

THESIS ORGANIZATION AND VALIDATION

**When you are about to begin,
writing a thesis seems a long
and difficult task.....**

That is because it is a long and
difficult task.



PLAN

1. THESIS PLAN
2. THESIS STRUCTURE
3. THE COMPONENTS
4. THE WRITING PROCESS

1. THESIS PLAN

Structure

Thesis Plan includes the definition of the **research question(s)** and **its motivation**, **hypothesis**, analysis and synthesis of the **state of the art**, and **planning** of the research activities.

Recommendation:

- Abstract
- Introduction / background
- Research question and general approach
- Literature review
- Research method
- Aimed contribution
- Detailed work plan and scheduling
- Validation method
- Dissemination plan
- Integration with other research activities
- References

Size: 50-60 pages.

Public defense of the plan

the Thesis Plan must be presented in a **seminar** of committee
The seminar is open to the **public**.

After the presentation, there is a discussion between the **committee** and the candidate.

This event serves to collect feedback / suggestions from the **committee...** and thus a fundamental element to give the candidate confidence when starting his/her research work.

If the **committee** **considers that the Plan is not mature yet, the candidate may be asked to resubmit if after some months.**

2. THESIS STRUCTURE

- In informal talking people call “thesis” the document that is in fact the dissertation.
- In reality a masters project/ dissertation may include more than one thesis.

What is a thesis/dissertation ?



- Demonstration of a clear understanding of the state of the art
 - Critical appreciation of existing work
- A novel contribution
 - The distinguishing mark of a PhD work is an **original contribution to knowledge**
 - Your research must discover something previously unknown
 - Not something for which the examiners already know the answer ... *and they are experts in the field.*
 - Evaluated systematically
- A sound research report, well-written, carefully edited / revised

What a thesis is **not**?

■ A description of what you did in the lab over 1 year

- *I first read the background material*
- *I then implemented an algorithm*
- *I ran some experiments*
- ...

■ A “brain dump” of everything you’ve done

- *You have to leave out the dead-ends and irrelevant aspects (even if you spent a lot of time with them ...)*
- *But you have to fill in any obvious gaps!*

■ A thesis is a *logical* “**reconstruction**”

- Not a historical narrative
- With a *single* coherent message

Typical Table of Contents

Preliminaries

1. Introduction
2. Background information (optional)
3. Literature review
4. Conceptual contribution
5. Experimental developments
6. Validation / Discussion
7. Conclusions and future work
8. References

Annexes (optional)

Some of these sections may include a number of chapters!

SIZE, STYLE, ETC

- A typical size for an engineering thesis is between 50 and 70 pages.
- Language: recommended English, as it can get more readers ...
- Style of writing: A thesis is a formal document.
- Avoid informal writing.
- Recommendation: Have a look at other thesis.

3. THE COMPONENTS

- The actual contents of this part depend on the formatting rules adopted in each university.
- Examples:
- Acknowledgements
 - - To people: supervisor, colleagues, other people that helped.
 - - To funding agencies /projects when resources where provided
 - to support your work
 - - To host institution / Lab, etc.
- Table of Contents
- List of Figures
- List of Tables

- Introduction
- Brief summary of the research question
- Motivation or reasons why it is a worth while question
- Your hypothesis / thesis
- The reader will be looking for your thesis.
- Examples of good thesis statements
- Make it clear, strong and easy to find.
- The research method adopted (instantiation of scientific method)
- Perhaps an overview of main results
- Not just a description of the contents of each section !

Introduction ...

What a Thesis Statement is Not:

Your Thesis Statement is **NOT** Your Topic!

- ✎ Your **topic** tells your reader what you are talking about. For Example:

- ✎ I will compare marijuana usage over the last 5 years.

This is not a thesis, it is only
A Topic.



- ✎ Your **thesis** tells your reader your position on your topic. For Example:

- ✎ Marijuana usage has decreased over the past five years due to the successful "War on Drugs."

This is a Successful
Thesis Statement

A strong thesis should not
be too broad, not too narrow

What a Thesis Statement is Not:

Your Thesis Statement is **NOT A Fact** About Your Topic!

- ✎ Surprisingly, your thesis should be an arguable **OPINION - NOT A FACT!**

✎ WHY?

- ✎ Because that is what makes your paper / thesis interesting to your reader!
- ✎ Your thesis should always be a statement that demands **PROOF!**



Your Thesis
Should Take A
STAND!

- ✎ You spend the rest of your paper / thesis **CONVINCING** your reader of why **YOUR OPINION** is TRUE!
- ✎ Your thesis prepares your reader for the facts that will prove your **opinion about your topic** to be true- it can not be a fact itself.

4. THE WRITING PROCESS

Main steps

- ◆ Plan / elaborate the outline
- ◆ Get feedback from supervisor
- ◆ Start detailing / organizing the main sections
- ◆ After a few chapters, collect feedback from colleagues
- ◆ Revise them and start getting feedback from supervisor
- ◆ Go through several iterations ! THINK-PLAN-WRITE-REVISE cycle
- ◆ Write the Conclusions and then the Introduction
- ◆ Read the whole thesis to eliminate repetitions
 - Read it to verify / improve ideas
 - Read it again for editing.

... And carefully take into account the recommendations of your supervisor !

Hints

Generate an Outline:

- A 'plot' for your thesis writing
- Several Pages - chapter headings / sub-headings / figure titles
- Start with 'fleshing' the structure given
- Target: 'logical story' for the document
- Discuss / revise with supervisor

Results

- Start with Tables/Graphs
 - *Make each 'stand alone'.. Detailed legends*
- Pick the pictures:
 - *What 'tells the story'?*
- Describe, *then* number crunch
- Use Appendices for detailed items

Re-use of your publications

“Can I include material from my publications in my dissertation?”

Yes, you can!

When to start ... and stop

Start soon ...

**How long will it take?
... Longer than you expect !!!**

- ... Your dissertation is not an application for a Nobel prize**
- ... Your dissertation is not the last word on the subject**
- ... Trust your supervisor
and consider the feedback from your publications**

Hints

- Don't start with the Introduction or Conclusion
- Start where you feel happiest
 - Typically a middle chapter
 - Write outwards
 - Finally Conclusions and end with the Introduction
- Write everything with your thesis message in mind
- Get feedback before you write too much
 - One person to read each chapter as it is written
 - Another person to read the thesis in order
- Lay some good groundwork
 - Endnote
 - Indexing
 - ...





Always remember to Back Up!

