computing@glyndŵr

Research Proposal for a Masters Dissertation

This is an **optional** template. Other proposal formats may be acceptable. You do **not** *have* to follow this structure exactly – it will depend on the nature of your project – but you probably **do** have to include much of the detail suggested, however you present it.

**[Obviously, if you *do* use this template, be sure to remove ALL of these guidance notes before you submit it: you don’t want these counting towards your wordcount!]**

*Main text: approximately 3,000 words total, not including abstract, appendices, headings, figures, tables, captions, references, etc. Assume you’re writing the proposal to be read by an experienced computer scientist, but perhaps not one explicitly expert in the field you’re proposing to work in. So you may need to introduce specialist concepts without assuming depth of knowledge. Also think carefully about the structure and flow of this document; it should guide the reader towards, and through, the mechanics of your intended work, whilst clearly arguing its purpose and worth.*

# [Your Name]

## [Your Programme (MSc in …)]

# [Your Project’s Title]

## [Your Project’s Subtitle]

(Optional)

# [Date (of Proposal)]

# Abstract

*A very condensed summary of the rest of this entire document (but mostly leaving out the literature review). NOT an introduction, but a summary of your topic, proposed contribution, rationale, and methodology. Write it LAST, when you’ve written everything else, so you know what it needs to say!*

*150-250 words (but doesn’t count towards the overall word count).*

# Introduction

*In this section, you’re essentially getting the reader familiar with what you’re hoping to do. In the next section, ‘Literature Review’, you’re describing what others have already said and done in the field and, after that, ‘Research Hypothesis and Questions’, you’re straight into what your contribution’s going to be. So this is really the only chance you’ve got to lay the necessary foundations for your project. Crisp, concise, relevant and clear, please!*

*Approximately 400 words for this Section 1.*

*You could break it down like this …*

## Background

*Setting the scene. Explain the technological area you’re going to be working in; why it’s interesting and relevant, its key features, applications, terminology, etc. Make sure the reader knows enough to read on with confident understanding …*

## Scope for Research

*What’s the ‘problem’ you’re looking at? Identify the particular ‘research gap’ you’re going to fill or the ‘knowledge boundary’ you’re going to extend. What’s the PRIMARY research here that you’re intending to do? Why will it be useful? Who would be interested? Why are you a good person to do it?*

## Limitations

*But be clear and honest about what you’re NOT going to be trying to do. You have only limited time and other resources. Remember this is a ‘taught masters’, not a ‘research masters’ and certainly not a PhD. Your contribution is likely to be simple and focused.*

## Ethical Issues

*An initial look at areas that are likely to be troublesome and and/or warranting action in the ‘Ethical Approval’ section that follows. Focus on the issues though, rather than dealing with them in this overview.*

*DON’T waste words in this introductory section outlining the structure or content of the rest of the document (as some academic papers do). The Abstract (when written) will have already summarised that and the detail we can read for ourselves!*

*(However, the good news is that some parts of this section, with appropriate modification, can also feed into your final dissertation’s introduction.)*

# Literature Review

*[Note that, in this template, the literature review is presented as a separate section.]*

*A (so far as the word count will permit) comprehensive analysis of what other reputable research sources have to say on your subject area, its background and ‘state-of-the-art’. Also an opportunity to extend and explore critical material introduced in the introduction – but always using credible reference material to support anything you say or claim. This section needs to take the reader to the point of understanding your research hypothesis and questions that follow (and finding them credible and worthwhile).*

*Approximately 1,000 words for this Section 2.*

*Probably needs to be broken down into sections/subsections for each topic to be covered. Entirely dependent on your chosen project, obviously.*

## First Topic

## Second Topic

## Third Topic

:

## … Analysis and Conclusions

*So where has this got you? What does it all mean in the context of your proposed research?*

*(This section, with appropriate expansion, can also form part of your final dissertation’s literature review.)*

# Research Hypothesis and Questions

*A summary of what exactly you’re hoping your research will SHOW.*

*Approximately 250 words for this section 3.*

*Although some brief text may certainly be useful to introduce the key points, you should always avoid waffle – and most definitely here!*

## Research Hypothesis

*A single proposition that you hope to prove (or disprove). Normally a ‘statement’ that (in an ideal, logical world) would eventually be shown to be ‘true’ or ‘false’ (although it’s probably not going to be as simple as that in practice).*

## Research Questions

*(Optional)*

*A small number of clarifying/extending questions you may also hope to answer.*

1. How …
2. Where …
3. …

*For example, you might have a research question that was essentially how ‘best’ to go about doing in practice what you’re suggesting is ‘possible’ in theory in the hypothesis – but there are many forms of clarification that these ‘follow up’ questions can take.*

*For both the main hypothesis, and any supplementary questions, imagine another researcher, in a few years’ time, referencing your published dissertation … ‘<Your Name> [2021] showed that …’. How does that sentence end?*

*(Again, this section, with appropriate expansion, can form part of the corresponding section in your final dissertation.)*

# Methodology

*Arguably the most important section in your proposal. Here you describe, in some detail, what you’re going to do, from start to finish; why, when and how.*

*Approximately 1,000 words for this Section 4.*

*You could break it down like this …*

## Preparation

*What needs to be done first and how will you do it? Is there anything in your project (physical, experimental, procedural, etc.) that needs to be ‘set up’ or ‘started off’?*

*[You might NOT need a section like this if your proposed research needs no actual ‘preparation’.]*

## Initial Analysis

*Is there anything yet to be determined before you start properly? You might not know EVERYTHING the moment your literature review’s finished. Yes, it could be still that you’ll need to process some existing data to determine some later aspects of the project, for example. That’s OK as long as it’s done quickly (see ‘timescales’)*

*[Another ‘optional’ section but the next few are essential and very important.]*

## Data Collection

*How will you get your PRIMARY research data? Where from? What experiments will you do? Observations? Measurements? What surveys? Questionnaires? Or how will you be analysing secondary research data in a novel way?*

## Data Analysis and Results

*How will you manage and store the data you collect? In what form? What analysis will you perform on it? What statistical ‘significance’ techniques will you apply to quantitative data? How will you identify themes within qualitative data? How will you ensure coherence for mixed-methods approaches? How will you determine ‘meaning’ from your results? Very important, this, for all types of research.*

## Evaluation

*And, following on from ‘what the results mean’, how would they impact explicitly on your research hypothesis and questions? How might results prove (or disprove) your hypothesis? What likelihood is there of an ‘unproven’ outcome? (And would this weaken your research contribution?) How might the ancillary questions be answered?*

## Reporting Results and Conclusions

*Aside from claiming to have proved (or otherwise) your hypothesis and perhaps answered one or more research questions, how will you present the results that support this? Are there conventional models to follow? Specialised tools? Industry standards? Publisher’s format? Practical demonstrations? How will you pull it all together and come to a coherent stop?*

*Subsections 4.5 and 4.6 are perhaps interchangeable, depending on the nature of your research and its objectives.*

## Project Planning and Timescales

*How are you structuring and planning all this in terms of time? What overall deadline are you working to so how long have you got in total? How will you break your research down into units and how much time can be allocated to each task? It’s advisable to build a certain amount of ‘slack’ into your timetable to give you a change of managing when things go wrong. For a typical project, you might schedule tasks in units of weeks or half-weeks. For example …*

Preparation and Outstanding Analysis: 1 Week [and exact date of planned completion]

Updated Literature Review: 1 Week [and exact date of planned completion]

First Lab Experiment: ½ Week [and exact date of planned completion]

Second Lab …

:

Finish Writing Dissertation: 1 Week [and exact date of planned completion]

Proof-reading Final Dissertation: ½ Week [and exact date of planned completion]

*… but this will be unique to your project.*

## Risk Analysis

*Finally, for your methodology, what could go wrong with your project and how could you mitigate against this? For example, what might not work, or take longer than expected? And how would you cope?*

*(NOT Health and Safety type risks: that’s covered – if appropriate – under ‘Ethical Approval’.)*

*For example …*

RISK LKELIHOOD SEVERITY MITIGATION

Unable to get enough survey Moderate Moderate Use YYY as well

participants through XXX or instead

:

*(Some of these sections, with appropriate expansion, once again can form part of the corresponding section in your final dissertation.)*

# Ethical Approval

*What goes in here is going to depend entirely on your research project: some will have many more ethical issues than others. However, no project is likely to have none. Anything involving real people, for example, needs to be looked at. Even an online survey would impact on the academic reputation of the university.*

*Approximately 350 words for this Section 5. (But more if necessary for a proposal with complex ethical issues.)*

## Components Requiring Ethical Approval

*What parts of your research plans need independent approval? (And why?) What are your ethical obligations going to be? How will you discharge them and how can you convince people of this? It’s probably best to list or tabulate them for clarity, then …*

## Action to Obtain Ethical Approval

*What’s the process for getting this approval and how will you follow it? Your project supervisor or module leader may be able to approve uncomplicated research ethics issues at ‘taught masters’ level. [Check this with them.] Will this be sufficient or does your research have special ethical responsibilities that will need to be considered by the university research ethics committee? (You’ll probably need to consider this in your planning/timeline.)*

*(This section, with appropriate documentation added, can then form part of the corresponding section in your final dissertation.)*

# References

*In IEEE format. CREDIBLE sources of justification for any claims made anywhere in this document.*

*Most references are likely to be used in the ‘Literature Review’.*

*Word count doesn’t matter here.*

[1] …

[2] …

…

# Appendices

*Any supporting material required; ethical approval processes, survey questions, initial questionnaire design, informed consent forms, data sheets, etc.*

*Word count doesn’t matter here.*

## Appendix A

## Appendix B

…