Master of Physics Research Project Development

Guideline

Astronomy and Astrophysics, Theoretical, Computational and Experimental Specialisations

Part 1: Written research proposal/progress summary (60%)

1. **Title—** Provide a title for the study.
2. **Supervisor**(s)
3. **Introduction (literature review) including the following points**
    - Aims: What are the specific aims of the project — the problem(s) it hopes to solve or particular question(s) it will answer?
    - Significance: Why is the research worth doing and to what will it contribute?
    - What are the current researches in this field?

4. **Research Plan**
    - Methods: Describe research methods to be used.
    - Progress up to date: Describe the current status of the project. In the case of theoretical study as research development, summarise the study you did so far, in a way that general physicists could understand,
    - Previous work (if applicable): Those who worked on the same or a closely related project previously (e.g. as a vacation project) prior to commencement of masters are to note progress made.
    - Future research plan. Provide general idea of how you plan to conduct the research and a rough estimation of your time allocated to the research.
    - Problems (optional): Mention any unusual difficulty foreseen or unusual sources of delay.

5. **References—**Identify some leading research workers or writers in the field, particularly some whose published work you have had occasion to study. This should be referred within your main text.
6. **Page limit—**The length of the proposal should be approximately between 4-10 pages.

Marking Rubric

Criterion	Explanation	Mark/10
Introduction/ Background	The proposal makes clear the context in which the work is taking place. It is clear to the reader why the problem/proposed question is important or relevant within the field of study.	10
Problem Identification	The proposal clearly states the contribution that the student seeks to make within the field of study. The reader is able to identify the problem to be solved, hypothesis to be tested or question to be answered	10
Literature Review/Previous Work (may be joint work providing all authors credited)	The review provides a succinct and well-structured account of previous work/theoretical models and framework on which the project will build. (This may include research literature, previous projects, existing artefacts, etc, depending on the type of project.) The review provides more than just a list of previous work/theories and frameworks but draws it together, highlighting relevant work and connections, to provide the reader with an understanding of how the student's work builds on existing work.	20
Methodology and research plan	The proposal presents a solid plan to address the problem given the student's experience in the area of study. The student has clear steps/procedures set out based on the proposed method and a reasonable timeline for completion given the student's experience in the area of study.	20

Progress/ Preliminary results	Progress towards the project's objectives	20
Writing and Referencing	The report is well set out. The writing is well structured and clearly conveys the concepts in the student's own words. Important concepts are highlighted. The referencing is complete and consistent.	20

Part 2: Presentation and oral defence of research proposal (40%)

All students should prepare a brief presentation that will be delivered to a panel of academics (including the supervisor) from various backgrounds. This presentation should be about 10 minutes. The presentation should broadly outline your research plan, giving the panel an idea on how well you understand the contents of your written proposal. The presentation should be understandable to a physics academic outside of your particular specialisation.

The presentation will be followed by 5 minutes of questions from the panel. The student will be marked on the following:

Presentation /10:
Clarity
Fluency of speech Confidence
Clarity and quantity of text and figures

Content /15:
Coherence and organisation of the talk
Sense of mastery of material
Student's understanding of the research background
Student's understanding of what they will be doing and how this will be achieved

Discussion /15:
How did the speaker respond to questions?