

# Checklist for a masters or doctorate research proposal

## Introduction

I noticed students searching online for guidelines about writing a project proposal for masters or doctorate studies. So, I looked at a few online examples and noticed that these guides focus on language, grammar, and structure, but NO strategy. So, here is my checklist.

You need to realise that the purpose of a masters degree is to master the most modern techniques in your profession. The purpose of the doctorate is to apply the most modern techniques, in a novel way, to solve a small part of a real-world problem.

You are almost guaranteed to pass your doctorate, if you publish part of your research in a peer-reviewed journal, on your subject. The peer review process for good journals can take 3 – 12 months. So, plan to submit your first publication as soon as possible.

## Select your supervisor

I assume you already have a supervisor in mind because this person was your undergraduate professor. So search for their latest two or three publications on their personal website, or on Google scholar.

## Get a copy latest two or three theses

If possible, get a copy of their most-recent two or three student's theses from the library. Go to the last few pages of the discussion, and read what topics were identified that need further research. Every good thesis should ends with such topics.

## Estimate your duration

You need to realise that the normal duration for Hons is 12 months. A typical masters is 24 months and a doctorate 36 months, but the last two may need another six or 12 months. Your proposal needs to end with a budget and a timeline. You will revise your budget and timeline several times. Make your first draft now, to focus your proposal.

## Prepare a Gantt chart

Now make a Gantt chart, as a table in MSWord or a spreadsheet in Excel, and put the 10 – 15 most time consuming tasks as rows and the months as the columns. Google some images to get the idea of a Gantt chart, but don't use special project management software for this. Project management tools can get very complex, and are a total overkill for a research proposal. One of your tasks

must be "literature review," and it must run from the first to the last month because you must read the most recent publication in your research field every week.

Add your first publication, based on the results from your work, as a task in your Gantt chart, as early as possible.

**Table 1:** Typical Gantt chart for a PhD in the sciences

Item	Year 1	Year 2	Year 3	Year 4
Literature review	x	x	x	x
Field and laboratory analyses		x	x	
Publication 1		x		
Publication 2			x	
Publication 3				x
Conference			x	
Writing/editing thesis		x	x	
Graduation				x

### Budget

Now prepare a budget that covers the 5 – 10 most expensive resources that you will need. Speak to more senior students to get a rough idea of what the most costly resources will be. Make one table with these items and the total budget. If necessary, make a cash-flow projection of how much you will need and in which month.

**Table 2:** Typical budget for a PhD in the sciences

Item	Year 1	Year 2	Year 3	Total (USD)
Chemical reagents	2000	2000	1000	5000
Laboratory analyses	1000	2000	3000	6000
Publication	0	1000	1000	2000
Conference	0	0	4000	4000
Editing	0	1000	1000	2000
Total (USD)	3000	6000	10000	19000

### Brief literature review

Now, read up two or three recent publications about the topics, identified in the discussion of the previous student, that need further research. Especially, publications co-authored by your supervisor.

### **Preliminary meeting**

Now you should schedule a meeting with your supervisor and discuss your ideas about the topics you have selected, the Gantt chart and the budget. Ask if there is a proposal template that you should follow and if there is a page limit.

### **Reference manager**

Now you can follow the template, or your supervisor's suggestions or search online for more ideas about the language, grammar and structure of the proposal. Pay special attention to the tenses. Everything in the published literature is present tense. What you plan to do is in the future tense. Use a reference manager to keep track of the literature you read. The free Mendeley is a good one, or your university may have a site license for the "Reference Manager," but there are others. You need to import the pdf files into your reference manager so that the authors' initials and names; the journal name, volume, year and page numbers are absolutely correct.

### **Statistics**

You also need to determine what statistics will be necessary by looking at your supervisor's previous publications. If there is any quantitative work, you need to write one working hypothesis or two or three working hypotheses. Preferably, a null hypothesis that based on the statistical analyses of your results, you can accept or reject.

The working hypothesis is worded as follows: H<sub>1</sub> There will be a statistically significant difference in the measured response between the control and the treatment, at the 95% level of confidence. The null hypothesis is worded as follows, with a number followed by a subscript zero: H<sub>10</sub> There will be no statistically significant difference in the measured response between the control and the treatment, at the 95% level of confidence.

The measured response, also called the end-point, is whatever you are measuring. The control and the treatment are whatever is appropriate for your project.

### **Ethical clearance**

Ask your supervisor what the ethical clearance implications are. If necessary, get the ethical approval before starting your research.

### **Risk and mitigation**

You should identify the riskiest parts of your project and have a plan to mitigate the risk.



### **Limits of your work**

You must also identify the limits of your project, and specify what will be excluded due to limited time and funds. This is to show that you have thought carefully about your proposal and realise that you cannot do all the experiments that you have considered.

### **Conclusion**

This is my checklist for a masters or doctorate research proposal. This checklist is lacking in many guides for writing research proposals. I hope you find it useful. If you need help with the editing of your work, contact me on the emails in the header or my websites in the footer.

Every supervisor or department or university may have a preferred format for a proposal. Ask him or her for a good example, or search online for "research proposal" or "research proposal template" and "university XYZ"

### **Useful links:**

Free reference manager Mendeley: <https://www.mendeley.com/>

Free University of Houston - A Sample Research Proposal with Comments:  
<https://www.uh.edu/~lsong5/documents/A%20sample%20proposal%20with%20comment.pdf>