct/indirect, tangible/intangible, programmatic, opportunity, etc.

d. Measurement of the above

e. Valuation of benefits and costs

f. Discounting

g. Consideration of equity

h. Decision criteria

i. Choice

j. Treatment of uncertainty

Typical title: "A Cost-Effectiveness Study of a New Child Care Facility at the Westinghouse Plant in Maryland"

A formal cost-benefit analysis is the evaluation of a program, project, treatment, or other course of action in terms of the relationship between its costs or the resources it consumes, and the outputs or benefits it produces. These costs and benefits are typically translated into dollar values. This allows for the comparison and ranking of alternatives on the basis of economic efficiency criteria. Such an analysis may be prospective: undertaken before an investment decision is made, based on estimates of anticipated costs and benefits, and thus useful in making future decisions about resource allocation. Or the analysis may be retrospective: undertaken after a program has been implemented, based on empirical data on actual program operations and impacts, and thus useful as a type of impact evaluation.

Cost-effectiveness analysis is used for comparing the productivity of alternative courses of action having similar objectives. In this approach, costs and benefits are quantified in commensurable terms, but only the costs are assigned monetary values. Benefits are expressed in terms of efficacy in correcting a given problem or reaching specified goals. This allows for the comparison and ranking of alternatives in terms of their costs of reaching given goals, or in terms of their costs for different levels of goal achievement. The assumptions and procedures for measuring costs in this approach are the same as those used in cost-benefit analyses. Among the elements of cost-benefit and cost-effectiveness analyses may be the following:

a. Alternatives

Specification of competing uses of resources, alternative approaches to a problem, and the courses of action to be analyzed. There should be a precise description of any differences among the alternatives in terms of scope, size, limits, location, and design characteristics, that may lead to differences in costs and benefits. Alternatives may be specified as combinations or packages.

b. Accounting Perspective

Specification of a reference point to serve as the basis for identifying, measuring, and monetizing costs and benefits. The major perspectives that may be considered are those of: (a) individual program participants or service recipients, (b) the public or private funding source, and (c) society as a whole. Separate calculations may be carried out for various affected subgroups.

c. Identification of Costs and Benefits

A catalog and description of each type of cost and benefit associated with the alternatives. These may include direct and indirect, tangible and intangible, and intended and unintended costs and benefits. Costs will include program costs, net opportunity costs, and existing benefits that are reduced by the alternative. Benefits may represent a desirable change in present conditions or the maintenance of conditions that would deteriorate if the alternative under study is not chosen.

d. Measurement of Costs and Benefits

Estimation for each alternative of the magnitude of each type of cost and benefit. This may entail the development and defense of a model which outlines the causal relationship between the characteristics of the alternatives and their costs and benefits.

e. Valuation of Costs and Benefits

Expression of costs and benefits in monetary values. Tangible costs and benefits are generally measured by their market prices, but corrections (shadow prices) may need to be used to more accurately reflect true social values when there are sources of serious market price distortion. If indirect approaches are used to impute dollar values to program effects, there should be a defense of the underlying assumptions. Some intangibles may be better left out of the cost-benefit computations and either expressed in quantitative measures other than dollar values or simply described in qualitative terms.

f. Discounting

Application of a rate of interest or discount to costs and benefits accruing in the future so that they are adjusted to present values. There is usually an articulation and defense

of the assumptions that underlie the choice of discount rate, and the analysis may value costs and benefits using several different rates. Alternatively, there may be a calculation of each alternative's internal rate of return (i.e., the benefits are discounted at whatever rate would set the present value of benefits equal to costs).

g. Consideration of Equity

Identification of who the losers and gainers are, discussion of the fairness of the resulting distributional effects, and making of adjustments by either (a) applying a system of "equity" weights to the costs and benefits affecting different groups, or (b) developing and applying equity criteria in conjunction with the efficiency criteria.

h. Decision Criterion

Description and defense of a summary measure or other rule to be used in choosing among the alternatives. In cost-benefit analyses, this may be the highest ratio of total benefits to total costs, or highest net present value (discounted benefits minus costs). In cost-effectiveness analyses, the search may be for: (a) the alternative which attains a particular goal or specified level of output at the lowest possible cost; or (b) the alternative which produces the most benefits or highest level of outputs at a given cost (or within a fixed budget).

i. Choice

Comparison and ranking of the alternatives in terms of the criterion chosen. This may include a discussion of how different decision criteria result in different rankings.

j. Treatment of Uncertainty

Investigation of how the ranking of the alternatives is affected when the problems of uncertainty are addressed by such techniques as contingency analysis or sensitivity analysis.

3. FEASIBILITY STUDY

a. Assumptions

b. Business history and future

c. Demand for product or service

d. Market

e. Management

f. Financial information, including supplies balance sheet, income statement, loan conditions, cash flow information, estimated sales, operating expenses, taxes, ROI, etc.

g. Appendices, including product description, maps, land, appraisals, building estimates, sampling techniques, etc.

Typical title: "Feasibility Study for establishing a Computer-Aided Design Firm"

The opportunity to develop a feasibility study and use it as a research strategy allows a student to focus on the myriad aspects of starting or enlarging a business. Writing a feasibility study for an entrepreneurial venture is no easy task. Since most business ventures require outside capital, the best way to approach the project is to prepare the feasibility study as though it will be presented to a lending institution, a bank or venture capital organization.

The successful feasibility study not only sells the concept to the lender with qualitative information, but must be convincing in its inclusion of quantitative details about every aspect of the business. The lender must feel confident that the individuals planning the venture know exactly what they are doing, have solid knowledge of the industry and competition, and have carefully thought through all aspects of the business. A feasibility study starts with background information that acquaints the reader with placement of the business in the general societal context and then proceeds with the specifics of the business.

Every strategic and operational detail is covered so the reader fully understands what the business focus will be and how management intends to position the business in the marketplace relative to the competition. The plan includes exactly what the business will be, what products or services it will provide, and who are the intended customers and market. The study also includes the intended location of the business (with a map in the Appendix), the key personnel and their qualifications, and the daily operations of the business. The total required capital investment for the business is stated, with a detailed breakdown, and the sources for capital are listed. There is also projection of total revenues for the business for the first five years.

The feasibility study cannot be created in a vacuum. The industry and environmental analyses provide the reader with a background of the nature of the competitive environment and the driving forces in the firm's external environment. Typical driving forces that can impact the success of the firm are the development and implementation of new technology, government regulation, general economic conditions, exchange rates, and global political stability. In creating a plan for a new business, the researcher is to analyze the economic characteristics of the industry in terms of market size and market growth rate. The competition is to be described and discussed in detail. Include demographics, products/services, relative geographic proximity to the proposed business, and strengths/weaknesses in the analysis. Identify, define, and analyze and define the driving forces that affect the industry. Identify the characteristics of a successful firm.

The feasibility study also includes much thoughtful introspection. The internal functional analyses need to cover management, marketing, and finance. The management analysis should include the strategic management plan and how it will be implemented. The marketing analysis includes product identification, pricing, distribution, and promotion along with the firm's position in the marketplace. The financial analysis covers startup of the business and maintaining viability. The researcher must estimate the monthly and annual cost structure along with developing a revenue schedule. This may be analyzed using a "best case scenario," "worst case scenario," and "most likely case scenario" approach. A five-year pro forma income statement, balance sheet, and monthly cash flow statement should be developed for each year. If stock is involved, the compensation for major stockholders is to be discussed. There also needs to be discussion of the feasibility of the business including the probability of success and possible threats and opportunities.

4. POLICY ANALYSIS

- a. Definition of problem or opportunity
- b. Previous responses
- c. Criteria for choice
- d. Description of alternatives, to include capital and human resources, organizational activities, size, sponsorship, time to implement, etc.
- e. Consequences of alternatives
- f. Evaluation of alternatives, including political feasibility in areas of institutional factors, interest group factors, and potential factors
- g. Choice

Typical title: "An Analysis of User Fees for Police Services"

A policy analysis specifies, and provides evidence for, the pros and cons of various options facing policymakers. It involves drawing together and evaluating facts and informed judgment regarding the causes and consequences of alternative strategies for dealing with a specific problem or opportunity in the delivery of human services. The focus may be on private or public policy. Previously-considered options may be compared, or one or more new options or new combinations of options may be formulated and included in the analysis. Among the elements of a policy analysis may be the following:

- a. Definitions of the Problem or Opportunity
A review of why an issue is, or should be, receiving attention from policymakers. This will typically include a presentation of alternative viewpoints representative of various affected interests. There may be a review of the arguments on the nature and interaction of socio-economic and other factors generating or sustaining the problem or creating the opportunity. Justification for some government action is often based on evidence of unsatisfactory performance in the private sector. There may be a prediction of trends if no action is taken. This prognosis may include "worst case," "best case," or "most probable" scenarios for the short term and long term.
- b. Previous Responses
A review of the history and effectiveness of relevant policy activities, including important legislative, administrative, and judicial actions. This review may include an analysis of previous program evaluations in the policy area.
- c. Criteria for Choice
A clear and consistent statement of the criteria by which the policies under study are to be judged. This should include a specification and defense of the objectives to be pursued, and of the operational indicators to be used in assessing the success of policies in achieving these objectives. This discussion may assess the values that would be furthered by the policies in question and the implications should the policy limits be exceeded.
- d. Description of Alternatives
A description of the alternative programs or strategies for coping with the problem or taking advantage of the opportunity. These may be compared in such terms as human and capital resource needs, organizational activities, size, sponsorship, and time

required for implementation.

e. Consequences of Alternatives

Prediction of direct and indirect consequences of each alternative considered in the analysis framed in terms of costs and benefits for various affected interests. If consequences are uncertain, estimates of their probability may be presented. There may be specification and defense of the underlying assumptions about cause-effect relationships and of the techniques used for making these predictions.

f. Evaluation of Alternatives

An evaluation of each alternative (including the alternative of doing nothing) in terms of the specified criteria of choice. When alternatives are found to be superior with respect to certain criteria but inferior with respect to others, it may be necessary to rank or weight the criteria, or develop additional criteria for evaluating the trade-offs, the different combinations of goal achievement.

It may be important to evaluate each alternative in terms of the political feasibility of its enactment and implementation.*

g. Choice

A reasoned recommendation as to which specific course of action should be pursued on the basis of the specified criteria.

*Assessment of political feasibility might include analysis of the major facilitating and constraining factors falling into the following categories:

Institutional factors: analysis here would include identification of the institutions most important for the generation, adoption, and implementation of policy in the area under study, and a description of their characteristic responses to reform proposals and of any structural features which may help to explain policy outcomes in this area.

Interest group factors: there may be a description of the active interest groups. This may include an examination of: their formal positions, other values at stake which help to account for motivations, organizational attributes, alignments and coalitions among groups, lobbying tactics, and the availability and use of political resources.

Potential factors: there may be a study of the inactive affected interests, reasons for their inactivity, and their likely orientations if aroused.

5. PROGRAM DESIGN

a. Program or setting

b. Needs assessment

c. Objectives

d. Target population

e. Design specifications, including frequency, duration, and form of activities or services, personnel, equipment, location and structure of delivery sites, time-frame for implementation, coordination with other programs, lessons learned from similar programs elsewhere, design materials (charts, procedural manuals, lesson plans, catalogues, job descriptions, forms, detailed budgets, etc.)

f. Sources of required resources

- g. Program benefits/costs
- h. Financial feasibility
- i. Political feasibility
- j. Monitoring and evaluation plan

Typical title: "Welfare Reform: An Analysis of the Temporary Assistance for Needy Families Program"

A program design is a detailed plan for a human services delivery program, accompanied by arguments supporting implementation of the program by a particular organization. The proposal may be for a significant extension or modification of an existing program, the adoption of a program as it has been in operation elsewhere, or an original creation that calls for a new approach or a new combination of familiar elements. The design should be specific to an actual site; real data should be used, and the advocacy should be directed to an identified audience. At the same time, the design should be a vehicle for demonstrating administrative knowledge and skills applicable in various settings.

The design may be a preliminary one, but the information should be sufficient to form a framework for a more developed plan, and to serve as a means for eliciting feedback and constructive criticism from work colleagues, superiors, and other interested parties. The program description and defense should be comprehensive enough to convince the organization's leadership, or an external funding or regulatory agency, that the proposed program is appropriate and feasible.

A program design done in the field will typically entail more effort than is normal for the purposes of a master's thesis. The following list offers an extensive checklist from which some subsets of elements might suffice to meet the expectations of a thesis. Many public and private agencies have quite specific format requirements for program proposals and designs, but among the elements may be the following:

a. Program and Setting

A description of the characteristics of the implementing organization and the proposed service delivery program. This introductory section should also present an overview of relevant market characteristics or other environmental factors. Existing features of the delivery system and future trends may be briefly discussed.

b. Need Assessment

A systematic appraisal of the problem or new opportunity to be addressed. Consideration can be given to known discrepancies between available and required services or facilities, forecasted supply and demand, potential and actual utilization of services. The results of censuses, sample surveys, or utilization trend studies may be reported, or there may be a defense of other indicators and techniques used for identifying the problem and community support for the proposed program. There may be a discussion of variations in perspectives on needs and priorities as held by

professionals, potential service recipients, and other constituencies, and an examination of the reasons for these discrepancies.

c. Objectives

Articulation of the intended general and specific accomplishments of the program. There may be short-term and long-term predictions. This section may set forth the guiding hypotheses about modification of individual or community conditions — hypotheses which underlie the assumed cause-effect relationships between the program and the objectives.

d. Target Population

Identification of the individuals or other units to which the program is to be directed, and specification of the criteria for selecting the service recipients. (This should follow closely the evidence presented in the need assessment.) The target population may be analyzed in terms of size, geographical location, social and demographic characteristics, distribution of problems and conditions, and sociocultural and transportation factors likely to affect utilization of services and program effectiveness.

e. Design Specifications

Detailed description of the structure and operation of the proposed program, including: frequency, duration, and form of activities or services; personnel, equipment, and other resource requirements; staff functions and organization; location and structure of new service delivery sites; time-frame for implementation; and plans for coordination with other programs both within and outside the organization. It may be advisable to demonstrate how the elements in this section conform to two major sources of design specifications:

1. The standards set forth in the State Health Plan, the Health Systems Plan and Annual Implementation Plan of Health Systems Agency; the institution's own plan, if there is one; the requirements or regulatory agencies and accreditation bodies; and the guidelines promulgated by professional associations.

2. The lessons to be learned from model programs in operation or completed elsewhere.

Design materials which may be attached as appendices could include organization charts, operations flow charts, policy and procedure manuals, job descriptions, record forms, price lists and catalog descriptions of required equipment, detailed budgets, and architectural plans.

f. Sources of Required Resources

Analysis of the availability of labor and materials needed for construction, and of the equipment and personnel needed for operation. This may include assessments of the relevant labor markets, and plans for the recruitment of scarce professionals.

g. Program Costs and Benefits

An estimate of expected direct installation and operating costs. There may also be an estimate of indirect costs, or additional burdens placed on general administration, housekeeping and maintenance, and other services and departments. This section addresses the question: "Is this program an efficient use of resources compared with alternative uses of resources?" Ideally this would be answered using a prospective cost-

benefit analysis. The proposal might also contain discussion of two or more alternative approaches to achieving the specified goals, with each alternative carrying a different total cost. A comparative cost-effectiveness analysis of these options could then be carried out.

h. Financial Feasibility

An assessment of the need for, and potential sources of, capital financing including invested equity, mortgages, loans, conventional bonds, tax-exempt bonds, stock offerings, government grants, and fund drives. Beyond the payment of program start-up costs, the institution must also have reasonable assurances that ongoing operating costs (including interest on loans) will be covered by program revenues or funds earmarked from other operations. Various types of financial analyses (cost-of-capital calculations, ratio analysis) can be brought to bear in this part of a program design.

i. Political Feasibility

An appraisal of the probable sources and level of support for and opposition to the proposed program as a whole or to various components of it, at the launching and the operational stages. This could include an examination of the likely arguments and tactics of opponents, and the counterarguments and countertactics likely to be most effective. Insights for such an analysis could be drawn from the history of past program promotions, both successful and failed initiatives, at the proposed implementing organization or elsewhere.

j. Monitoring and Evaluation Plan

A description of how data will be gathered to determine to what extent: (a) the program is reaching the appropriate target population; (b) the delivery of services or other program activities are being undertaken in conformity with the design specifications; and (c) the program is meeting the objectives and having the desired impacts. This plan may include: criteria for assessing success, operational indicators of goal achievement, identification of information needs, and an outline of a data collection system.

6. OPERATIONS RESEARCH

- a. Problem definition
- b. Model construction
- c. Model validation
- d. Data collection
- e. Model testing and analysis
- f. Evaluation of alternatives and recommendations

Typical title: "Algorithmic Scheduling Techniques for the Ballistics-Testing Center"

Operations research (OR) is a method of problem solving involving the use of mathematical and/or computer-based models to evaluate or predict the consequences of alternative courses of action on an operating system. OR techniques can be applied to certain well-structured decision situations in the planning and administration of health services, including cost minimization and output maximization problems, simulation exercises, scheduling and inventory control questions, and much more. Among the elements of an operations research project might be the following:

- a. **Problem Definition**
Precise identification of the problem and of the feasible alternative courses of action that may be effective in solving the problem. The problem may be a query of whether a particular action will have a desired result, or it may be a more general search for the results of a change in internal or external variables or for an improved or optimal result given a variety of alternative courses of action.
- b. **Model Construction**
Development of one or more representations of the most crucial aspects of the structure and operation of a system, and of the differences among the alternatives. These representations are in the form of mathematical models which can then be used to test hypotheses about the relationships between alternatives and measures of system performance. The type of model chosen (e.g., Markov chains, queuing models, Monte Carlo simulations, linear optimization models, etc.) will depend on the problem at hand.
- c. **Model Validation**
A test of the reasonableness and predictive power of the model using past data, or data from an analogous set of circumstances. This step may take the form of a literature review which analyzes the past applications of the chosen model(s).
- d. **Data Collection**
Collection of information relating to the parameters and variables incorporated in the chosen model(s) in the form which makes testing possible.
- e. **Model Testing and Analysis**
Application of the model to the data to test hypotheses or to derive optimal outcomes in a problem-solving setting. Further validation of the model(s) (e.g., sensitivity analysis) may be appropriate at this stage.
- f. **Evaluation of Alternatives and Recommendations**
Evaluation of the alternatives in terms of the measures of performance through the use of the model(s). In many cases the results of initial evaluation may indicate the need for refinement in the level of detail of the model (it may be too simple or too complex), adjustment of the database to support the new model, and re-evaluation of the alternatives. Recommendations for implementation of the solution(s) found should follow logically from the interpretative analysis.

7. PROGRAM EVALUATION

- a. Statement of Purpose
- b. Description of Program Inputs
- c. Description of Program Activities
- d. Performance Criteria
- e. Operational Indicators
- f. Research Design and Data Analysis
- g. Conclusions and Recommendations

Typical title: “A Program Evaluation of the WIC Program in Clayton County”

A program evaluation, or evaluation research, is the use of systematic methods of empirical investigation to produce information useful for making a judgment about a program’s worth or performance, according to specified criteria. It may be an investigation of how and why a program operates as it does, and/or the measurement of the extent to which it has achieved certain objectives or has had certain other outcomes, and at what costs. It may include recommendations about the continuation, modification, or termination of the program. Among the elements of a program evaluation may be the following:

- a. Statement of Purpose
Identification of the ways that the collected information might be useful, and the intended or possible users of the information. Possible uses of the information would be to: (a) demonstrate the quality of a program and gain support for its continuation or expansion, (b) identify ways that the program could be improved, and/or (c) impartially compare competing programs or alternative methods or practices. Possible users of the information would be: legislators, budget officers, program sponsors, planners, administrators, service providers, and service recipients. To maximize the utility of the research for particular audiences, it is frequently important to include among the examined variables some which are amenable to manipulation and control.
- b. Description of Program Inputs
Description of human and capital resources available to the program, together with information on the program’s location, sponsorship, staffing patterns, length of time in operation, and other relevant structural characteristics.
- c. Description of Program Activities
Precise description of who has done what to whom, in what sequence, with what resources, under what supervision, within what period of time at what sites, and other relevant dimensions of program operation, so that there may be accurate specification of what program activities account for what effects.
- d. Performance Criteria
Presentation of the standards to be used in assessing the merit or the success or failure of the program. This may include a specification of the objectives of the program as well as beneficial and harmful outcomes and impacts that were unintended or unforeseen.

The objectives may include the stated formal objectives or official mandates of the program, and/or objectives formulated by the research or others. Note may be made as to whether the objectives are consistent or conflicting, or varying in importance.

Judgments may be made regarding the time period in which the objectives were to have been achieved or through which the effects were to continue to be felt. The timing and frequency of the measurements will depend on the interest in capturing delayed as well as immediate effects, and temporary as well as permanent effects.

Program objectives may fit into a hierarchy from immediate to ultimate, from lower-order to higher-order. A program evaluation may thus focus on (a) implementation variables in the administrative operation of the program, and/or (b) effectiveness, the extent to which the program as implemented achieved objectives or had other effects.

An implementation or process evaluation is concerned with how the program was established and carried out. It may simply measure “effort” or “utilization” (number of dollars spent, number of manhours or other resources consumed, number of activities performed or services produced, number of persons who received services, etc., and relationships among these variables). Alternatively, the study may investigate the degree to which the program was implemented or used as intended, the causes and consequences of the deviations from various implementation strategies, how well or how poorly the availability and use of resources and the performance of activities met programmatic expectations or standards, or what proportion of eligible users of the program actually used the program.

An effectiveness or outcome or impact evaluation measures the extent to which the program produced changes in the status or behavior of users or had other desirable and undesirable outcomes. The study may include a concern with “adequacy,” i.e., actual performance level relative to the level needed to eliminate all or a realistic amount of the total problem or need that existed. Or the study may be concerned with “efficiency,” the relationship between the program’s benefits and the costs incurred in producing those benefits.

e. Operational Indicators

Translation of each criterion into procedures by which outcomes can be observed and measured, so that it can be determined whether or to what extent the criterion has been satisfied.

f. Research Design and Data Analysis

Description and defense of the strategies used for the collection, reduction, and analysis of data; and presentation of findings based on this analysis. In outcome evaluations, there may be a need for collection and presentation of base-line and post-intervention data on the conditions which the program is intended to change. There must also be identification and, ideally, control (by data collection or statistical procedures) of activities and events occurring within the implementing organization, among the affected groups, or in the larger environment which were not part of the program under

study but which may offer competing explanations for any observed changes.

g. Conclusions and Recommendations

Judgments as to whether the program satisfied each of the specified criteria to an acceptable degree, and recommendations on that basis to continue, expand, reduce, modify, or terminate the program. If the level or mix of outcomes is found to be less than ideal, it is important to try to determine whether the results were due to resource inadequacies or other problems in implementation, or to error or underdevelopment in the underlying assumptions about the relationship between program activities and outcomes. Suggestions may be made for replacement of the program with an alternative, or for reforms in program objectives, design, operation, scope, or funding level.

POSSIBLE COMBINATIONS

There are numerous instances in which a capstone project is most appropriately pursued by a combination of approaches. Research representing one approach may be a component of one of the others, or be a specialized version of another approach. Some of the examples listed in the bibliographies exemplify hybrid versions of two or more approaches. Among the possibilities for overlap among the approaches are the following:

1. Some of the evidence for or against the options under consideration in a policy analysis may be composed of a comparison of the findings of one or program evaluations, cost-benefit or cost-effectiveness analyses, or legal studies.
2. A legal study is often a vehicle for a wide-ranging policy analysis, in view of the many societal problems of significance that are dealt with in some fashion by our legal system.
3. Identification and measurement of costs and benefits in a cost-benefit or cost-effectiveness analysis may rely upon one or more program evaluations.
4. At the core of some operations research topics are hypotheses about the importance of various factors in explaining system operations.
5. A program design may draw heavily upon program evaluations, case studies, legal studies, and cost-effectiveness analyses for design features and/or for defense of estimates of the technical and political feasibility of the proposed program or of its satisfaction of legal standards.
6. An analytic literature review of some scope and depth should form a section of *each* of the other approaches.

Commonly Used MSA 699 Research Typologies

Element/Item	Hypothesis Testing	Cost/Benefit or Effectiveness	Feasibility Study	Policy Analysis	Program Design	Operations Research	Program Evaluation
Research Question	Is there a relationship between Concept A and Concept B?	Will the benefits of a specific program, strategy, or marketing plan exceed its costs?	What is the probability of success of a specific strategy or plan?	Determination of the "best" policy or program based on stated criteria.	Design of a specific program based on needs assessment and given objectives.	Building, validation, and recommendations of a specific operations model.	Compare program operation with required outcomes
General Research Focus	What effect do the independent variables have on the dependent variables?	What are the costs and benefits of the...?	What are the critical situation factors and how do they affect choice of the plan?	What are the critical factors to be considered in evaluation of the policies?	What are the specific aspects, including costs, of a program addressing stated needs?	What are the specific attributes of the model?	Investigation of how and why a program operates as it does. Has the program met stated objectives?
Hypothesis or Specific Research Question	H ₀ : There is no significant difference in Group A as compared to Group B. H _a : There is no statistically significant relationship between the independent variables and the dependent variables.	Do the total benefits exceed the total costs of the program, plan, or strategy?	What is the probability that the plan will meet or exceed outcome projections?	Is the chosen policy the best policy chosen from a group of viable alternatives?	What is the specific program and how does it address the specific criteria?	What is the best model designed to solve a set of organizational problems?	Should the program continue, be modified, or be terminated?
Format Chapter 1	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research (including H₀). • Limitations • Definitions 	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research • Limitations • Definitions 	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research • Limitations • Definitions 	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research • Limitations • Definitions 	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research • Limitations • Definitions 	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research • Limitations • Definitions 	DEFINITION OF THE PROBLEM <ul style="list-style-type: none"> • Introduction • Statement of the Problem • Purpose of the Research • Limitations • Definitions

Element/Item	Hypothesis Testing	Cost/Benefit or Effectiveness	Feasibility Study	Policy Analysis	Program Design	Operations Research	Program Evaluation
<i>Chapter 2</i>	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary 	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary 	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary 	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary 	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary 	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary 	LITERATURE REVIEW <ul style="list-style-type: none"> • Introduction • Specific Topics • Summary
<i>Chapter 3</i>	METHODOLOGY <ul style="list-style-type: none"> • Research Question • Instrument • Sample • Protocol 	METHODOLOGY <ul style="list-style-type: none"> • Specific Research Question • Operational Definitions • How Costs and Benefits to be measured 	METHODOLOGY <ul style="list-style-type: none"> • Specific Research Question • Operational Definitions • How Critical Items will be measured 	METHODOLOGY <ul style="list-style-type: none"> • Specific Research Question • Operational Definitions • How Critical Items will be measured 	METHODOLOGY <ul style="list-style-type: none"> • Specific Research Question • Operational Definitions • How Critical Items will be measured 	METHODOLOGY <ul style="list-style-type: none"> • Specific Research Question • Operational Definitions • How Critical Items will be measured 	METHODOLOGY <ul style="list-style-type: none"> • Specific Research Question • Operational Definitions • How Critical Items will be measured
<i>Chapter 4</i>	DATA ANALYSIS <ul style="list-style-type: none"> • Data Collection • Response Rate • Sample • Responses 	DATA ANALYSIS <ul style="list-style-type: none"> • Findings of Measurements 	DATA ANALYSIS <ul style="list-style-type: none"> • Findings of Measurements 	DATA ANALYSIS <ul style="list-style-type: none"> • Findings of Measurements 	DATA ANALYSIS <ul style="list-style-type: none"> • Findings of Measurements 	DATA ANALYSIS <ul style="list-style-type: none"> • Findings of Measurements 	DATA ANALYSIS <ul style="list-style-type: none"> • Findings of Measurements
<i>Chapter 5</i>	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations 	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations 	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations 	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations 	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations 	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations 	SUMMARY, CONCLUSIONS & RECOMMENDATIONS <ul style="list-style-type: none"> • Summary • Conclusions • Recommendations

Modified for use in the Student Guide to the MSA Capstone Project. Used with permission of Dr. Floyd Willoughby, adjunct faculty member in the Metro Detroit area.

Matching the 5 Chapter elements to the Research Typologies

This matrix matches the 5 chapter elements to the 7 research typologies described in earlier pages. Please recognize that there should be overlap between the chapters on each of these elements, with elements discussed to varying degrees in several chapters. The matrix was developed by Dr. Robert Weltzer and is used with permission.

	Hypothesis Testing	Cost Benefit/ Effectiveness	Feasibility Study	Policy Analysis
General Research Focus	What effect do the independent variables have on the dependent variable[s]?	What are the costs and benefits or effects of the...?	What are the critical situation factors and how do they affect choices within my feasibility study?	What are the critical factors to be considered in evaluation of selected policies?
General Research Question	Is there a relationship between Concept A, Concept B, Concept...?	Will the benefits or effects of a specific program, strategy, or marketing plan exceed its costs?	What is the probability of success of a specific strategy or plan?	Determination of the “best” policy or program based on stated criteria.
Specific Research Question	<u>H₀</u> : There is no significant difference in Group A as compared to Group B. <u>H_a</u> : There is no statistically significant relationship between the independent variables and the dependent variables.	Do the total benefits or effects exceed the total costs of the program, plan, or strategy?	What is the probability that the plan will meet or exceed outcome projections?	Is the chosen policy the best policy chosen from a group of viable alternatives?
Abstract Title Page Table of Contents List of Tables** List of Figures** *= optional **= if needed	Yes	Yes	Yes	Yes
Chapter I: Definition of the Problem - -Introduction -Problem Statement -Research Objective -Summary	Operational definitions	Alternatives	Assumptions	Definition of problem or opportunity
Chapter II: Literature Review - -Introduction -Background -Issues/Variables -Summary	What others have done/found	Accounting perspective Identification of benefits and costs, including direct/indirect, tangible/intangible, programmatic, opportunity, etc.	Business history and future	Previous responses Criteria for choice
Chapter III: Methodology - -Introduction -Research Methodology -Data Collection -Data Analysis & Synthesis -Reliability & Validity -Scope & Limitations -Summary	Formulation of hypothesis Research design Statistical methods	Measurement of the benefits and costs, including direct/indirect, tangible/intangible, programmatic, opportunity, etc Valuation of benefits and costs Discounting Consideration of equity	Sampling and estimation procedures	Criteria for choice

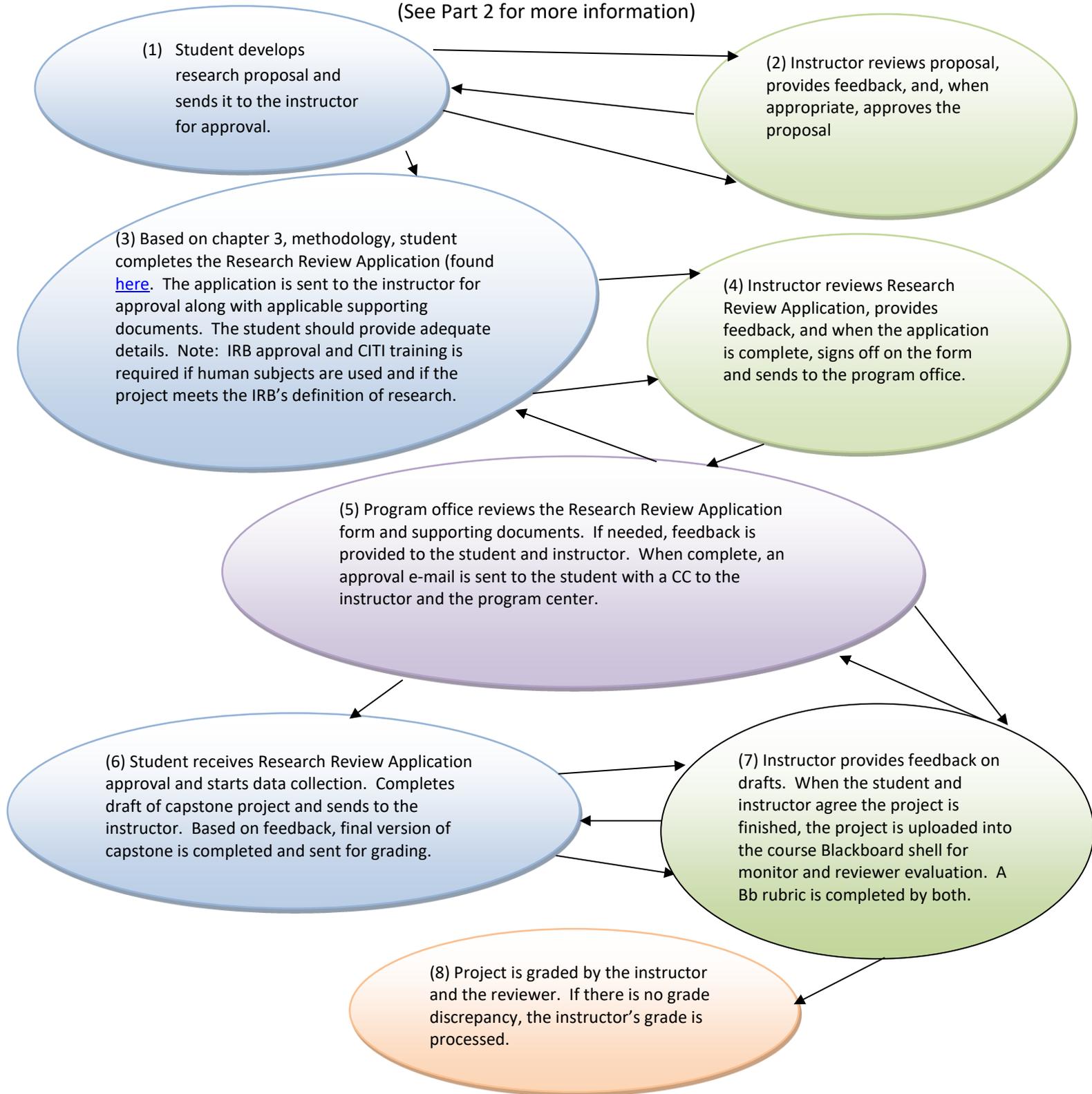
	Hypothesis Testing	Cost Benefit/Effectiveness	Feasibility Study	Policy Analysis
Chapter IV: Data Analysis – -Introduction -Description of Data Sources -Summary of Analytical Results -Technical Interpretation with Pertinent Data -Summary	Data Findings	Decision criteria	Demand for product or service Market estimates Management Financial information, including supplies balance sheet, income statement, loan conditions, cash flow information, estimated sales, operating expenses, taxes, ROI, etc.	Description of alternatives, to include capital and human resources, organizational activities, size, sponsorship, time to implement, etc. Consequences of alternatives Evaluation of alternatives, including political feasibility in areas of institutional factors, interest group factors, and potential factors
Chapter V: Summary, Conclusions, and Recommendations– -Summary --Context --Problem --Research Objective --Decision Criteria --Findings -Conclusion --Data Interpretation -Recommendations --Link to Data --Link to Literature --Action Plan	Discussion Conclusions Significance	Choice Treatment of uncertainty	Business decision	Choice
End Notes	As Necessary	As Necessary	As Necessary	As Necessary
References	Yes	Yes	Yes	Yes
Appendices	As Necessary	As Necessary	Product description, maps, land, appraisals, building estimates	As Necessary

	Program Design	Operations Research	Program Evaluation
General Research Focus	What are the specific aspects, including costs, of a program addressing stated needs?	What are the specific attributes of the model?	Investigation of how and why a program operates as it does. Has the program met stated objectives?
General Research Question	Design of a specific program based on needs assessment and given objectives.	Building, validation, and recommendations of a specific operations model.	Compare program operation with required outcomes
Specific Research Question	What is the specific program and how does it address the specific criteria?	What is the best model designed to solve a set of organizational problems?	Should the program continue, be modified, or be terminated?
Abstract Title Page Table of Contents List of Tables** List of Figures** *= optional **= if needed	Yes	Yes	Yes

	Program Design	Operations Research	Program Evaluation
Chapter I: Definition of the Problem - -Introduction -Problem Statement -Research Objective -Summary	Program or setting Needs assessment	Problem definition	Statement of Purpose Description of Program Inputs Description of Program Activities
Chapter II: Literature Review - -Introduction -Background -Issues/Variables -Summary	Design specifications, including frequency, duration, and form of activities or services, personnel, equipment, location and structure of delivery sites, time-frame for implementation, coordination with other programs, lessons learned from similar programs elsewhere, design materials (charts, procedural manuals, lesson plans, catalogs, job descriptions, forms, detailed budgets, etc.)	Model construction	Performance Criteria Operational Indicators Research Design
Chapter III: Methodology - -Introduction -Research Methodology -Data Collection -Data Analysis & Synthesis -Reliability & Validity -Scope & Limitations -Summary	Target population Design specifications as above	Model construction	Performance Criteria Operational Indicators Research Design
Chapter IV: Data Analysis – -Introduction -Description of Data Sources -Summary of Analytical Results -Technical Interpretation with Pertinent Data -Summary	Objectives Sources of required resources Program benefits/costs Financial feasibility Political feasibility	Model validation Data collection Model testing and analysis	Data Analysis
Chapter V: Summary, Conclusions, and Recommendations– -Summary --Context --Problem --Research Objective --Decision Criteria --Findings -Conclusion --Data Interpretation -Recommendations --Link to Data --Link to Literature --Action Plan	Monitoring and evaluation plan	Evaluation of alternatives Recommendations	Conclusions Recommendations
End Notes	As Necessary	As Necessary	As Necessary
References	Yes	Yes	Yes
Appendices	As Necessary	As Necessary	As Necessary

FLOW CHART FOR RESEARCH REVIEW APPLICATION PROCESS

(See Part 2 for more information)



APPENDIX A

FIVE CHAPTER OUTLINE

Chapter 1

Definition of the Problem

Introduction

Introduce your project by telling what is important about the problem you are about to pursue, to your profession. Identify and describe the problem's various components. Introduce your research topic in enough detail to "educate" the reader. Remember the readers of your paper have no idea where you work or your problem or situation. Your ability to define the problem will determine whether you have it sharply focused. Your ability to communicate its importance concisely, in writing, will show how well you understand it.

Background of Problem/Situation

Remember that the readers don't know the recent history to this problem/situation. So you will need to bring us all "up to speed" on the history behind the topic.

Purpose of the Study

What do you hope to accomplish with this research?

Questions to be Answered/Objectives to be Investigated

I recommend that you limit your questions or objectives to 4-6. Because each of these questions or objectives will become subheading in your Chapter 4 and you will need to provide "data for analysis" for each of the subheading.

Conceptual or Substantive Assumptions

What are your assumptions? (i.e. must the economy be strong for your new business venture to work? Or, will the EEO laws have to be enforced for this study to work?)

Rationale and Theoretical framework

Refer to the theoretical framework within which your questions resides, this will be fully developed in Chapter 2. What theory or rationale will your study follow? (i.e. will Maslow's Theory of Motivation be the basis of your study? Or, is the rationale that the study showed a certain trend in businesses in California and you want to determine if the same is true in Florida?)

Scope of the Study

What is the scope (size, location, numbers) for your study.

Definition of Terms

Define all words that are unique to your industry and are not universally understood by everyone who will read your paper.

Chapter 2

Review of Related Literature

Historical & General Background

What is this history on this topic in the professional journals? What do the local or industry "experts" say?

Existing Studies

Establish the possible need for this study and the likelihood for obtaining meaningful results.

Methodology

Acquaint readers with existing studies relative to what research methodologies have been utilized. Provide enough detail to establish the utility of this methodology in your specific topic.

Instrumentation

Acquaint readers with existing studies relative to what instrumentation has been utilized. Provide enough detail to establish the utility of this instrument in your specific topic.

Significant Studies

Find the most significant study that closely mirrors your problem/situation and establish the possible need for this study and the likelihood for obtaining meaningful results.

Summary of Literature Reviewed

Focusing on your research question, review what is already known and documented. Define every term and concept you are about to use, showing how it is derived from existing literature.

Chapter 3

Methodology/Procedures

Research Methodology

What methodology from chapter 2 will you use for your study?

Instrumentation

What instrument are you going to use? (important: many questionnaires/surveys are copyrighted. You will need to receive permission or create your own questionnaire or survey) This subheading is not required for studies using preexisting data.

Field Procedures

How will you distribute your instrument? This subheading is not required for studies using preexisting data.

Data Collection and Recording Procedures

How will your instrument be returned? This subheading is not required for studies using preexisting data.

Data Processing and Analysis Procedures

How will you analyze your data? What type of statistical model are you utilizing?

Methodological Assumptions

What are the assumptions you have to make with this methodology? (i.e. in a survey you have to assume that they will answer your questions honestly, they know how to read, etc.)

Methodological Limitations

What are the limitations of this method? (i.e. with preexisting data you are limited by the age of the data.)

Validity and Reliability

Explain how you plan to establish the validity and reliability of your field survey instrument.

Decision Criteria

When you analyze the data, what Decision Criteria will you apply to the new data?

Chapter 4

Data Analysis

(Presented as what needs to be in this chapter, NOT titles of subheadings. STRONGLY recommend you use your questions from Chapter 1 as subheadings)

- 1) Findings are presented in tables or charts
- 2) Findings reported with respect to furnishing evidence for each question asked
- 3) Appropriate headings are established to correspond to each main question
- 4) Factual information kept separate from interpretation, inference, and evaluation (keep very brief, will be expanded in Chapter 5, under Summary heading)

In an orderly way, tell about your findings. Interpret the data you collected and present it logically, and in a form that is truly illuminating with respect to the research question you raised. Resolve any inconsistencies or contradictions. Explain what you expected to find that you did, what surprised you, what patterns and relationships emerged. Use charts, tables and graphs to clarify your points, and refer to them!

Chapter 5

Summary, Conclusion, Recommendations

Summary

What does the data in Chapter 4 "show" you?

Conclusions

With what the data indicates in Chapter 4 and the experts have demonstrated in Chapter 2, what are your conclusions?

Recommendations

And, recommendations?

Recommend specific actions steps, based on your findings that should be taken to address the problem discussed in Chapter 1. Specifically, who should do what, when, and how should they do it. Recommendation a further study that you believe exists, as a result of your research.

(This summary of the 5 chapter format was developed by Dr. Ronnie Wilson and used with permission)

APPENDIX B

STUDENT HELPS FOR NUMBERING, TABLE OF CONTENTS, ABSTRACT, AND APA STYLE RESOURCES

Abstract (not numbered and not listed in Table of Contents— THE ABSTRACT IS REQUIRED) Title Page (page 1 and number all subsequent pages consecutively with Arabic numbers) Table of Contents (Page 2, included in page count) List of Tables* (included in page count and Table of Contents) List of Figures* (included in page count and Table of Contents) *= if needed
Chapter I: Definition of the Problem –(This will be page 3)
Chapter II: Literature Review –(continue Arabic numbering)
Chapter III: Methodology - (continue Arabic numbering)
Chapter IV: Data Analysis – (continue Arabic numbering)
Chapter V: Summary, Conclusions, and Recommendations–(continue Arabic numbering)
End Notes (continue Arabic numbering) References (continue Arabic numbering) Appendices (continue Arabic numbering)

SAMPLE TABLE OF CONTENTS

TABLE OF CONTENTS	
LIST OF TABLES	3
LIST OF FIGURES	4
CHAPTER	
I. INTRODUCTION	5
Subheading	5
This is Another Example	6
This is a Side Heading	6
This is Another Side Heading	6
Spacing and Indentation	15
Footnotes and Endnotes	17
II. TITLE FOR CHAPTER II	20
Check Your Margins and Page Numbers	20
Make Sure Your Table and Figure titles are Identical to The Title Printed in the List of Tables and List of Figures	25
III. TITLE FOR CHAPTER III	55
Subheading	55
Subheading	56
REFERENCES	101
APPENDICES	103
Appendix A: Title of Appendix A	103
Appendix B: Title of Appendix B	104

If using bold print in the TABLE OF CONTENTS, this has match the text exactly.

ABSTRACT/EXECUTIVE SUMMARY HELPS

Abstract (do not count, do not number).

The Title on the Abstract page **must be identical** to the title as it appears on the title page.

- Introduction. The introduction should concisely present the background for the project the student conducted and outline the importance of the question the student was asking.
- Rationale/Hypothesis/Purpose Statement. Why did the student conduct the project?
- Methodology. Specifically, how did the student conduct the project?
- Results. What were the student's findings?
- Conclusions. What conclusions were drawn from the student's findings and what were the implications of the findings?

ABSTRACT

THIS IS HOW THE TITLE OF THE ABSTRACT
SHOULD LOOK WITH MORE THAN ONE LINE

By (Student's Name)

*The wording of the title on this Abstract page must be single-spaced and **identical** to the wording of the title on the title page. The Abstract is a very important part of the Plan B Project and **must** clearly define the student's Project. The text of the Abstract may be of any reasonable length. It must be used to explain the Project.*

The introduction concisely presents the background for the project that was conducted and outlines the importance of the questions being asked. The rationale/hypothesis/purpose statement should explain why this project was conducted, the methodology, and how the Project was conducted. Finally, state the major findings and conclusions of the Project.

This page **must** be double-spaced. Use two pages, if necessary. The pages must begin at a 2-inch top margin. There should be two spaces between the words Abstract and the title, two spaces between the title and your name, and two spaces between your name and the text of the Abstract.

APA 7TH EDITION HELPS

CMU's Library Services provides detailed information about using the APA Style 7th Edition. Please visit:

<https://libguides.cmich.edu/writinghelp/apastyle>

Remember, attention to detail is important. The various helps on the CMU Library Service's page provide wonderful guidance in terms of citations within your project and for your reference pages. <https://www.cmich.edu/research/cmu-library/library-services/distance-learner-services>