

A Pretty Thesis Template with Tips

(feel free to adjust for your own thesis)

Anh Phuong Le

Supervised by: Gavin Huttley, Cheng Soon Ong

A thesis presented for the degree of
Bachelor of Philosophy (Honours)



**Australian
National
University**

Research School of Biology
The Australian National University

November 5, 2021

N.B. Terms in blue can be found in the [Glossary](#). All coloured texts (blue or light purple) are hyperlinked. If you are reading on a computer or an iPad, you can click on the coloured texts to jump to the definitions, the referenced sections or the cited papers.

Wordcounts for restricted elements:

Introduction: , Results: , Discussion: , Methods:

L^AT_EX template by Phuong Le, inspired by André Miede's *A Classic Thesis Style*

Phuong Le © November, 2021

Supervisors:

When you give something to someone else, make it pretty

— Prof. Michael Martin, ANU —

Declaration

This thesis is an account of research undertaken between February 2021 and October 2021 at Research School of Biology, Joint College of Sciences, The Australian National University, Canberra, Australia.

Except where acknowledged, the material presented in this thesis is, to the best of my knowledge, original and has not been submitted in whole or part for a degree in any university.

Phuong Le
June 15, 2023

Acknowledgements

I wanted to thank my supervisor Gavin Huttley for making me learn \LaTeX and Soraya Zwahlen for helping me with her writing tips.

Main Contents

Abstract

An abstract is meant to be the summary of the whole thesis. It is something you put at the beginning of your thesis but work on last during your writing process. Think of it as the one page you choose if you had to choose only one page of your thesis to show to a general audience - make it complete, precise, simple, and if possible, attractive. [Here](#) is a good guide to writing abstract.

Contents

Declaration	iv
Acknowledgements	v
Abstract	vii
Glossary	ix
Chapter 1: Introduction	1
 Part I Notes on representing the thesis	 2
Chapter 2: Structuring the document	3
2.1 The main organisation of this template	3
2.2 Naming your files and referencing.	3
2.2.1 Naming files	3
2.2.2 Cross-referencing	4
2.2.3 Citation style	4
2.3 Word counts	5
Chapter 3: Figures and Tables	6
3.1 Colour choice.	6
3.2 Subfigures and subtables	7
 Part II Notes on writing styles	 8
Chapter 4: Writing styles	9
Bibliography	11
Appendices	12
A.1 The numbering of sections, tables, figures and equations have been reset for appendices using <code>setcounter</code>	12

Glossary

This list contains the most relevant versions of definitions to this research project

Notation	Description	Page List
float	Floats are containers for things in a document that cannot be broken over a page. LaTeX by default recognises "table" and "figure" floats, but you can define new ones of your own. Floats are there to deal with the problem of the object that won't fit on the present page and to help when you really don't want the object here just now. (from wikibooks)	6
mouse	a small animal that is covered in fur and has a long thin tail. Mice live in fields, in people's houses or where food is stored. (from Oxford learners dictionary)	4

Introduction

Welcome and thank you for taking your time to look at this thesis template and potentially using it. This template was first produced during my Honours year at the Research school of Biology (RSB) at the Australian National University - [here](#) is the repo for my original thesis. For this reason, the formatting was designed according to the requirements set by the RSB, but you can easily adjust the settings in the `setup.tex` file. In making the template, I tried to be as detailed as I could to produce a document that I personally find very pretty. I have at least two people who agree with me: my lab-mate, who asked to use the code even before it was finished, and one of my examiners, who asked for permission to share the template with their students. In addition, I hope the template is useful for \LaTeX beginners, because \LaTeX is super convenient for large documents like theses.

Following this chapter is a demonstration of how the template will appear as a pdf document. Part [I](#) contains tips to present/structure your document, including \LaTeX tips. Part [II](#) contains tips on writing styles. Please replace these tips with your own contents, I hope you find them helpful - I know I will go back to them in the future myself. Please let me know if you have any questions or feedback. I would also be curious to see the variation you make to the style of the template if there is any. I hope you have fun writing and I wish you all the best.

Part I

Notes on representing the thesis

The following chapters discuss tips to organise the documents, represent figures and tables

Structuring the document

If you wanted to write your own template from scratch, I would be very happy to refer you to [this Overleaf tutorial](#). While I think it is very helpful, I must warn you that getting every detailed decoration the way you want can be quite tedious.

2.1 The main organisation of this template

As per convention, the main file of this document is `main.tex`. After you've compiled the code, a `main.pdf` document will appear, together with a bunch of "main.*" files - the pdf will be what you submit. The `thesis_template.pdf` file gives you a demonstration of what the thesis `main.pdf` could look like. The configurations (or preamble) for this template are in `setup.tex`, with detailed commented description. The title pages are in the `decorations` folder. The contents of each thesis chapter are in the `chapters` folder. The `figures` and `tables` folders, as the name suggest, contain figures and tables to include in your thesis. I suggest that you use the `graphics` folder to store the images, which can be "called" by files in `figures` as you write.

2.2 Naming your files and referencing

2.2.1 Naming files

A small, but important thing to note when naming files, particularly those in `chapters`, `figures` and `tables`, you should NOT number them, *e.g.* "Chapter1", "Figure3". Instead, give them descriptive names that you can easily recognise later, *e.g.* "`chapters/intro.tex`" and "`figures/.tex`". This will save you time in case you change your mind about their orders later on - thesis writing takes weeks or more and you will

never know what you might want to edit!

2.2.2 Cross-referencing

Cross-referencing is a very powerful \LaTeX tool that is particularly convenient in large documents such as a thesis. [Here](#) is a tutorial for how you can do it. Briefly, if you want to refer to an element, *e.g.* a chapter, a section or a figure, you could simply

1. use the `\label` command right after the element to label it.
2. refer to the element using the `\ref` command.

For example, here I am able to reference Chapter [1](#) because the Introduction chapter was labelled.

To produce hyperlinked references, I used the package `hyperref`. The colours of different hyperlink types using the command `\hypersetup`.

Cross-referencing is also useful if you have a glossary. Here, when I refer to the word [mouse](#), you can click on it to jump to its definition in my glossary. Note that you need to manually define the plural form in `glossary.tex` if you want to mention [mice](#), or you'll get "mouses" - I would like to blame the English language for the inconvenience. Again, [here](#) is a useful tutorial.

2.2.3 Citation style

This document uses the referencing style from the journal Genetics (`geneticsstyle.bst`). This is the standard style for thesis writing at the RSB, ANU. One of its strengths is that it trims down the bibliography if there are more than five authors. Here is an example of in-text referencing ([Harris *et al.*, 2020](#)) and in-text referencing with notes (Note: NumPy is cool; [Harris *et al.*, 2020](#)). An example of citation without the parentheses: [Harris *et al.* \(2020\)](#) introduced the python package NumPy. If you want to change the referencing style, please replace or delete the `geneticsstyle.bst` file. Both [natbib](#) and [bibtex](#) provide a range of style options.

Here, the bibliography sources are stored in `references_extended.bib`. For my thesis, I used `references_extended.bib` as a place to store entries that I had to enter manually. I had a separate main bibliography file, `references.bib`, which can be exported from [Mendeley](#) as I find having a reference manager convenient.

2.3 Word counts

Local machine

If you're using Latex on your local machine, you can use the following command to do the word count

```
detex main.tex | wc -w
```

Overleaf

If you are using Overleaf, you will probably find [this tutorial](#) useful for word counting as it allows you to selectively count/ignore some sections of the documents. Here I have placed `%TC:ignore before \input{glossary}` in `setup.tex` for you.

Figures and Tables

As you might know already, both figures and tables are considered [floats](#). Depending on the discipline/institution, you might need to set up your float in some specific ways. Some people like to anchor floats to the top of the page, so it is easy to find them. When I wrote my thesis, it was preferable to put floats after and closest possible to the first texts that describe them, so I set floats to `[ht!]`, which forces floats to be either “here” or at the “top” of the next page, as seen in the figures and tables in this chapter. You can read more about float settings [here](#). In addition, for long tables, it is beneficial to know how [tabularray](#) works.

3.1 Colour choice

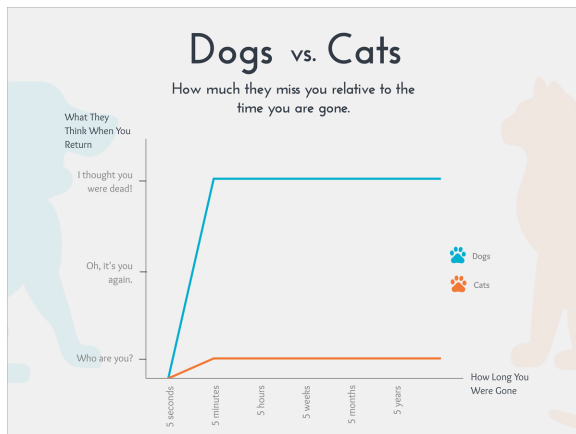
When it comes to colours, make sure you accommodate for colour-blind people. There are two ways to do this: (1) for things like scatter plots and line graphs, use colours in combination with shapes; (2) use colour-blind friendly colour-pallets, like [viridis](#), particularly for heatmaps.

Sometimes you might find yourself wanting to pick a colour that is not predefined by your graphic tools (like red, blue, etc). In that case you might find [colors_picker](#) and [coolers](#) very helpful, as you can pick a colour and get a universal code for them. You might know this already, but one of the worst combinations of colours possible is red and green, unless you are deliberately sexist against males - [8% of the male population and 0.4% of the female population is red/green colour blind](#).

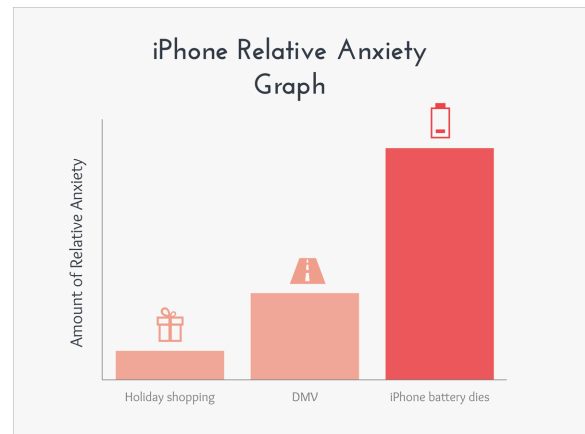
Finally, [here](#) are some final tips for good colour choice.

3.2 Subfigures and subtables

It might be often the case that you need to bundle figures or tables or both together into subfigures or subtables to convey information. In that case you will need to use subfigures or subtables. Figure 3.1 shows an example of a collection of two figures (Figure 3.1a) and 3.1b) and a table (3.1c). For tables only, you might use subtables. (Note that to be able to use subfigures, I put the package `subcaption` in `setup.tex`).



(a) Dogs v.s. cats



(b) iPhone anxiety

Number of households (in millions)	
with cats	5.7
without cats	3.5

(c) Households with cats in Australia

Figure 3.1. Figures for demonstration only. Here are the sources for the [graphics](#) and [table](#)

Part II

Notes on writing styles

Writing styles

I asked my brilliant friend Soraya Zwahlen for her advice regarding writing a thesis, here is her response:

“

- **Have a story:** Start off by dot-pointing your ideas. Then, organise them in an order that tells a logical story. This doesn't necessarily have to be in chronological order - start by describing experiments that 'lay the groundwork', i.e. establish the basics which later experiments build on.
- **Have a structure:** After dot-pointing your ideas in a logical order, start working on the individual paragraphs. Each paragraph should start with a topic sentence that summarises the main point of the paragraph. The best way to check whether your paragraphs are in a logical order and flow is to go back and read just the **FIRST** sentence of each paragraph, and see if it makes sense.
- **Write to engage, not to impress:** Use simple language. Avoid acronyms and complicated words. Even if you're writing for a scientific journal, assume the reader is not familiar with your research. You want as many people as possible to read your science - make it easy for them!
- **Edit, edit, edit:** Leave enough time to edit your text extensively! Only include what's relevant to the story - don't be afraid of cutting whole sentences or even paragraphs!

”

Soraya added that “**Write to engage, not to impress**” was the most important point. I take that as follows: your goal is not to impress people but to make them understand you, because they can only be impressed if they understand...

I would like to add some of my points

- **Consider who your readers are:** Although you are meant to write for the general audience, it is worth considering who are examining your thesis, thereby contributing to your long term academic career. Are they an expert? In which case they might want detailed explanation of your techniques. Are they an absolute outsider? In which case you should be super simple, and put extra focus on the abstract and the motivation behind your work. Are they in a slightly similar field as you, but not really, such that they have assumptions prior to reading your work? In which case, you want to try to identify any potential misunderstandings. This is tricky, but one way to do it is to talk with them directly.
- **Try to use graphics (*e.g.* diagrams) to explain complicated ideas:** I have met a lot of people who tend to skim all the texts and just focus at the tables and figures and their captions. This can be annoying, but what can you do about it? Well, use more figures or diagrams, particularly as you describe your methods! But remember, diagrams are to simplify, not to complicate things up. It is good to have very descriptive captions to accompany the figures as well. Making diagrams can be tedious, but it's good in that it helps with your own understanding as well. You've got this!
- **Good luck and I hope you enjoy writing!**

Bibliography

Harris, C. R., K. J. Millman, S. J. van der Walt, R. Gommers, P. Virtanen, *et al.*, 2020 Array programming with NumPy. *Nature* **585**: 357–362.

Appendices

A.1 The numbering of sections, tables, figures and equations have been reset for appendices using `setcounter`



Figure A1. Here is a random figure that I pick to demonstrate how `setcounter` works, shamelessly taken from [source](#).