

How to write a research proposal?



Department of Statistics

PhD Open Day, 28th November 2022

On writing research proposals

- Writing a research proposal is a serious undertaking
- Scientists write research proposals throughout their careers
 - E.g. for a PhD programme admission, when applying for academic jobs, for receiving research grants, ...
- Writing a good research proposal requires
 - Having a new idea and a value proposition
 - Knowledge about the state-of-the-art research
 - Good writing skills

Purpose of the research proposal

- Provide evidence of your ability to undertake independent research and state your research topic as accurately as possible



Points to cover in your research proposal

- 1) Formulate the problem as concisely as possible
- 2) Has anything been done about the problem?
- 3) Why is this an interesting problem?
- 4) What are limitations of existing solutions?
- 5) What methods do you plan to use?
- 6) Why is this a new approach?
- 7) Why are you capable of carrying it out?

1) Formulate the problem as concisely as possible

- What is the problem?
- Add references !



2) Has anything been done about the problem?

- Why is it a problem? Why it hasn't been solved yet?
- Add references



3) Why is this an interesting problem?

- Why is it important to solve the problem?
- What are motivating applications?
- Add references



4) What are limitations of existing approaches?

- Why are existing solutions unsatisfactory? Add references
- What challenges do you expect?



5) What methods do you plan to use?

- Add references



6) Why is this a new approach?

- Where do you expect your research to make original contributions?
- Is it in new methodologies, theorems, or more empirical research?



7) Why are you capable of carrying it out?

- How is the problem related to your skillset and any prior experience?



Some further tips

- Is it necessary to submit a research proposal?
 - Yes
 - MPhil/PhD applications that are received without a research proposal that addresses these questions will not be considered
- Should I solicit feedback from a potential supervisor?
 - Yes, you can do this
 - You may want to check research interests of potential supervisors and how they match with your research aspirations
 - Some supervisors may prefer to provide feedback for your research proposal

Concluding remarks

- Research proposal is one element of a PhD programme application
- It allows you to articulate what research you want to undertake, and provide evidence that you can conduct an independent research
- You may consult with a potential supervisor, and in some cases get a feedback for your research proposal