Using the MSU Thesis Class

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Abstract

This is a class file for MSU theses and dissertations. It is based on the `memoir` class, and therefore supports all of the functionality of that class. It should generate a document which meets all the basic formatting requirements laid out by the *Formatting Guide For Submission of Master's Theses and Doctoral Dissertations* (2012) produced by the Graduate School, including requirements for margins, titlepage, page numbering, section titles, sub- and superscript sizes etc.

1 Introduction

Formatting a dissertation according to a University's thesis requirements is not always a simple task in LaTeX, especially since the requirements are generally aimed at MSWord users. Furthermore, most of the work of formatting a document is supposed to be done by the documentclass itself, and not by the individual user. Fortunately, Michigan State University's thesis requirements are actually sane, and fairly straightforward. The present class file is designed to further make the process easier for LaTeX users, by doing all the heavy lifting for you, so that you can focus on the content and not the formatting.

2 Background

The MSU Thesis Class is based on the `memoir` document class. The `memoir` class is an extensive class that incorporates the functionality of many other packages into it. The class is extensively documented, and the documentation (`memman.pdf`) should be available with any TeX distribution. I strongly recommend that you familiarize yourself with `memoir` as you use the present class.

3 Package Options

In addition to any options passed to the `memoir` class (e.g. `oldfontcommands`; see Section 5.4), the `msu-thesis` takes two options: one to specify the type of degree, (see Table 1), and one to enable landscape page numbering. If no degree option is specified, a Ph.D. dissertation is assumed.

Option name	Description
[PhD]	Doctoral dissertation (default)
[MA]	Master of Arts
[MS]	Master of Science
[MBA]	Master of Business Administration
[MFA]	Master of Fine Arts
[MIPS]	Master of International Planning Studies
[MHRL]	Master of Human Resources and Labor Relations
[MMus]	Master of Music
[MPP]	Master of Public Policy
[MSW]	Master of Social Work
[MURP]	Master in Urban and Regional Planning

Table 1: Package degree options

3.1 The [lscape] option

The Formatting Guide requires that any lansdscape pages be numbered in landscape mode (i.e. along the long edge of the page) rather than in portrait mode, and rotated in the final PDF. The [lscape] option enables this. The option loads both the pdflscape package and tikz, and is implemented as a class option so that you are not required to load those packages if they are not needed.

4 User commands

In addition to all the user functionality defined by memoir, the msu-thesis class defines six new titling commands, and a command to signal that the document has multiple appendices.

\fieldofstudy{} Takes one argument corresponding to your field of study.

\dedication{} Takes one argument (should be short), your dedication.

\makecopyrightpage Creates the copyright page.

\makededicationpage Creates the dedication page.

\appendicestrue Tells the class that you have more than one appendix.

\makeappendixcover Creates the appendix/ces cover page.

\makebibliographycover Creates the bibliography cover page.

5 Using the class

5.1 Logical parts of the document

Most book-length documents are divided into three main kinds of parts: the front matter, the main matter, and the back matter. In memoir (and therefore msu-thesis) these sections are preceded by the commands \frontmatter, \mainmatter, and \backmatter. These commands tell the class when to change the page numbering, for example, front matter pages use lower case roman numerals, but main matter pages use arabic numerals.

The basic outline of a dissertation or thesis document is shown in Table 2: (your thesis may not have all of these parts, but if it does, they should be in this order.)

```
\begin{document}
\frontmatter
```
    Titlepage
    Abstract
    Copyright Page
    Dedication
    Acknowlegements
    Table of Contents
    List of Tables
    List of Figures
    List of Abbreviations/Symbols
```
\mainmatter
```
    Chapter 1
    Chapter 2
    . . .
    Chapter n
    Appendices
```
\backmatter
```
    Bibliography
```
\end{document}
```

Table 2: Basic structure of a thesis or dissertation

5.2 What does the class file do?

The class itself sets up the margins, page numbering, and formatting of all of the required pieces. It doesn't put everything in the right order, so you are responsible for that. The best way to do this is to use the included sample LaTeX file as a basic template for your thesis.

5.3 Line Spacing

The `memoir` class provides commands for single and double spacing (`\SingleSpacing` and `\DoubleSpacing`) most of your thesis will be double spaced, but certain parts (such as the table of contents, lists of figures/tales, bibliography) may be single spaced. This duplicates the functionality of the `setspace` package, which therefore should not be used.

5.4 Font changing commands

The `memoir` class enforces the so-called "new" font changing commands (although they have now been in use for many years.) This means that it does not allow you to use the commands `\bf`, `\it`, `\rm`, etc. Unfortunately there are some old packages that still use these commands, and there is also some outdated information on the web that might have examples using these commands. You should generally not use these commands (see http://www.tex.ac.uk/cgi-bin/texfaq2html?label=2letterfontcmd); if you do encounter problems, you can pass the option `oldfontcommands` to the class.

5.5 Extra Packages

The `memoir` class replicates the functionality of many independent packages, so if you are transferring LaTeX source from other documents using the `article` class, you may encounter some warnings or errors. The `memoir` documentation has substantial information about the packages it emulates, and the packages for which it provides equivalent functionality. See Chap. 18 Sec. 24 of the `memoir` manual for details. Quoting from the manual:

> `memoir` emulates the following packages: abstract, appendix, array, booktabs, ccaption, chngcntr, crop, dcolumn, delarray, enumerate, epigraph, ifmtarg, ifpdf, index, makeidx, moreverb, needspace, newfile, nextpage, pagenote, patchcmd, parskip, setspace, shortvrb, showidx, tabularx, titleref, tocbibind, tocloft, verbatim, and verse. It also provides functions equivalent to those in the following packages, although the class does not prevent you from using them: fancyhdr, framed, geometry, sidecap, subfigure, and titlesec.
> *The Memoir Class* 8th Ed. 2010, p.345

5.6 Landscape figures and tables

If you have large figures and tables that must be rotated, you should use the `[lscape]` option. This enables a pagestyle `lscape` and places the page numbers correctly on the long edge of the page. The option loads the `pdflscape` package which provides a `landscape` environment to place the landscape figure in. Before the landscape environment, you need to issue a `\clearpage` command and change the pagestyle to `lscape`, and afterwards, change it back to `plain`. Schematically, then, any landscape pages should be created in the following way.

```
\clearpage\pagestyle{lscape}
\begin{landscape}
 ... your large table(s) or figure(s) here
\end{landscape}
\pagestyle{plain}
```

The `landscape` environment makes all pages within it landscape, so if you have multiple landscape figures in a row, you can put all of them inside a single `landscape` environment. This option correctly rotates the landscape pages within the pdf document itself, which the thesis office seems to require.

5.7 Customizing the look of things

I have created a basic looking style for Chapter headings based on the `thatcher` style in `memoir`. If you want to change these things, you may, using the appropriate `\renewcommand` commands. More information can be found in the `memoir` documentation. The Thesis Office seems to require dotted leaders for the List of Figures/Tables in the Table of Contents, (despite the guide saying they are optional) even though they get typeset as Chapters. If you wish your Chapter headings to have no leaders, add the following command just after the `\mainmatter` command. To put the dots back for the Bibliography, repeat the same command right after the `\backmatter` command, but replace `\cftnodots` with `\cftdotsep`. The default template leaves dots everywhere, which should appease the thesis office.

```
\addtocontents{toc}{%
    \protect\renewcommand{\protect\cftchapterdotsep}
        {\cftnodots}}
```

Despite there being no explicit formatting requirements for Chapter headings (other than that they start 1 in from the top of the page), the thesis office has been known to dislike many things, so if you do decide to change things, be prepared for rejection or a frustrating fight.

5.8 Things to watch out for

- If your title is long and you want to put a newline (`\\`) into it to improve the spacing, you must precede the newline with `\protect`.
- Make sure you pay attention to any "Overfull hbox" warnings when you are producing your final copy. You should make sure you eliminate all of them or else the thesis office is likely to reject your thesis. One common way to eliminate such warnings is to place the command `\sloppy` at the beginning of the paragraph that triggers the warning. You should only use this technique at the very end when you are completely done with everything. Alternatively, rewording the text may also fix things.
- Remember to use the `\tableofcontents*` command so that your table of contents is not listed in the table of contents.
- Remember to use the command `\appendicestrue` if you have more than one appendix.
- Remember to add the `\makeappedixcover` and `\makebibliographycover` commands before your appendices and your bibliography.

6 Bugs and redistribution

6.1 Current version

The latest copy of `msu-thesis` will always be available on CTAN. If you use TeXLive or MiKTeX then their respective package managers will update or install the latest version. If you are using a Linux-based distribution, you may need to install the latest copy in your local `texmf` directory. If you want others to use the class, PLEASE point them to CTAN, so that they can get an up-to-date version with all accompanying documentation and examples rather than passing along your copy. Please report ANY problems you

have with the class to me amunn@msu.edu, as this will aid in making things easier for those who follow you.

6.2 Version history

Previous versions of `msuthesis` (versions 1.0–1.4b) were created for non-electronic submission and should not be used. Versions 1.5–1.6 (the first electronic submission versions) contained a `\makeabstract` command and a separate `msuabstract` environment. These have been removed as of version 1.7. Users who are upgrading from earlier versions to version 1.7 do not need to change these commands however but their use will trigger a warning.)

7 Acknowledgements

Appendix A   Sample template

```
\documentclass[PhD]{msu-thesis}
% Your extra packages here
%
% Define the title, author, field of study, date, and dedication (
    optional)
%
\title{The syntax and semantics of phonology}
\author{Joe Linguist}
\fieldofstudy{Linguistics} % should be in sentence case
\dedication{This thesis is dedicated to someone.}
\date{2009}
%
\begin{document}
\frontmatter
%
\maketitlepage
%
\begin{abstract}
Your abstract text here
\end{abstract}
%
\clearpage
\makecopyrightpage
\makededicationpage
%
\clearpage
\chapter*{Acknowledgements}
\DoubleSpacing
Your acknowledgements here
%
\clearpage
\SingleSpacing
\tableofcontents*
\clearpage
\listoftables
\clearpage
\listoffigures
%
\mainmatter
\chapter{Your first chapter}
%
\appendix
\makeappendixcover
\chapter{Your first appendix}
\backmatter
\makebibliographycover
\SingleSpacing
\bibliography{your-bib-file}
\end{document}
```

Appendix B   Linguistic Examples with `gb4e` and `linguex`

The `msu-thesis` class has been tested with both the `gb4e` package, and the `linguex` package. Unfortunately some versions of `gb4e` use old font commands, and so does `linguex`, so if you encounter problems with either package, load the class with the `oldfontcommands` option. Since linguistic examples are usually single spaced, even in theses, you should use the `\singlegloss` command (from the `cgloss4e` package loaded by both `gb4e` and `linguex`) to make your glosses examples singlespaced. The default mode for examples themselves is to make them doublespaced. If you want all examples to be single spaced (which looks better if the examples take up more than one line) you need to put the following code in your preamble, which redefines the `exe` environment to be single spaced.

```
\let\oldexe\exe
\renewcommand{\exe}{\SingleSpacing\oldexe}
```

For the `linguex` package, you can use the following code:

```
\let\oldex\ex
\renewcommand{\ex}{\SingleSpacing\oldex}
\renewcommand{\ExEnd}{%
    \ifnum\theExDepth=0\global\unembeddedfalse\DoubleSpacing\
        else%
            \end{list}\addtocounter{ExDepth}{-1}\ExEnd\fi}
```