

Writing a Thesis

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What is a Thesis?

A Thesis is NOT

- **Summarization of others' work**
- **Just a long term-paper**
- **Something to be completed in a weekend**

A Thesis is a Process

- **Gather Background Information**
- **Conduct the Project**
- **Write and Defend the Research**

Thesis Development

- **Funded Project Theses**
 - Faculty funded project
 - Limited Student Creativity (Faculty ‘gives’ you your project)
 - Common at Large Research Institutions
- **Independently Developed Theses**
 - Ask yourself “what am I interested in”?
 - Find Faculty to help direct your research

Funded Thesis Projects

- Students will have limited input into how the research will be conducted because the Grant specifies the methods.
- You will have to do the research.
- You will need to write the thesis and defend it.
- You **CAN EXPAND** upon the research and exert independence.

Independently Developed Thesis

- **Define your interests and find a mentor.**
 - How?
 - Talk to the faculty in the department/college
 - Ask yourself “What do I want to be when I grow up?”
 - Teaching or Education
 - Research, Industry, Private Sector
 - Ph.D.
 - Scope of the Question

Defining the Research Topic

- **What are your interests?**
- **What are your mentors interests?**
- **What are your strengths?**

- **What are the capabilities of your mentor and the University?**

Developing a Thesis Proposal

1. **Develop project Goals and Objectives**
2. **Review Objectives with your mentor**
3. **Develop a thesis committee**
4. **Review thesis ideas and Objectives with the committee**
5. **Write your proposal**
6. **Get committee approval on the proposal**

Why is having a proposal important?

- **Guideline for research**
- **Define objectives which can be accomplished**
- **Committee can't keep asking for 'more'**
 - (they agreed on it, you can stay focused)
- **HALF THE THESIS IS ESSENTIALLY WRITTEN!!!!**

Thesis Proposal

- **Introduction** based on literature research
- Defined Objectives
- Defined Hypotheses to test
- **Methods** to complete the Objective
- Statistical Guideline to analyze the Data
- Your Mentor and Committee will provide you guidance on what they expect in the proposal

Research Time

- **The next step is to conduct the research**
- **Involve your committee**
 - **Project Assistance**
 - **Data Review, Analysis, and Interpretation**
 - **Research Problems**

Writing the Thesis

- Follow acceptable writing guidelines **defined by your Mentor and Committee**
- Sciences generally do not follow the APA Writing Styles
- In Biology, we use the CBE Style (Council of Biological Editors)
- Find out what is applicable for your **discipline** and follow it!

Generic Thesis Organization

- **Introduction**
- **Methodology**
- **Results**
- **Discussion**
- **Conclusion**

Introduction

Should be almost done in association with the thesis proposal

- Introduction to your Research Topic
- Broad in scope
- Lots of published literature to provide context
- Should explain why **Your** research is necessary (data gap)

Methods

- **Explain what you did.**
- **Should be clear enough for another researcher to replicate your work.**
 - **Exact details (concentration, amount, time, number of samples, etc...)**
- **Don't forget to explain you data/statistical analyses!!!!!!!
(experimental design)**

Results

- **Statement of Facts**
- **Do not explain what it means (that is for the discussion)**
- **Do explain problems (one sample was lost, the dog stole it and I never saw it again), surveys filled out incorrectly, etc...**

Results

- **Visual presentation**
 - **Figures / Graphs – Simple Relationships**
 - **Tables – More or ‘More Complex’ Data**
 - **Images showing Results (e.g., cancer vs. normal cells)**

Results

- **Incorporate ALL your Data and Results, Significant or Not. For publication you can eliminate what is not useful, but you did the work, let your committee and college know!**
- **In some cases you may incorporate the data/results as an appendix to your thesis. This is especially useful for displaying survey questions etc..**

Discussion

- This is where you explain and interpret your results.
- Expand on the importance of YOUR Data!
- You need to put your results in the context of other published research = **Compare and Contrast**

Discussion

- **This is the ‘meat’ of the thesis or paper.**
- **If a discussion is poorly written, it won’t be published**
 - **Poor Grammar or Writing Style**
 - **Repetition**
 - **Insufficient Literature Review (know the research topic)**
 - **Incorrect Interpretation of the results**

The Writing Process

- Think = Idea generation, literature review
- Organize = Outline and group ideas
- Draft = put something on paper
- Re-Think = evaluate what you write
- Re-Organize = does flow exist, **eliminate repetition**
- Edit = fix grammar and sentence structure
- Re-Write
- **Repeat**

Pitfalls in the Process

- **No defined research plan (proposal is the best idea)**
- **Waiting to the end to write**
- **Lack of Committee Communication = keep us informed, especially if you are having trouble!!!**

Plagiarism

Many people think of plagiarism as copying another's work, or borrowing someone else's original ideas. But terms like "copying" and "borrowing" can disguise the seriousness of the offense:

- According to the Merriam-Webster Online Dictionary, to "plagiarize" means
 - to steal and pass off (the ideas or words of another) as one's own
 - to use (another's production) without crediting the source
 - to commit literary theft
 - to present as new and original an idea or product derived from an existing source.
- In other words, plagiarism is an act of fraud. It involves both stealing someone else's work and lying about it afterward.

PLAGIARISM

- **DON'T DO IT!!!!!!!!!!!!**
- **If you did not write every last word independently, it is plagiarism!**
- **Rewriting someone else's work is plagiarism!**