

A LaTeX Class For Writing Theses

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Brigham Young University
in partial fulfillment of the requirements for the degree of
Master of Tedium

Lay Z. Boy, Chair
A. Good Prof
One more!

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ABSTRACT

A LaTeX Class For Writing Theses

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This document explains the use and features of the `thesis.cls` \LaTeX class for creating BYU theses. These can be master's theses or PhD dissertations. However, I have not checked the acceptable format for PhD dissertations, so I really have no idea if this works exactly like it is supposed to. You may have to make a few changes to the document class (particularly the intro pages) to make it conform, but I think it should work as is.

The document class is built on the \LaTeX book class, so it defines many of the standard \LaTeX features such as chapters, sections, subsections, references, citations, bibliographies, math formatting, footnotes, etc. that you are accustomed to in \LaTeX . I have also added support for PDF bookmarks, which are required for electronic submission, and support for an index, should you decide to include one in your thesis. I really don't know if indices are acceptable, but adding one was simple, so I did it. I also the AMS theorem definitions and some math macros that I find useful, these are easily changed, even removed.

The class is designed to minimize the effort required to create the initial pages, which must have a standard formatting, so that the author can focus on the content of the thesis: his or her area expertise. Also, I changed some of the standard \LaTeX formatting for chapter/section/subsection labeling, since these are generally hideous. I am constrained somewhat by what the university will allow. Hopefully it is an improvement. Enjoy!

Keywords:

ACKNOWLEDGEMENTS

Thanks to whoever wrote the initial template. A considerable amount of effort went into creating the code and figuring out exactly what was required by the university. Hopefully, this version is an improvement and is easier to read and use.

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CHAPTER 1. GETTING STARTED WITH REALLY LONG CHAPTER TITLES THAT NEED TO BE WRAPPED IN INVERTED PYRAMID FORM

This chapter will help you get your thesis started. For people anxious to get started, you need only read this chapter. If you don't know much about L^AT_EX you may choose to ignore the rest of the paper, as it contains customizations you do not understand or will not wish to make. This chapter will tell you everything you need to know to be able to start a thesis that conforms to BYU standards.

1.1 CREATING YOUR THESIS

To get started, you need to create a thesis file. To do so, you may copy this file (example.tex) and modify it. Or, you can start from scratch. The important thing is that your L^AT_EX source file should use the `thesis.cls` class file. This is accomplished using the opening document class command:

```
\documentclass{thesis}
```

1.2 SETTING THE DOCUMENT ATTRIBUTES

For a thesis, there are many more document attributes than in a typical L^AT_EX document. In addition to the standard `\author` and `\title` attributes, the university, department, degree, month, year, and committee chair must be specified. For each of these properties, there is a corresponding command that should be called in the preamble of the document, as contained in `example.tex`. For example, in this document, these properties are set as follows.

```
\author{Jeremy West}
```

```

\title{A LaTeX Class For Writing Theses}

\degree{Master of Tedium}

\university{Brigham Young University}

\department{Department of Redundancy Department}

\committeechair{Lay Z. Boy}

\memberA{A. Good Prof.}

\memberB{One more!}

\subject{Writing a thesis using LaTeX}

\keywords{LaTeX, PDF, BYU, Math, Thesis, LaTeX}

\month{April}

\thesisyear{2014}

```

The `subject` and `keywords` properties are optional and are used only to set values in the attributes of the generated PDF file. They do not appear in the document proper. Just for clarification, the committee chair should be your advisor.

1.3 TWO OPTIONAL COMMANDS

In the `example.tex` document, there are two optional commands that can be removed if desired. These are `\pdfbookmarks` and `\makeindex`. The first turns on the generation of PDF bookmarks. If you are not using pdf_{La}TeX you will probably need to change the `thesis.cls` file to make this work. If you are submitting your thesis to the BYU library using electronic thesis submission, you must have PDF bookmarks. This command automatically generates them for all the chapters and sections, as well as the front matter and back matter pages.

If you have problems with `\pdfbookmarks`, or while you are preparing your thesis, you can comment out this command without any problems. Just as a comment, sometimes I had problems with the PDF bookmarks not appearing when new chapters or sections were added. I found that closing the PDF and then regenerating the file worked for me.

The second command, `\makeindex` generates information for an index from any `\index` commands you have in your document. If you do not want to include an index, feel free to remove this command. If you want to include a thesis and do not know how to, Google *MakeIndex* or see my introduction to L^AT_EX found at [?].

1.4 AN EXTERNAL FILE

The next thing you will see in `example.tex` is the command `\input{thisiscfg}`. This command includes the external file `thisiscfg`. This file contains declarations for theorem and definition environments, as well as some macros that I find useful in L^AT_EX. You are welcome to modify that file, include a different one, or remove the `\input` command and insert your own declarations in that section.

1.5 IN THE DOCUMENT

Once you reach the `\begin{document}` line, you are inside the contents of your thesis. The first thing you see is a `\frontmatter` command. This command instructs L^AT_EX that the following material is front matter. Therefore, it is numbered using roman numerals.

Next, you encounter the `\maketitle` and `\copyrightpage` commands. The `\maketitle` command generates the title page as specified by BYU using the document attributes described in section ??.

Next in the document is the **OPTIONAL** `committee` environment, which should look something like this

```
\begin{committee}
\member{Just A. Member}
\member{A. Good Prof}
\member{A long professors name, perhaps with a \\ line break in it}
\member{Maybe one more person}
```

`\end{committee}`

This environment generates the Signature page. **This page SHOULD NOT be included in the PDF file you submit to ETD** but is for your own BOUND copy if you desire and for the department and your advisor if needed. Your committee chair is already included as the first member on this page, so you only need to add the other members of your committee in the order you would like them to appear. Notice that you can add as many or as few as you wish and that you can format the names to some extent (for example, putting a line break if you want to add departments or something).

The next two environments are the `abstract` and `acknowledgements` environments. These should be self explanatory. The acknowledgements are optional and may be removed if desired. Finally, you will encounter these three commands

`\tableofcontents`

`\listoffigures`

`\listoftables`

These commands generates the table of contents, list of figures, and list of tables, respectively. If your document does not have any tables or figures, you may choose to remove these. You may also rearrange them as desired.

All of the items mentioned in this section number and pages and are formatted as specified by BYU policies.

1.6 THE MAIN MATTER

Now you have reached the `\mainmatter` tag, which begins the main contents of the thesis. After this tag, you may begin inserting actual content. This tag restarts the page numbering and changes the numbering format.

At the bottom of this document you will see the `\appendix` tag. This switches your document to the appendix. Chapters and sections are created as normal, but they are

numbered and named differently so as to appear as appendices. If you do not have any appendices, you may remove this as well.

Finally, you will encounter tags to create and print the bibliography and the index, which you may change or remove as needed.

CHAPTER 2. DOCUMENT OPTIONS

This document class is built on the standard L^AT_EX `book` class. Essentially every command or option available in the `book` class is available in the `thesis` class as well. Some document options that may be particularly useful are mentioned here, but for full details, Google `book.cls` or see [?, ?, ?].

2.1 TWO-SIDED PRINTING

The default for this class is to format the document for one-sided printing. This option does not restrict how you actually print your document. However, notice that the left margin is larger to leave room for binding. With one-sided printing, this margin is always on the left side. In the two-sided mode, the margin switches between the left and right side depending on whether the page is odd or even numbered. Also, the two-sided mode causes all the front matter pages to display on a right-hand page, which is the standard.

BYU requires one-sided printing for theses under 300 pages. If your thesis should exceed 300 pages, you should use the two-sided mode by changing the `documentclass` command to:

```
\documentclass[twoside]{thesis}
```

2.2 LEFT-HAND EQUATION NUMBERING

If you prefer to have your equations numbered on the left-hand side, rather than the right, add the `leqno` to your document:

```
\documentclass[leqno]{thesis}
```

2.3 FONT SIZE

You can choose between 10pt, 11pt, or 12pt font using an option such that

```
\documentclass[12pt]{thesis}
```

The default size is 10pt font.

2.4 MULTIPLE OPTIONS

If you wish to use multiple options, list them with commas, such as

```
\documentclass[twoside,leqno,11pt]{thesis}
```

CHAPTER 3. ADDITIONAL RESOURCES

The bibliography lists several resources that may be of help. For introductory materials for \LaTeX and links for downloading software to use with \LaTeX , see [?]. For good reference manuals, use [?, ?, ?]. If you are interested in modifying the class file or doing more advanced \TeX programming, refer to [?].

Good luck on your thesis!