Manual: How To Use This Dissertation Template

by Svetlana Lockwood
School of Electrical Engineering and Computer Science
Washington State University
svetlana.lockwood@email.wsu.edu

May 14, 2016

1 Why LaTeX?

1.1 Why, indeed?

This dissertation LaTeX template provides a convenient form which you can fill in. All the formatting - the title, the fonts, the paragraphs, the spacings and alignments, the page numbering with all the escapes and re-starts, the sections and subsections numbering - in one word, *EVERYTHING* has been done for you! Isn't that wonderful?! What left for you is to fill in this form with *your* content.

1.2 What are the benefits of using LaTeX?

Short answer: many. And if you have never used LaTeX before, you'll have to spend a couple of hours to get started, but that will save tons of time ahead.

1.3 Specifications and last update

This manual explains how to use this template. It also contains a tutorial that primarily for those who have little or no experience with LaTeX.

The dissertation template was made to specifically satisfy the requirements of the graduate school at Washington State University (WSU). In particular, it is pre-set to produce Ph.D. dissertations for a student of School of Electrical Engineering and Computer Science of WSU. However, these parameters can be easily changed as explained below. Citation style is set to APA-like, i.e., author name and year.

The last update of this template was done on May 14, 2016. The author of this manual operates on a Windows computer. Therefore, all the remarks and software notices are for Windows-users.

1.3.1 Updates: May 14, 2106

1. **Signature Page**:

- Double-spaced the acceptance statement.
- Added degrees after the committee members' names. The format is – name, Ph.D., Chair or just name, Ph.D. for non-chairs.

2. **Table of Contents, Lists of Figures/Tables**:
   - Added the dots from the listing to the page numbers. Any listing with a page number must have the dots.
   - Added the word "Page" above the page number column on page vi only.
3. **Maintext**:
   - Chapter titles changed to be in the shape of an inverted pyramid if more than one line of text. If only one line, center on the page.

2 Tutorial: Quick start on LaTeX

If you have never used LaTeX before, I suggest looking for some web resource for an overview of LaTeX features. In-depth tutorials may be helpful further down the road. However, this tutorial will provide you with all necessary information to get you started quickly.

2.1 Background

LaTeX is somewhat different than Word. The content and formatting are separated from each other. In that LaTeX reminds HTML with its CSS files, and if you have done some HTML, you will have to difficulties writing in LaTeX. Thus, once the formatting is done - and that has already been done for you - all is left is to write the text. Your usual mode of operation is:

1. Write some text and save it.
2. Build the document - as easy as to push a button.
3. Preview your document and see if you are happy with it.
4. Repeat until done.

2.2 Your very first step

Your very first step is to acquire software in which you are going to write your text. I highly recommend TeXstudio. TeXstudio provides a user-friendly interface. It has many useful features among which is also a spell-checker. Most valuable of it is - with TeXstudio you do not need to become a programmer to learn to write in LaTeX! TeXstudio is Windows-friendly. In fact, I'm using it right now for writing this text.

2.3 Your next step

Your next step is to run a small pilot test to get yourself comfortable with your newly acquired TeXstudio. You are ready to create your first LaTeX document. Make a sep-

arate folder where you are going to save your first LaTeX document, open TeXstudio, start a new document and copy the following text into it:

```
\documentclass{article}
\begin{document}

\title{Here is My Beautiful Title}
\author{this is my name}
\maketitle

\section{Introduction}
Here is the text of my introduction.

\section{Main Text}
Here is the text of my main text.

\section{Conclusion}
And here's my conclusion. Good-bye!

\end{document}
```

Now save your file in the designated folder and in TeXstudio press 'Build and View' button, Fig. 1. The build will most likely take a few seconds and at the bottom you'll

Figure 1: 'Build and View' button.

see the compiler messages. Then a new window opens on the right to show you the results. Congratulations! You've just made your first LaTeX document! TeXstudio automatically creates a PDF file for you which you'll find the designated folder. It will have the same name as your `.tex` file. Now try to change some text, re-build it and see how your changes affect the document.

2.4 A few important notes

In the text editor (left side of Figure 2) you noticed some text is colored. That's the assistance provided to you by TeXstudio - the coding commands are highlighted by the colors. Coding commands instruct the computer how to represent the text. If you try to change them, you'll probably get an error. The text you can change is black.

Just as you do in Word, do not press Enter at the end of each line when typing a paragraph. Paragraph wrapping will occur automatically. Press Enter twice (insert an empty line) to start a new paragraph.

Do not worry if you do not know all LaTeX commands. I do not know them either. The beauty of using this template is that you do not have to know any commands

because the whole dissertation has already been pre-formatted for you. All you have to do is to provide the content. If, however, you find yourself in need to use some command - ask Google! Or me.

3 Filling in the content of the dissertation

The dissertation is partitioned into a set of files. I review them in the order you have to modify them. As you change the files, don't forget to push the 'Build and View' button to see what your changes look like. All the files you use for your dissertation must be in the same folder.

3.1 Skeleton file: diss.tex

The skeleton of your dissertation is laid out in `diss.tex` file. You do not need to change it at all. This file is crucial. Remember: while you insert the content in

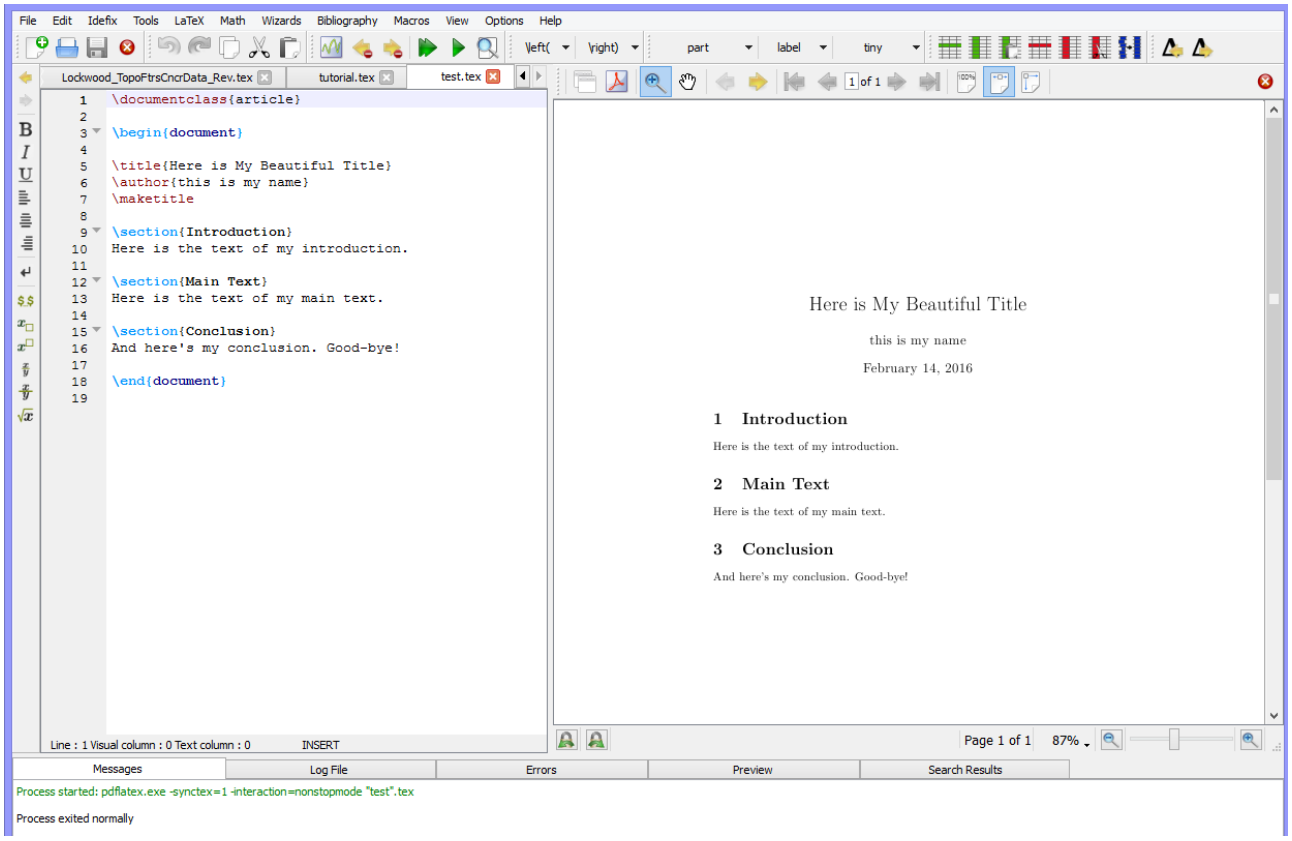

Figure 2: Your first LaTeX document.

maintext.tex file or any other file, it is in diss.tex where you push 'Build and View' button to see the changes.

```
% Fill in these fields for the preliminary pages ----------------------------
%
% For Senior and honors this is the year and month that you submit the thesis
% For Masters and PhD, this is your graduation date
```

Figure 3: Lines of preamble.tex after which the file should be modified.

3.2 Frontmater: preamble.tex

In preamble.tex you have to modify everything that makes sense to be modified after the lines shown in Fig. 3. This includes your name, graduation month and year, your advisor, and etc. It also includes Acknowledgments and Abstract as well as the names of the members of your graduate committee except for the Committee Chair. If, besides the Committee Chair, you have three more committee members, then remove % sign at the beginning of MemberC{} line, see Fig. 4.

```
% The members of your graduate committee (masters only need A and B, PhD need all 4)
  \MemberA{Jane Austin}
  \MemberB{John F.\ Kennedy}
 % \MemberC{}
```

Figure 4: Lines of preamble.tex for graduate committee members to be modified.

```
% ================================ Approval page =======================
\newcommand{\datebox}{

\newcommand{\signaturebox}[1]{

\newcommand{\phdapprovalpage}{
    \thispagestyle{plain}
    \begin{center}
    \providecommand\pdfbookmark[3][]{} \pdfbookmark[0]{Graduate Committee Approval}{bm:ComAp}
    \vspace*{0.375in}
    \end{center}
    \noindent
    To the Faculty of Washington State University: \\

The members of the Committee appointed to examine the dissertation
of \MakeUppercase{\@Author} find it satisfactory and recommend that it be accepted.\\[\baselineskip]
    \datebox\hfill\signaturebox{\@Advisor, Chair}\\
    \datebox\hfill\signaturebox{\@MemberA}\\
    \datebox\hfill\signaturebox{\@MemberB}\\
%    \datebox\hfill\signaturebox{\@MemberC}\\
    \vfill
    \cedp

  }
```

Figure 5: Part of WSUclass.cls file to be modified.

3.3 Supporting file: WSUclass.cls

After you are done modifying `preamble.tex`, you may need to do minor changes to `WSUclass.cls`. Figure 5 shows the place where the file may need to be modified. The modification is required only if you have `MemberC{}` on your committee. If yes, then remove the % sign to enable the line above the `\vfill`.

3.4 Modifying dissertation text: maintext.tex

`maintext.tex` is where you put in your dissertation text. Modifying the file involves filling it with your content. Note that the file has structure - chapter, sections, subsections, and etc. Right now the file contains only a few examples showing how to format text, cite references, insert and cite figures, and etc.

Remember: while you modify the text in `maintext.tex`, you have to switch to `diss.tex` to build the document and view the changes. Every time you build the document, `diss.pdf` is saved to you working folder.

3.5 Appendixes: app.tex

The file `app.tex` is where you put your appendixes in, see examples in the diss.pdf file.

3.6 References: bib.bib

Your bibliography is located in `bib.bib` file and managed by the `natbib` package in `diss.tex` file.

3.6.1 Adding entries to your bibliography file

Here is the easiest way I know how to add a new entry to `bib.bib` file. First, get the name of the article you need. Then search for it on Google Scholar. Once found, press 'Cite' link underneath it and choose 'BibTeX' in the pop-up window. A new tab will open. Copy the information from it into your bib file. That's it!

3.6.2 Citing references in the text

Citation in LaTeX is straight forward. Suppose you have the following entry in the bib file:

```
@article{altschul1997gapped,
  title={Gapped BLAST and PSI-BLAST: a new generation of protein database search
  author={Altschul, Stephen F and Madden, Thomas L and Sch{\"a}ffer, Alejandro A
  journal={Nucleic acids research},
  volume={25},
  number={17},
  pages={3389--3402},
  year={1997},
```

```
  publisher={Oxford Univ Press}
}
```

altschul1997gapped is the label created for you. To cite this paper in the text, just type \citep{altschul1997gapped} and it will be cited appropriately. Also, see some examples in Chapter 1 in the maintext.tex file.

4 Other Helpful Stuff

```
96  \begin{figure}[ht!]
97      \centering
98      \includegraphics[width=5.0in]{wsu_class.png}
99      \caption{Part of \texttt{WSUclass.cls} file to be modified.}
100     \label{fig_wsu_class}
101 \end{figure}
```

Figure 6: Code for Fig. 5.

4.1 Referencing figures and tables in text

Use a label for every figure and table you insert. Then you'll be able to reference them in the text automatically. For example, the code for the Figure 5 has the label fig_wsu_class as shown in Fig. 6. To reference this figure in the text all you do is to call by its label like this Fig. \ref{fig_wsu_class}. Figure numbering and order is kept automatically. The same rules apply to tables.

5 Disclaimer and Copyrights

5.1 History

The LaTeX dissertation files came to me in early February of 2016 as I was working on my own dissertation. Their origins are obscure. The WSUclass.cls contained a reference to BYUPhys (later removed because it caused compiler error), but Brigham Young University, if what BYU stands for, does not have a physics department.

5.2 For developers

I modified the files to anonymize them and make them more automated as well as written this manual. I'm not a LaTeX guru and this is my only second time writing something in it. More things can be done to improve the files and this manual (as usual!). This is particularly true about the WSUclass.cls. It contains some known issues - such as, for example, adding an extra empty page - that need to be fixed.

5.3 Copyrights and Disclaimer

Good Luck With Your Defense!