

PhD proposal

A PhD proposal is an outline of your proposed project that is designed to:

- Define a clear question and approach to answering it
- Highlight its originality and/or significance
- Explain how it adds to, develops (or challenges) existing literature in the field
- Persuade potential supervisors and/or funders of the importance of the work, and why *you* are the right person to undertake it.

Research proposals may vary in length, so it is important to check with the department(s) to which you are applying to check word limits and guidelines. The typical sections of a PhD proposal are:

- **Abstract**

- The abstract is a brief summary of your Ph.D. research proposal, and should be no longer than a page. Present a brief introduction to the issue, make the key statement of your thesis, give a summary of how you want to address the issue and include a possible implication of your work, if successfully completed.

- **Ch1. Introduction**

Every research project is aimed at solving a problem. The introduction gives the necessary background to the research problem so that the reader can understand the context of what you plan to do. You should expressly write the purpose of the research and, if possible, the research questions that would be answered by the study.

The introduction section must outline the significance or the rationale of the study. Therefore, in this section you have to convince the reader that your study will not only answer the research questions or solve the problem you have raised, further the understanding in the area, and possibly lead to further research projects. Try to persuade the reader of the importance and the benefits of the project.

- **Ch2. Literature review (significant prior research)**

Now that you have your question clarified, it is time to explain the why. Why are you choosing to research problem 'x' or issue 'y'? Here you need to demonstrate an understanding of the current research climate for your area of interest.

Providing context for your research topic through a literature review shows the assessor that you understand what is currently being discussed about your topic and what has already been published. Demonstrate you have a strong understanding of the key topics, important studies, notable researchers etc. in your area of research and how these have contributed to the current landscape. The list of references need not be long, but it should be carefully considered. The list and review should show clear evidence that the student has sufficient knowledge to continue immediately into doctoral level research.

- **Ch3. Fundamental of research**

Now that you've provided a concise overview of the existing research in your literature review section, you need to explain how you will undertake your own research. In other words, your methodology. Develop the theoretical basis for your thesis, including any governing equations.

- **Ch4. Thesis statement**

Provide an overview of the methodology and techniques you will use to conduct your research. Which materials and equipment you will use? Which theoretical frameworks will you draw on? Which method will you use to collect data?

Highlight why you have chosen this particular methodology, detailing its own merits, but also why others may not have been as suitable. You need to demonstrate that you have put thought into your approach and why it's the most appropriate way to carry out your research. It should also highlight potential limitations you anticipate facing, feasibility within time and other constraints, and how you will address these limitations.

As mentioned earlier, given that this is just a proposal, the thesis committees generally do not expect that you have an in-depth understanding of your research methodology at this stage. However, they do want to see that you have a basic understanding of your intended research methodology, and that it is suitable (given the topic) and manageable (given your resource limits such as time, money and expertise).

4.1 Approach

- The section research objectives and approach clarifies the research objectives of your project, taking as its background your description of the state of the art, and describes the methodological approaches you have in mind to face the key research challenges of your project. This section contains an overall description of your approach, materials, and procedures, what methods will be used, how will data be collected and analyzed, and what materials will be used.

4.2 Potential outcomes

Describe what you hope to discover at the end of your research and what new areas it might open up. This can prove difficult as you cannot know the research findings prior to completion, but there needs to be a range of possible outcomes e.g. a new interpretation, a new discovery or a problem solved.

4.3 Limitations

The limitations describe the practical or theoretical limits that are placed on the study, which are beyond your control. Delimitations are what you wish to exclude for some reasons and aim to narrow the scope of the study. They are the limits that you determine.

4.4 Contributions to knowledge (innovation)

Explore the potential implications of the research for theory or practice, and emphasize what you aim to contribute to existing knowledge on the topic. What new knowledge

will the proposed thesis produce that we do not already know, why is it worth knowing, and what are the major implications.

4.5 Work Plan (Time frame for study)

A work plan is a critical component of your research proposal because it indicates the feasibility of completion within the timeframe and supports you in achieving your objectives over the course of your degree. Describe in detail what you plan to do until completion of your thesis, list the stages of your thesis in a table format and indicate deadlines you have set for completing each stage of the project.

- **References**

Provide a list of references that you've made throughout your research proposal. Do not use footnotes or endnotes as a substitute for a reference list. The entries in the list should be numbered consecutively. Within the text, references should be cited in numerical order according to their order of appearance. The numbered reference citation within text should be enclosed in brackets.

Example: It was shown by Prusa [1] that the width of the plume decreases under these conditions.

Sample References

- Journal article

Hamburger, C.: Quasimonotonicity, regularity and duality for nonlinear systems of partial differential equations. *Ann. Mat. Pura Appl.* 169, 321–354 (1995)

- Article by DOI

Sajti, C.L., Georgio, S., Khodorkovsky, V., Marine, W.: New nanohybrid materials for biophotonics. *Appl. Phys. A* (2007). doi:10.1007/s00339-007-4137-z

- Book

Geddes, K.O., Czapor, S.R., Labahn, G.: *Algorithms for Computer Algebra*. Kluwer, Boston (1992)

- Book chapter

Broy, M.: Software engineering — from auxiliary to key technologies. In: Broy, M., Denert, E. (eds.) *Software Pioneers*, pp. 10–13. Springer, Heidelberg (2002)

- Online document

Cartwright, J.: Big stars have weather too. IOP Publishing PhysicsWeb. <http://physicsweb.org/articles/news/11/6/16/1> (2007). Accessed 26 June 2007

Order in which to write the proposal

Please notice to arrange the proposal in accordance with this format:

- **Title page.**

The title should be informative, contain keywords, and reveal the topic of the thesis. Include the title, author, thesis supervisor, place, and date.

- **Abstract.**

- **Table of contents.** List the key subject headings and subheadings of your proposal with their page numbers. Number the front-matter section in lowercase roman numerals. Be sure to list appendixes and bibliography.

- **List of figures.** Include the figure numbers, figure titles, and page numbers.

- **List of tables.** Include the table numbers, table titles, and page numbers.

- **Nomenclature.** List unfamiliar terms, symbols, acronyms and their meanings.

- **Chapter 1:** Introduction.

- **Chapter 2:** Literature review.

- **Chapter 3:** Fundamental of research.

- **Chapter 4:** Thesis statement.

- **References**

- **Appendices**