

Documentation for the Thesis and Dissertation $\LaTeX$ Template

Tammy Stitz^{*}, Trevor Watkins[†], and Sally Evans[‡]

1 Introduction

In 2008, this template was originally created by two graduate students in the Electrical and Computer Engineering Department and it is based on Stanford's template with modifications.

There have been many changes since that time. The template will produce a properly formatted thesis or dissertation in most cases; however, there are always issues related to specific theses and dissertations that might need additional $\LaTeX$ markup.

The authority on how to format your thesis or dissertation can be found on the Resources webpage on the University Dissertation and Thesis Services (UDTS) website.

[Visit the Resources page on the UDTS website.](#)

The first file that you will edit is

- GMU-Diss_template.tex for dissertations
- GMU-MS_template.tex for theses

Note: There was code added for accessibility as created by Ulrike Fischer and Frank Mittelbach. To make the PDF as widely accessible as possible, this code is necessary. You must use **LuaLaTeX** as the engine (not pdfLaTeX) due to the unicodemath package. It enables you to use MathML in the PDF file.

^{*}Engineering Librarian

[†]Teaching and Outreach Librarian

[‡]Coordinator, University Libraries Dissertation and Thesis Services

2 Configuring the Main Template File

This template uses the report class. Please don't change anything that will change the formatting, such as margins, page numbers, and section text color. It is best not to change the font size because other parameters depend on it.

Report class and the package, gmuETD, provides the style needed for your dissertation or thesis.

There are two optional arguments that you can use with gmuETD: **references** and **nosecnum**. If you prefer to have the label References instead of Bibliography, use the optional argument, references. The default for numbering is chapters, sections, and subsections. If you want to have no numbers, use the optional argument, nosecnum.

Be sure to clear all of your auxiliary files before running pdflatex.

2.1 Packages

Packages are used in the template files. As of 2026, the packages in Table 1 are used in the template: You can

Table 1: $\LaTeX$ Packages in the Template

Package	Description
graphicx	imported graphics
amsmath	mathematics
amssymb	mathematics
amsthm	mathematics
ulem	underling
setspace	line spacing
array	List of Abbreviations
longtable	List of Abbreviations
longtable	List of Equations
unicodemath	enable MathML in PDF
hyperref	set document property, Initial View, to show document title

add other packages. If you receive an error, the new package might conflict with one of the other packages.

2.2 Preliminary Pages

Required preliminary pages are the signature sheet, title page, table of contents, and the abstract. The table of contents, list of tables, and list of figures will appear automatically when you add chapters, sections, tables, and figures. Some departments require a list of abbreviations or a list of equations. Those tables will be discussed later. Optional preliminary pages include the dedication and acknowledgments pages. Officially, the copyright page is optional, but it is easier to leave it in the template.

The preliminary pages are formatted for you and there is little that you can change and still have the proper format.

2.2.1 Entering the Title

The title of your thesis or dissertation appears on the signature, title, and abstract pages. Two commands must be used because the title is two lines on the signature page and one line on the title and abstract page.

When entering the title, be sure to capitalize important words in the title. Some of the titles will appear in all capital letters, but the package will do that for you. The commands are as follows:

```
\title{This is a title\\that is two lines}
```

```
\onelinetitle{This is the same title on one line}
```

The `\\` in the title command forces the title on two lines. As an example, I will enter information about a thesis that was not from George Mason University. It is just to illustrate how it would look as a George Mason University thesis.

Entering the title using the two commands as

```
\title{Convergence of the Singular Value Based\\Model Order Reduction Algorithm}
```

```
\onelinetitle{Convergence of the Singular Value Based Model Order Reduction Algorithm}
```

will result in the following output.

The **signature page** title would be

CONVERGENCE OF THE SINGULAR VALUE BASED
MODEL ORDER REDUCTION ALGORITHM

The **title page** title would be

Convergence of the Singular Value Based Model Order Reduction
Algorithm

The **abstract page** title would be

CONVERGENCE OF THE SINGULAR VALUE BASED MODEL ORDER
REDUCTION ALGORITHM

2.2.2 Author and Related Commands

Enter your name using the author command. A default credential and doctype appear. Use the credential and doctype commands to correct them if necessary. The command doctype appears on the signature, title, and abstract pages. The credential appears after the author's name on the abstract page. If the command for credential is commented out, no credential will appear. Specify your degree using the degree command. By entering

```
\author{Tammy A. Stitz}  
\degree{Masters of Science}  
\credential{MS}  
\doctype{Thesis}
```

the output on the **signature page** would be

CONVERGENCE OF THE SINGULAR VALUE BASED
MODEL ORDER REDUCTION ALGORITHM

by

Tammy A. Stitz
A Thesis
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Master of Science

The output on the **title page** would be

Convergence of the Singular Value Based Model Order Reduction
Algorithm

A Thesis in partial fulfillment of the requirements for the degree of
Master of Science at George Mason University

by

Tammy A. Stitz

The output on the **abstract page** would be

Abstract

CONVERGENCE OF THE SINGULAR VALUE BASED MODEL ORDER
REDUCTION ALGORITHM

Tammy A. Stitz, MS

2.2.3 Advisor Department vs. Discipline

Sometimes students get confused about the difference between the advisor's department and the discipline.

The advisor's department will appear on the title page using the command, `\deptadvisor{}` and the discipline will appear on the signature page using the command, `\discipline{}`.

If you have a co-advisor, uncomment the code in the main template file to enter their department.

I will continue with the same example.

If the discipline is Electrical Engineering, the output on the **signature page** would be

CONVERGENCE OF THE SINGULAR VALUE BASED
MODEL ORDER REDUCTION ALGORITHM

by

Tammy A. Stitz
A Thesis
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Master of Science
Electrical Engineering

I will show an example using `\deptadvisor{Department of Electrical Engineering}` in the next section.

2.2.4 Other Degrees, Graduation Year, and Graduation semester

The other degrees that you have earned will appear on the title page. If you are doing a dissertation, You have an option to list three previous degrees. If you fill out the commands for all three degrees, the order is

1. third degree,
2. second degree, then
3. first degree.

For a thesis, only the first degree commands are present, but you could list a second and third degree if needed by adding the markup code. Example text for the commands are listed below.

```
\firstdeg{Bachelor of Science}  
\firstdegsschool{The University of Akron}  
\firstdegyear{1995}  
\seconddeg{Masters of Science}  
\seconddegsschool{The University of Akron}  
\seconddegyear{2003}  
\thirddeg{Masters of Library and Information Science}  
\thirddegsschool{Kent State University}  
\thirddegyear{2005}
```

The commands for the graduate year and semester are straight forward: `\degreeyear{Year}` and `\degreessemester{X Semester}`, where you change X to Fall, Spring, or Summer.

To finish the title page with the example, I would enter

```
\firstdeg{Bachelor of Science}  
\firstdegsschool{The University of Akron}  
\firstdegyear{1995}  
\degreeyear{2003}  
\degreessemester{Fall Semester}
```

I will talk about `\advisorname{Dr. J. Alexis De Abreu–Garcia}` when I talk about the signature page.

The output for the **title page** becomes:

Convergence of the Singular Value Based Model Order Reduction Algorithm A Thesis in partial fulfillment of the requirements for the degree of Master of Science at George Mason University by Tammy A. Stitz Bachelor of Science University of Akron, 1995 Director: Dr. J. Alexis De Abreu-Garcia Department of Electrical Engineering Fall Semester 2003 George Mason University Fairfax, VA
--

2.2.5 People on the Signature Page

The signature page varies much among departments regarding who is on this page and how the entry is written. Due to this fact, there are many commands that you can use to get the correct look for your department.

Sometimes the text next to the line needs to be more than one line. Use the command, `\addsigline` instead of `\\` to get the correct spacing.

Here is the order that commands appear on the signature page.

- `advisor`
- `co-advisor` (if exists)
- `firstmember`
- `secondmember`
- `thirdmember` (if exists)
- `fourthmember` (if exists)
- `fifthmember` (if exists)
- `sixthmember` (if exists)

- nexttolast
- lastsignature

It doesn't matter what the name of the command is. You can use these in any way that you need. There are [examples of signature pages in Microsoft Word](#) on the UDS website. Continuing with our example, I would enter the commands

```
\advisername{Dr. J. Alexis De Abreu-Garcia}
\firstmember{Dr. Robert Veillette, Committee Member}
\secondmember{Dr. Tom Hartly, Committee Member}
\nexttolast{Dr. J. Alexis De Abreu-Garcia, Department Head}
\lastsignature{Dr. George Haritos, Dean}
```

Sometimes the title page will spill onto the next page. You can configure some space to make it appear on one page again. These commands are listed and the default values are shown.

```
\renewcommand{\intercommospace}{0.20in}
\renewcommand{\topTitleSkip}{0.5892in}
\renewcommand{\midTitleSkip}{0.5in}
\renewcommand{\lbtTitleSkip}{16pt}
```

The intercommospace command is the space between the signature lines. The vertical space before the text is controlled by the topTitleSkip command.

The vertical space before the label, Committee, is controlled by the midTitleSkip command and the vertical space after the label, Committee, is lbtTitleSkip command.

2.2.6 Optional Pages

As stated earlier, the dedication and acknowledgment pages are optional. If you don't want to use them, just comment out \dedicationpage and \acknowledgementspage, respectively. Be sure to delete or comment out the accompanying text (e.g., I would like to thank ...)

Table of Abbreviations

If you need a Table of Abbreviations, uncomment the abbrevpage command and the longtable environment. Add a row for each abbreviation. The command, \abbrevpage sets the title of the list. The command \symbLine{full name}{abbreviation}

has two arguments: full name and abbreviation or symbol. Each line will have this command and `\\` after the command (when it isn't the last row). An example is as follows.

```
\abbrevpage{List of Abbreviations and Symbols}
\begin{longtable}[p{\textwidth}]
\symbline{volts}{V}\\
\symbline{millamps}{mA}\\
\symbline{ohms}{\Omega}
\end{longtable}
```

The output of the table will look similar to the following.

List of Abbreviations and Symbols		
volts		V
millamps		mA
ohms		Ω

List of Equations

If you need a Table of Equations, uncomment the `listofequations` command and the `longtable` environment. The equation must be numbered to use this table. Add a row for each equation.

The command `\eqDesc{label of equation}{Description of the Equation}` has two arguments. For the label of the equation, you will enter the label as you would enter it using the `ref` command (e.g., `\ref{eq1am}`). In the second argument, you enter a description of the equation. It will appear exactly as you enter it.

The command will generate the equation number and page number for you. Each line will have the `eqDesc` command and `\\` after it (when it isn't the last row). An example is as follows.

```
\listofequations
\begin{longtable}[>\raggedleft\arraybackslash]p{0.6in}p{5.2in}]
Equation&\hfill Page\\
\eqDesc{eq1am}{Description of Equation}\\
\end{longtable}
```

The output of the table will look similar to the following.

List of Equations		
Equation		Page
1.1	Pythagorean theorem	10

2.2.7 Abstract

The text of the abstract is entered in the main template document. Enter the abstract after `\abstractpage`. There is a placeholder, 'Enter abstract text.'

2.2.8 Chapters

The chapters are separate files. By default, there is `chapterOne.tex`, `chapterTwo.tex`, `chapterThree`, `chapterFour`, `chapterFive`, and `chapterSix`. Include the files needed using the `include` command (e.g., `\include{chapterOne}`). Delete or add include commands as needed.

2.2.9 Figures

If you want your document to be read by a wide audience including those with visual impairments, you must give a description of your images. This can be done using the optional argument for the `includegraphics` command. An example of how to add the alternative text is:

```
\begin{figure}
  \centering
  \includegraphics[scale=0.3,alt="portrait of George Mason"]{figGeorgeMason}
  \caption[An appropriate historical figure]{An appropriate historical figure.}
\end{figure}
```

Sometimes, you explain the image completely in the text. If so, the alternative text could be `alt="described in the following text."` Also, you could choose to make it invisible to the screen reader by using the `artifact` optional argument:

```
\includegraphics[scale=0.3,artifact]{figGeorgeMason}
```

If any of your images are for decoration only, be sure to use **artifact**.

The alternate text shouldn't be too long; keep it under 200 characters (not counting spaces). If you have a graph or plot with many data points, consider having a table too. The alternative text would only talk about the overall shape and some descriptive statistics if it is appropriate.

2.2.10 Tables

For tables, you can define the scope of table headings. If you had only row headings:

- `table/header-columns=`*what column or columns contain row headings*

or only column headings:

- `table/header-rows=`*what row or rows contain column headings*

you use one of these commands or both depending on what type of headings appear in the table. An example of a table with column and row headings is:

```
\tagpdfsetup{table/header-rows=1,table/header-columns=1}
\begin{tabular}{|c||r@{.}l|}
    \hline
    Model & Name & \multicolumn{2}{l}{Length (in)}\\
    \hline\hline
    LUS26Z & Shear face mount joist hanger & 5 & 25\\
    \hline
    ABA66Z & Adjustable post base & 11 & 125\\
    \hline
    FB24Z & Fence bracket & 3 & 5\\
    \hline
\end{tabular}
```

Note: These commands might need cleared due to the configuration of the table. Let's say we have a table with row headings only. Next, we have a table with column headings only. It would be wise to use

```
\tagpdfsetup{table/header-rows=,table/header-columns=1}
```

for the table with column headings only.

2.2.11 Bibliography

Bib_TE_X is used by default. The bibliography is created using the `bibliographystyle` and `bibliography` commands. For example, you could use IEEE Citation style with the following code:

```
\bibliographystyle{ieeetran}
\bibliography{gmuETD}
```

Note: The `bibliographystyle` command is the first command after `\begin{document}`. It is located there for those that want chapter bibliographies and a bibliography at the end of the document. It still functions properly for those

that have one bibliography at the end of the document. If you aren't using chapter bibliographies, you can move it to where the bibliography command is if you prefer.

Chapter Bibliographies

If you are writing your document and need a reference list at the end of each chapter, use chapterbib or biblatex. To use biblatex, please refer to [biblatex on the Comprehensive TeX Archive Network \(CTAN\)](#).

You can uncomment code in the main template file when using chapterbib. It's possible to have chapter bibliographies and a bibliography at the document. However if you are using a number type of citation style, the numbers won't be correct for the end of document references because the numbers restart for every chapter bibliography.

Numbers in a citation are used to locate the reference information. The reader of your document could not use the reference numbers in the end of document bibliography. There is the option to make the bibliography style for the main document an author/date style to eliminate the possibility of wrong numbers. However, it would be much easier to have chapter bibliographies only or one bibliography at the end only.

More details are discussed in Section 4.

2.2.12 Biography

The biography appears last and it is entered into the main template file. Your biography discusses your background, education, and professional experience.

3 Bookmarks

The LuaLaTeX engine will automatically generate bookmarks; however, it is likely that the bookmarks for Chapter 1-3 will need edited. George Mason University students have access to Adobe DC, and you can use it to fix bookmarks easily.

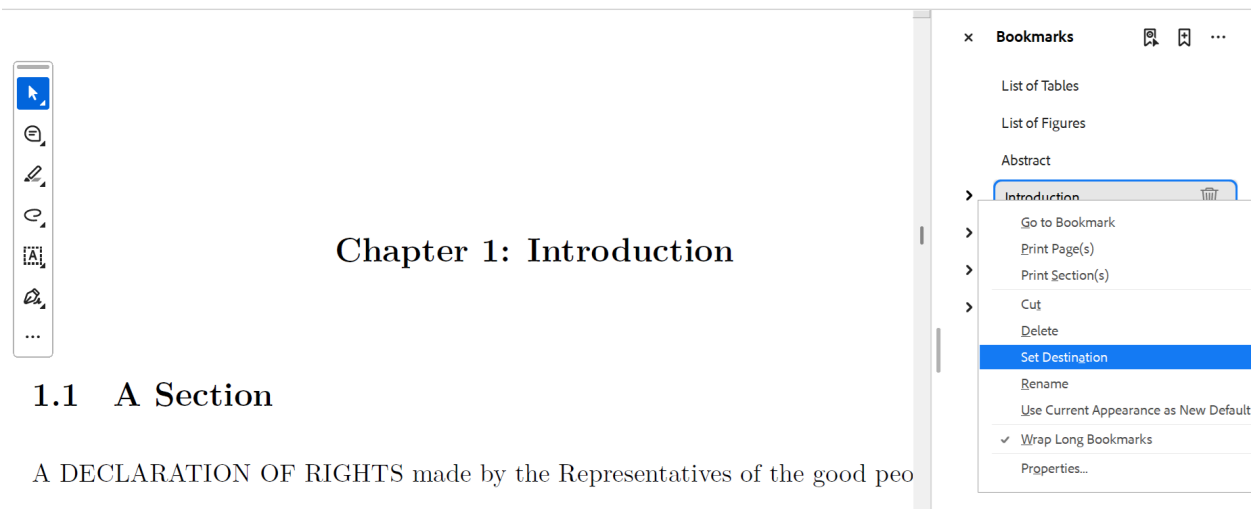


Figure 1: Adobe DC Bookmark Panel with Document at Chapter 1

To fix a bookmark,

1. Go to the correct place in the document for the bookmark
2. Right click on the bookmark you are editing
3. Select set destination from the popup menu

4 Chapter files

The first line in the chapter file should be `\chapter[title]{title}`. The optional argument is the title as it will appear in the table of contents. The required argument is how the title will appear on the first line of the chapter. These should be the same.

The rest of the chapter is written after this line. No need for the document environment. No need to add packages. When it is included in the main template file, it uses the definitions and packages in the preamble of that document.

4.1 Chapterbib for Chapter Bibliographies

When using chapterbib, you will use the citation commands you would normally use. Also, you must add a `bibliographystyle` and `bibliography` command at the end of each chapter. There is code that you can uncomment.

4.1.1 Running Chapterbib

When using chapterbib, you generate a PDF a little differently. The sequence is:

```
pdflatex GMU-DISS_template  
bibtex chapterOne  
bibtex chapterTwo  
bibtex chapterThree  
bibtex chapterFour  
bibtex chapterFive  
bibtex chapterSix  
pdflatex GMU-DISS_template  
pdflatex GMU-DISS_template
```

Note: If you are generating a bibliography at the end of the document, you will add **bibtex** GMU-DISS_template after the first command **pdflatex** GMU-DISS_template.

There are batch files, chapterbib DISS.bat and chapterbib MS.bat, for Windows if you want to use them to generate a PDF.

5 Manuscript Style Document

A manuscript style document is when your chapters are previously published articles. Each chapter has an abstract, introduction, and bibliography. The chapter can have appendices and a conclusion. The files, chapterThree.tex and chapterFour.tex, contain an example.

You won't enter the abstract and appendices as you do in your main template document. The abstract is entered as sections.

```
\section{Abstract}
```

For the appendix, you will use the `\appsection{}`. When you are using chapterbib, you must have a bibliography at the end of each chapter that contains citations.