<Title>

This title should be kept as short as possible.

by

< name of the author>

<MScE or PhD> program, <year: 2nd, 3rd> year of study

**GGE 6910 Graduate Seminar**

**Written Submission**

THE UNIVERSITY OF NEW BRUNSWICK

<Year>

Abstract

It should provide an engaging synthesis of the contents of the paper: motivation, background, objectives, approach, results and impact of the research. It must be ½ page to 1 page recommended length. The main parts of an abstract are:

* Motivation: This part should include the importance of your work, the challenges of your research topic, and the impact it might have if successful. Why do we care about the research issues and the results?
* Problem Statement: What problem are you trying to solve? What is the scope of your work (a generalized approach, or for a specific situation)? In some cases it is appropriate to put the problem statement before the motivation, but usually this only works if most readers already understand why the problem is important.
* Approach: How did you go about solving or making progress on the problem? Did you use simulation, analytic models, prototype construction, or analysis of field data for an actual product? What was the extent of your work (did you look at one application program or a hundred programs in twenty different programming languages?) What important variables did you control, ignore, or measure?
* Results: What's the answer? Avoid vague, hand-waving results such as "very", "small", or "significant."
* Conclusion: What are the implications of your answer? Are your results general, potentially generalizable, or specific to a particular case?

# Introduction (maximum 500 words)

This section should provide an introductory description of the subject and motivations for pursuing your research project. It should provide an understanding of the significance of the research (i.e. why it is important), where it will lead us, and what difference it will make to the general understanding of the theoretical or practical body of knowledge.

# Literture Review (maximum 500 words)

## 2.1 Contents

This section will consist of several parts which will cover the following:

* Introduction: Introduce your topic and briefly explain why this is a significant or important area for study. Define terms if necessary.
* Summary of relevant articles you have read for preparing this technical report: In a paragraph or two for each article, briefly explain the purpose, research issue, how the research was conducted (e.g. how information was gathered, method used), and the major findings.
* Discussion of articles: establish what is already known about a particular topic and the advantages/disadvantages of the methods used in researching the topic, expose gaps in the literature and position your research. Use transition sentences to tie together different topics.
* Conclusion: Briefly summarize the major findings of the studies chosen. Comments about what questions need to still be answered may be included. The literature review should end with your research premise which should be the product of your own critical thinking after you have done your literature review.

## 2.2 Research Premise Checklist

You should use the following criteria for the development of your research questions:

* CLARITY: A research premise should be always clear.
* ACCURACY: A research premise can be clear but not accurate.
* PRECISION: A research premise can be both clear and accurate, but not precise.
* RELEVANCE: A research premise can be clear, accurate, and precise, but not relevant to the field.

Therefore, it is crucial to discuss your research premise(s) with your supervisor(s).

## 2.3 Figures and Tables

It is essential that all illustrations are clear and as legible as possible. Line drawings are to have a resolution of at least 800 dpi (preferably 1200 dpi). Every Figure and Table included in the proposal MUST be referred to from the text. After being introduced in the text, they should follow as closely as possible afterwards. Avoid sentences that give no information other than directing the reader to the Figure or Table. When referring to a Figure in the text, the word "Figure" is abbreviated as "Fig.", while "Table" is not abbreviated. Both words are spelled out completely in descriptive captions.

Figures and Tables are numbered independently, in the sequence in which you refer to them in the text, starting with Figure 1 and Table 1. If later you change the presentation sequence of the figures and tables, you must renumber them to reflect the new sequence. Each legend should convey as much information as possible about what the Table or Figure tells the reader. The captions should always be positioned under the figures, in contrast to the caption belonging to a table, which should always appear above the table. Table captions are set in 10-point type. They go above the body of the Table and are left justified; Tables are read from the top down (Table 1).

table 1: the table below is an example

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Figure captions are also set in 10-point type. If they are short, they are centered between the margins. Longer captions, covering more than one line, are justified left and right. Captions that do not constitute a full sentence, hence do NOT have a period. A figure should never be placed in the middle of a paragraph. All figures and tables captions should include references is their contents are not your own work. If a figure or table was copied from another source, you should use (from Jones, 1986) as shown in Fig.1. But if it was modified, you should then use (after Jones, 1986).

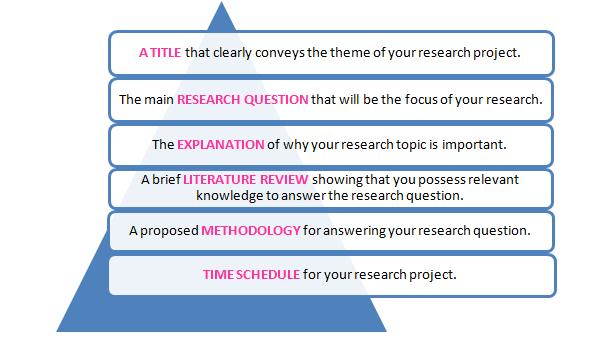


Figure 1 : Steps to follow in your proposal (from <http://www.postgrad.com>)

More information is found in the document “Almost Everything You Wanted to Know About Making Tables and Figures”, available in Desire to Learn.

## 2.4 Tips

* Provide a critical review (analyze and evaluate – don’t just cite) of the most pertinent work which raised the research question(s) you are interested in, spawned the idea for your plans, made your approach feasible, etc. Use critical thinking to evaluate what has/has not been done by others.
* Be careful not to allow the evaluation of the previous work to become a large open-ended task. In one sense the literature review of the proposal is NEVER complete. You will continue to expand and update the literature as your research progresses and as you find new publications.

# Research Questions (maximum 150 words)

A research question is a clear, focused, concise, complex and arguable question around which you center your research. This question should capture the essence of your intended project and also help you to put boundaries around it. It is usually driven by a research hypothesis rather than the data being used in your research. You might have a primary research question followed by secondary research questions.

## Research Question Checklist

You should use the FINER criteria for the development of your research questions. They are one of the following:

* **F**easible: manageable in scope and time.
* **I**nteresting: finding the answers to your research questions that intrigues others.
* **N**ovel: confirms, refutes or extends previous findings.
* **E**thical: relating to moral principles and/or the branch of knowledge dealing with your research.
* **R**elevant: to science, future research and society.

## Tips

* Any additional questions should never compromise the primary question because it is the primary research question that forms the basis of the research hypothesis and research objectives.
* All questions, primary and secondary should be developed at the beginning stages of your project.
* You will need to ask whether these questions can be answered through your project or if more than one project is needed. You should be working with your supervisor on defining your time budget.

# Research Objectives (maximum 250 words)

In this section you should describe your research objectives.They are clear statements of what needs to be accomplished for answering your research questions. However, they are not just statements of your tasks. In fact, they consist of the operationalization of your research questions. Therefore, they are usually headed by infinitive verbs such as to identify, establish, describe, determine, estimate, develop, compare, analyse, and collect.

## The Research Objectives Checklist

You should use the SMART criteria for the development of your research objectives. They are one of the following:

* **S**pecific: your research objective should state exactly what you need to achieve.
* **M**easurable: it should include a quality or quantity measure.
* **A**greed: between you and your supervisor.
* **R**ealistic: can be challenging but must be achievable.
* **T**imebound: with a clear end date or timescale.

# Methodology (maximum 1000 words)

The aim of this section is to describe the methodology you have used in your research and why. If there are various methods on your topic, you should describe them using a conceptual framework which will capture what you intend to accomplish. The contents of this section should answer the following questions:

* What was the overall approach taken? What methods/techniques have been used?
* How has the data been collected and analyzed? With how much accuracy and precision? Why have you selected this approach?
* What procedures have been followed? Are there particular challenges that need to be overcome? Are there potential pitfalls? Can other procedures be applied to achieve the same goals? Why are yours better?
* How have you know when you have met your research objectives (i.e. you have finished)?
* What ethical, safety or privacy issues have been identified and how have you proposed to proceed?
* What are your limitations or possible constraints?

# Results and Discussion (maximum 400 words)

The contents of this section should answer the following questions:

* What are the specific results?
* How well is the problem solved?

# Conclusions (maximum 400 words)

The aim of this section is to allow readers to understand the contribution better and in greater detail than in the abstract so as to evaluate its usefulness to them. It is also an opportunity for you to propose new research directions to prevent duplication of effort or to encourage collaboration. The conclusions should be the following

* Positively charged: It maintains the enthusiasm created in the introduction;
* Predictable: Everything that has been stated in the other sections of the paper is summarized here. There are no surprises. How consistent is it with the claims made in the abstract and introduction?
* Concise: Restate the contribution already stated in the abstract and introduction sections.
* Coherent: It should be coherent with the title, abstract, and introduction. It is part of the same story.

# REFERENCES

Your reference list provides the information necessary for a reader to locate and retrieve any source you cite in the body of the paper. Each source you cite in the paper must appear in your reference list; likewise, each entry in the reference list must be cited in your text. All text should be double-spaced just like the rest of your document. The citation standard APA 6th - American Psychological Association, 6th Edition available in RefWorks should be used here.

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