How to write a research proposal: guidelines and a template

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Here I describe what I expect from you when you write a research proposal for the class. Treat this both as a guide and as a template. The research proposal will have five components: an abstract (this), an introduction to the topic, methods and plans of analyses, and a section on implications or significance of the study (significance) of the study you propose. Write the proposal in simple English using nouns and verbs mostly; if you have to use jargons, first define the jargon and then use it everywhere. Where possible, obtain and provide data analyses and tables and graphs; cite every statement of fact to indicate the source of the argument. Write within 3000 words. The 3000 word limit will include the following: title of the paper, the abstract section, the section on introduction, the methods section (population and methods), and the significance section (“significance” section). The word count does not include the following: words contained in tables, figures, references. If you want to submit appendix, submit the appendix as a separate single file. Follow this document as a template. You can write directly here after creating an account in Authorea and “forking” this article. You can also use the word document template and work there directly.

## Introduction

In the first block of the course we discussed how you can critically appraise journal articles and how you can come up with ideas that can be shaped into research ideas. We used the ideas Tom Chatfield (2017) presented in his work on critical thinking, and in the second block we discussed you can obtain data from a range of different data repositories on the web and you can use R to analyse data sets. In the third block for which you will be preparing the research proposal, you learned how you can write your research.

(Chatfield 2017)

For each of your submission of the research proposal that we have “iteratively” (that is step by step) assessed, I commented on what I expected of your work. As we discussed in the class, it helps if you have a template or a set of examples where you can write your research proposal so that you will have a better appreciation of what I expect when I read your work. What sections will I look for in your work? How best to write a proposal?

There is no single way to write a research proposal or to propose your research. You work will be different from another student’s work. You may propose research where you will review a body of work; or you may propose conducting a case control study (a case control study is one where you obtain data from people with and without a disease condition and compare their relative likelihoods of exposure). Or you may propose that you will conduct a cross sectional survey where you will collect data from any number of individuals over a period of time or at a single point of time. Or you may propose a study where you will be prospectively collecting data and conduct a trial or an experiment with people. Each of these research approaches will have its own question, and unique approaches. Then on the top of these is your own voice and style of writing. Elbow (2007) has stated in his essay on the role of “voice” in writing that  attention to voice helps in effective writing and has rooted for improving our ‘ears’ to tune to voices in writing (Elbow 2007). So, a mix of everything: your idea, your style of writing, how clearly you write – all of these will matter when you write. Nevertheless it is possible for you to write a proposal with some uniformity. Let’s cover these.

## Goal and objectives

The goal of this document is to explain what and how I expect you to write in your final version of the proposal.

### Objectives

I hope to achieve this goal by meeting the following objectives:

1. I will lay out a document that mirrors a proposal document I’d like to see you write
2. I will create a template that you can use to write your proposal
3. I will put up this document in Authorea and write instructions so that you can use Authorea if you want to write your proposal using Authorea
4. I will also share a Word document version so that you can use the Word document template to write your proposal.

## Methods

Your proposal will have nine sections as outlined in the table

This is a table of what I expect when you write your proposal; tables, figures, and appendices are optional elements. You must provide title, abstract, introduction, goals objectives, methods, and significance with references.

|  |  |
| --- | --- |
| ﻿Section | Description |
| Title | Write a title not more than 150 characters. The title should include the topic of your research and should contain sufficient information to indicate to your reader your study design. An example might be “What interventions reduce ambulatory care sensitive hospitalisations? A review of the literature” |
| Abstract | The abstract is a short version of the proposal where you will summarise the main points of the proposal. The abstract will ideally be about 200 words. The abstract MUST NOT contain any citations or references and you must write the abstract in plain English. |
| Introduction | The introduction will provide sufficient information on the background of the problem you will address. The introduction must start with the description of the health problem, the proposed solution or if you are working on an exposure association type research project, then the exposure. It will contain information on what’s missing and end with your ideas of what you want to do. |
| Methods | This section will contain in details as to what you want to do. You can write and style it in any way you write but suggested that you must write about the study design, the population, the intervention or exposure and how you will measure it, the outcome, and the statistical data analyses (as much as you know); you will also include the sample size estimation in it. |
| Goals and objective | This deserves a separate section on its own where you will write the goal of your research and the objectives that will set to meet this goal. Goal == overarching theme, objectives: time bound and very specific |
| Significance | In this section you will write the significance of your proposal. Think in terms of what will change if you successfully complete your project. What will be the outcome of your work? |
| References | You must cite other people’s work to avoid charges of plagiarism. |
| Tables and figures | Write your paper or proposal if the space permits with tables and figures. Add figures and tables for your initial analyses to test your ideas, and summarise points using tables. |
| Appendices | Use questionnaires, other details, budget (not required for this proposal in the class) in the appendices. The words in the appendix does not count towards the total word count |

**Title.** – At the top of the document you must write the title of your proposed research.  If I read the title as a reader, I must be able to understand in one glance the content of your research. Write what the research is about and what study design you will use to accomplish the goal. For example, let’s say you are interested to study what interventions are available and how effective they are for ambulatory care sensitive conditions. Ambulatory care sensitive conditions are diseases for which outpatients or primary care or GP based treatment helps to avoid people getting hospitalised for care. This saves money for the health systems that provide for their care  and hence many governments and health systems mangers are interested to know what interventions will help the situation. See Purdy (2009)’s review to learn more if you are interested in the topic (Purdy et al. 2009). Let’s say that you are interested to write a systematic review on the topic and you want to propose that as your proposal. You may write the title for this proposal as something like, “Interventions for Ambulatory Care sensitive conditions: A systematic review”. This is a short title, but gives enough information to the reader of the proposal about your project. Aim for 150 characters at most for the title.

**Abstract. –** After the title comes the abstract. The abstract is a summary of the work you will do. It must contain information about the nature of the problem you will try to solve and your research. Provide a brief introduction in perhaps one or two sentences, then the methods you will employ to conduct your research, and the significance of the work. Altogether it will consist of no more than 150-250 words and on an average, aim to about 200 words. Write the abstract in simple English language in active voice and avoid jargon. Also, do not include any citation or reference in the abstract. You must write the abstract in your own words.

**Introduction. –** After the abstract, write the introduction section (when I write “after” I do not mean time wise you will do so. I mean that the section “Introduction” will be “placed” on the document in the next logical order). In the introduction section, you must include three “themes”, if you will:

Start with a description of the “problem” you want to work with. To continue with the ambultaory care sensitive hospitalisations (“ASH”) and what can be done about them, this is the space where you will write about ambulatory care sensitive conditions and the costs involved, the epidemiology of ASH, and try to project the importance of addressing this health condition.  Continue with what we “know” about the problem, e.g., what steps can address the health condition that you are addressing. Again, how you will write this is open to your own style and content and your problem. But remember here your overall aim will be to describe for your reader what is the state of the art or state of the science in what we “KNOW” about the issue on which you want to research.

Next, write what do we NOT KNOW. For example, in the ASH issue, we do not know the relative effectiveness of the different interventions. Although a mass of studies are available, we do not know for sure what will work best, what interventions save money, how do we rank the interventions and so on.

The third and final piece of the introduction section will address as to what you will do differenty about the problem to address this. Again, depending on your specific situation or line of research, it will be unique to you. For example, in the ASH proposal, you write that as a summary of the effectiveness of all available interventions is needed, hence you will conduct a systematic review and if possible, a meta analysis of the available interventions.

**Goals and objectives. –**The introduction section will end with a description of the goal and objectives of your research. The goal of a research is an overarching statement, as in “The goal of the project is to identify the best solution for reducing ASH”; the objectives are specific, time bound, measurable, set of statements that indicate WHAT exactly you do to achieve your goals. For example, “We will conduct a systematic review to identify a set of interventions for reducing ASH” (note here we have drilled down to the more specific aspect of our work). Think about your own topic. How specific can you be?

**Methods. –**The “methods” section is also referred to as the “Population and Methods” section. In some cases, many authors write “Materials and Methods”, for those who write in hard sciences such as Physics and Chemistry because they deal with “materials”; in health sciences, we deal with people, hence we write, “People and Methods”. Do not use the word “Methodology”.  Methodology refers to the study of “methods”. If you want to know more about the difference between “methodology” and “methods”, please refer to the work by Mackenzie and Knipe (2006). Although this article is over 10 years old, it provides a nice snapshot of different types of research or different paradigms of research. Also, when you write methods, do not use the word “quantitative” and “qualitative”. Word such as “qualitative” and “qunatitative” are meaningless in themselves as there are several subcategories and you will be only doing one category of study at a time. Be specific. Check out Mackenzie and Knipe’s work for instance (Mackenzie and Knipe 2006).

In the methods section, you must write in a way that makes it possible for the reader to understand what exactly you will do and make it easy for anyone interested in your work to REPRODUCE your steps. Think of it like writing a recipe. Try to answer the following questions:

1. What exactly is my research method? (if it is an epidemiological study design, what design is it? Is it cross-sectional? case control study? cohort study? clinical trial? secondary analyses of data obtained from other sources? meta analysis? systematic review?)
2. What is my population? On whom am I going to do my studies?
3. Where will I find the people on whom I am going to conduct my study?
4. How will I find the people on whom I am going to conduct the study?
5. How many people shall I include in my study?
6. What will be the basis of counting the number of people I will include in my study?
7. (if it is a study on exposure-outcome analyses), EXACTLY what exposure am I going to study?
8. How do I measure the exposure? How exactly am I going to measure the exposure?
9. (if it is a study on the effectiveness of an intervention), What intervention will I administer?
10. How am I going to administer the intervention? Include a precise, step-by-step plan of administration of the intervention
11. (if it is a cross sectional survey), How will I administer the survey?
12. How will I draft a questionnaire? What items will I include in there?
13. How will I make sure that my study is unbiased?
14. How will I collect data?
15. What will I do after I collect my data? Where will I store my data?
16. How will I analyse my data? What statistical tests will I use?

All of these questions and more (if I have missed any) will need to be answered in a logical order and sequence.

**Significance. –** After the methods section, you must write the significance section. In the significance section, try to answer the question, “So what?” or “So what if you do this study and even get to finish the study with positive results?” “What will change as a result of my study?” “what new knowledge will I build or contribute that is not known today?” These questions will be important as anyone who will read your research will want to know what will change as a result of your project. Often, if you are responding to a funder’s request for conducting a study, these answers are easy to find in the request document. If you propose something on your own, then you will need to ask and answer these questions yourself.

## Significance

I hope that this document will fill in a gap and will provide you with sufficient and necessary information to get underway in writing your research proposal. I have covered here the principles you will need to follow to write your proposal. If you follow these guidelines and follow this template you will be able to come up with a workable proposal.

You may want to use this proposal itself and change the text I have written here to write your own proposal and supply your own tables and references. If you are reading this on [Authorea](http://www.authorea.com), assuming that you have your own account set up in Authorea, logged in, and have started using this, “fork” this paper to your workspace and edit it with your own words. If you use Microsoft Word, change the text directly and provide your own citations and references and add your own tables and figures. If you have questions, or comments about using these features,, please let me know by emailing me ().

# References

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Mackenzie, Noella, and Sally Knipe. 2006. “Research Dilemmas: Paradigms, Methods and Methodology”. *Issues in Educational Research* 16 (2): 193–205.