

Title Goes Here

by

Your Name

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
The Degree You Want  
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## DEDICATION

[Dedication placeholder]

## ACKNOWLEDGMENTS

Because no one will read the `.cls` file, let me thank David E. Kephart for taking on the task of creating it and Daniel A. Cruz for passing on this version to me. David deserves credit for most of the (jokes in the) comments.

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## **ABSTRACT**

This project aims to at least reduce the workload as you write your dissertation. The main body of the chapters included as examples also include instructions. I can't make any promises that the reviewers won't find something for you to fix that the template missed. If that happens to you, and you think others will benefit from the necessary changes, you can submit an issue on [GitHub](#). There are more instructions and some style tips there in case you'd find them useful.

## CHAPTER 1: QUICK AND DIRTY, A CHECKLIST

More thorough explanations will follow, but if you're comfortable with  $\text{\LaTeX}$  and are ready to jump right in here's a TL;DR checklist to minimize the number of revisions ETD may suggest:

- ☐ Do you have a single major professor or two co-major professors? Make sure you use the correct settings in the title page and comment out what you don't need.
- ☐ Scroll through the Contents and make sure everything looks right.
  - ☐ Chapter and section headings should use Title Case (where all words except some prepositions/articles are capitalized), and for subsections and lower levels, headings should use sentence case (regular capitalization). A package is currently adjusting all titles in chapters and sections to add title case, which should be reflected in the Table of Contents, but this may cause incorrect capitalization of some words.
  - ☐ Subsubsection headings should be in sentence case (only the first word and proper nouns are capitalized.) The Table of Contents only lists up to subsections but if you use any finer sectioning commands you will have to check that the headings printed correctly "manually."
  - ☐ Only the first sentence of each caption should appear in the List of Tables and List of Figures.
- ☐ Especially if you copied and pasted the bibliography entries, double check that in the output file everything looks right and adjust as needed.
- ☐ Do you need copyright permissions? If you are using figures from a published work (even if it is your own), it may not be enough to add a citation. Check with the publisher and add any permissions you need to the appendix.
- ☐ Though most widow/orphan lines should be taken care of, look out for orphan headings: headings (where the title prints) of subsections appear as the last line of a page. Fix these by adding `\newpage` wherever appropriate.



- Check the margins and make sure you don't have anything running off the sides of the page. When including long expressions in math mode in a paragraph, consider using `\begin{sloppypar}` and `\end{sloppypar}` to make sure they don't exceed the text width.
- If you have a lot of large images, they may leave large gaps in the text if you use `[H]` or `[h!]` positions. Relax them to `[h]` or even `[htpb]` so that large gaps, whenever appropriate, are filled with text. The guidelines say not to leave half a page or 5.5 inches empty, but shorter empty spaces will still be flagged by reviewers (because they're not measuring and neither are we).
- Equation environments, especially if you have large elements like matrices, can be tricky because they look like images to the average ETD reviewer. It is easier (though not very elegant) to add/remove text where you can to make sure you're not leaving large empty spaces when equations happen near a page break.
- Figures should have captions *below* and tables should have captions *above*. The space has already been assigned but you have to make sure to call the `\caption` command in the right place. Scan through your document to make sure all captions are where they should be.
- ETD reviewers will not check for content errors or typos, so comb through the document multiple times and make peace with the fact that you will almost certainly miss something. Just try not to let anything major slip through.

## CHAPTER 2:

### HOW TO USE THIS TEMPLATE

The goal of this template is to save you time (and effort) trying to put together your dissertation (hard enough as it is). This chapter covers many of the basics.

#### 2.1 Overview

This template uses multiple files to separate out chapters and major components as well as folders to neatly separate images. If this does not make your life easier, feel free to merge things later. All examples and instructions here assume the standard set up.

1. **titlepage.tex**. Fill this one out with all the relevant information for the title page. Make sure to comment out or delete anything you don't need.
2. **preamble.tex**. You can load any additional packages you need here as well as create your own commands and macros. Some are already defined for you. Most things are handled by the .cls file, but you can change a few things here without breaking anything (hopefully).
  - A macro to add comments in color has been added for you. It can make revisions easier if you share your document with your advisor and you want the comments to show in the pdf. For example, here **Person A says:** something should be changed in this section. You can add as many as you like and modify the colors, names and commands.
  - You can format the bibliography. Initially it is set to sort numerically. If you'd like to change the name used for the bibliography (currently set to "References") adjust it in the options of `\printbibliography` on **main.tex**.
  - The `\LaTeX` default is to indent almost every paragraph (all *except* for paragraphs immediately after a heading). If you would rather *not* indent *every* paragraph, add a % symbol to comment out the `indentfirst` package (be warned ETD reviewers may not like it).
  - If you like to use hyperlinks, the `hyperref` package is loaded for you and initialized with **dark blue** for all links. As of Summer 2022, the ETD guidelines do not mention hyperlinks so there

is no established standard for whether or not to use them or how to implement them. You may conceal links by setting all colors to black, or disable them altogether by just not loading the `hyperref` package.

- The `cleveref` package is loaded to make references a bit easier (examples of how later on). As far as formatting goes, just know that if you create new environments they may not get referenced correctly until you feed `cleveref` the correct names.

3. `dedication.tex` You can (optionally) dedicate your dissertation to anyone and write acknowledgments here.
4. `abstract.tex` Self-explanatory, for the abstract.
5. `chapter<n>.tex` Only two of these are included but add as many as you like. Just make sure to lead with `\chapter{<title>}` on the first line of each file.
6. `appendix.tex` After the `\appendix` command is called, any additional chapters are treated as an appendix. You can choose to include them all in one file (if they are short) or as separate files (`appendix01.tex`, `appendix02.tex`, etc.)
7. `biblio.bib` Feel free to modify this if `biblatex` is not your thing, but the default is to load it in the `.cls` file (be aware in case you load something else) and refer to the `biblio.bib` file for information. You can usually download citations in `.bib` format and then modify the entries so they are easier to cite.
8. `main.tex` Not a lot happens here. To keep things tidy, you can add new files with `\input{<filename>}` commands.

## 2.2 Quick Start

Just a few things to keep in mind as you write things.

### 2.2.1 Chapter Headings

Chapter headings can be modified by loading different options for the document class in `main.tex`.

```
\documentclass[10pt, boldcaps]{USFDissertation}
```

The option `boldcaps` most closely resembles the sample .pdf files posted on the ETD website (as of Summer 2022), though `boldheadings` should also be acceptable. For the boldface averse, there are also `allcaps` (which uses all caps headings for chapters) and `plainheadings` (`\normalfont` throughout), though they may not match guidelines. You can also modify the font size here.

### 2.2.2 Title Case and Sentence Case

Chapter, section and subsection heading should use title case (Where Every Major Word is Capitalized), while everything else (subsubsection, paragraph, etc.) should use sentence case (Where only the first word and proper names are capitalized). Title case is implemented automatically. Note that while the title of this subsection is typed

```
\subsection{Title case and sentence case}
```

without any capital letters, it prints both in the heading and Table of Contents with correct capitalization. However, this setting does not affect subsubsections.

#### 2.2.2.1 Title case is not applied here

**2.2.2.2 You should use sentence case when typing titles** The suggested use is to type all sectioning titles in *sentence case*. If it needs to be adjusted to title case, it will be done automatically and it will otherwise be left as is. The settings can be adjusted from the preamble file. The current list is below.

```
% List of words that will not be capitalized in Title Case
```

```
\Addlwords{of, and, a, an, the, or, to, in, on, at}
```

If any words that should remain lower case are incorrectly capitalized, add them there.

## 2.3 What If a Section Title Is Excessively Long and Does Not Fit Into a Single Line No Matter What You Do?

What *should* happen is the section heading should run without hanging indents, so that even if it needs more than one line it's all flush left.

### 2.3.1 How the Table of Contents Handles These Very Long Headings That Do Not Fit in a Single Line

The hanging indent is only in the main body. The table of contents should display the very long section/subsection title in separate lines, with the second one having a 0.25" indent.

#### 2.3.1.1 Even very long titles should be moved to the next line down in the table of contents with an additional indent

### 2.3.2 Using Math Mode in Headings, Like $\mathbb{N}$

Note that if you try to put math symbols in the title of a chapter, section, etc. you may get errors (or may run out of time waiting for the document to compile). Terms in math mode, like  $(p, q)$  will automatically be capitalized unless you add them to the list of lowercase words in the preamble (look for `\Addlcwords`). Otherwise, try what is written here:

```
\texorpdfstring{<math symbol>}{<plain text alternative>}
```

## 2.4 Floats

There is a very good chance you will have to include figures in your dissertation. Note that you can add an optional position parameter when you include floating elements. If you don't include any,  $\text{\LaTeX}$  will decide the placement for you. You can always force an element to appear exactly where it is called with `[H]` or `[h!]`, but be aware that it prevents any empty spaces after the object from being filled with text that is typed after it. Just make sure that when you force empty space it doesn't take up more than half the page (5.5 inches) unless it's the end of a chapter. The options for positions are

- `h` Here. A gentle suggestion.
- `H` HERE. In shouty caps.
- `t` Top, of the page.

- **b** Bottom, self-explanatory.
- **p** Page, meaning in a new page only for the float.
- Adding an exclamation mark (!) to any of these overrides any choice L<sup>A</sup>T<sub>E</sub>X would make on its own. Use sparingly.

The List of Tables and List of Figures entries should only contain the first sentence of the captions for each table/figure. To ensure this, make sure to use the following syntax when entering captions.

```
\caption[<First sentence only.>]{<Full caption.>}
```

You will also have to be careful to use the `\caption` and `\label` commands in the right order. The `\caption` command should be called *after* figures (whether it is created with Tikz or inserted via `\includegraphics` or similar) inside the `\figure` environment and *before* tables (before `\tabular`, `\tabu` or similar) inside the `\table` environment.



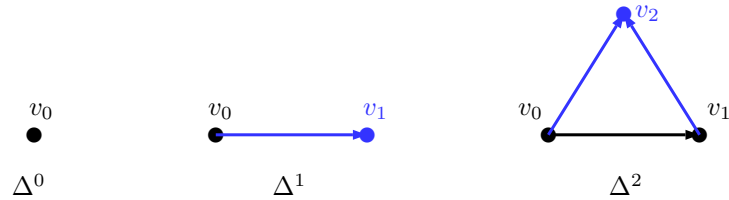
**Figure 1.** Write the first sentence in the caption here. The rest of the caption can now follow. This is figure 1.

To keep things tidy, all image files are kept in a folder. This means that the `\includegraphics` command needs to have the parent directory (i.e. just typing `\includegraphics{fig}` would not work). Just to show that it is an option, Section 2.4 was made with PStricks. Bear in mind that projects with PStricks should be compiled with XeLaTeX (pdfLaTeX will not recognize the commands) and that if opacity values are provided then TeX Live 2020 or 2022 should be used<sup>1</sup>.

<sup>1</sup>A bug in the 2021 version ignores opacity. Should be fixed in the 2022 version whenever it comes out.



**Figure 2.** This is figure 2. Also a fig.



**Figure 3.** This is figure 3. Abstract figs created with PSTricks.

Here is some text to separate the tables and show the difference when you use `\caption` before or after using the `\tabular` environment.

Figure 1 is a fig. Compare the vertical spacing assigned to Figure 1 and Figure 2 before the caption. For figures and tables, `\centering` adds less vertical padding. Use `\begin{center}` and `\end{center}` to enclose sections with more than one element that need to be centered.

## 2.5 Theorem Environments

Several theorem-like environments are pre-defined for you in `preamble.tex`. Here is one example of how to use them. Note that the optional argument `<Theorem name>` appears in parentheses and can be used when using named theorems.

**Theorem 2.1** (Theorem name). *This is a theorem.*

**Definition 2.2.** This is a definition.

**Example 2.3.** This is an example.

**Table 1.** Here is a table. It is important for ETD that figure captions are **below** the table and table captions are **above**.

a	table
goes	here

a	table
goes	here

**Table 2.** This caption is in the wrong position. Since vertical space has been reserved above the tables only, it will not look right.

When referring to environments, pay attention to where the label command is added, or else the references may not print correctly.

## 2.6 Cross-References

The `cleveref` package allows for easier references. Did you write a proposition that turned into a lemma? Instead of having to track down these changes and replacing “proposition `\ref{<label>}`” with “lemma `\ref{<label>}`,” use “`\cref{<label>}`”. For example, this points to theorem 2.1. The capitalized version exists too, Theorem 2.1. Make sure the labels are inside the environments when you add them. In the case of figures, it’s important that labels be added after captions. A reference to Section 2.4 fails here because the label is in the wrong place.

All things you cite should be listed in `biblio.bib` and be given an easy-to-remember name. For example, we can cite a book here as [1].



## REFERENCES

- [1] Bilbo Baggins. *There and Back Again*. Self, T.A. 3001.

## **APPENDIX A:**

### **FIRST**

This is the first appendix, labeled with alphabetic counters. Appendices are chapters included after the `\appendix` command in the main `.tex` file. If you add more than one, and they are long, you may want to separate the inputs into several files. Otherwise just include them all here as different chapters.

**APPENDIX B:**  
**SECOND**

# The USFDissertation L<sup>A</sup>T<sub>E</sub>XClass File

David E. Kephart, Ph. D.

April 7, 2007

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## 0 Introduction (Revised)

The University of South Florida (known as “USF” hereinafter) has a set of arcane formatting rules for dissertations. They are a mix of typewriter instructions and half-digested word-processor templating policies with a general conception of what a scholarly document should look like and an anticipation of what microfilming might do to the document. In other words, all manner of technologies and typographical conceptions are rolled together into a mix which is fairly difficult to interpret and certainly impossible to anticipate. In the mathematical sciences the pre-eminent idiom of document preparation is the  $\text{\LaTeX}$  system, based upon the  $\text{\TeX}$  program of Donald E. Knuth. Luckily, this program is eminently adapted to producing whatever idiosyncrasies of print one would like to employ. In some sense, then, the required format is child’s play for  $\text{\LaTeX}$ .

However, the ordinary Mathematic & Statistics Department Doctoral Candidates finds herself at somewhat of a disadvantage in this situation. There is for her the double demand of satisfying both  $\text{\LaTeX}$  processing rules (for Mathematics & Statistics dissertations must be written in  $\text{\LaTeX}$ ) and the USF formatting rules. In addition, questions of format are typically and justifiably subordinated to the questions of creating and ordering of the *content* of the dissertation. When the last moment is nigh, time pressure, a minimal  $\text{\LaTeX}$  acquaintance, and the imperatives of the format check, etc., conspire to induce the maximum feeling of panic.

At that point, lack of time inhibits a proper  $\text{\TeX}$ ing (making satisfaction of format requirements more difficult) and increases the temptation to structure the document piecemeal (making the use of  $\text{\LaTeX}$  superfluous). We get *de jure* rather than *de facto* adherence to the USF formatting standards, and a document that is internally inelegant. Any Candidate sufficiently familiar with  $\text{\LaTeX}$  must have felt, up to now, the pressing lack of a true USF Dissertation *formatting template*, although she may indeed use a hollowed version of some earlier Candidate’s compromises as a *document template*. That is, while anyone who had piecemeal solved some of the formatting problems posed by the Dissertation requirements could pass these solution on in a `.tex` file, there was no specific *class* (`.cls`) file upon which to rely. And in discovering this as correcting residual problems, time was ticking away.

In writing my dissertation I began to address this issue by creating the first version of `USFDissertation.cls`. This has been offered, with some success, to successive Doctoral Candidates as the repository of the solution of formatting problems, performed at an appropriately low level<sup>1</sup>. Credit for significant alterations to that initial class file goes to Ed Cureg (brave enough to use it on his own), Luis Camara (who helped with the first implementation of bolding in the headings), and Michiru Shibata (who helped add numerous refinements).

---

<sup>1</sup>To give an example of what this means, it is possible with this file to change the name of the abstract. Say you wanted to call it a “praecis”. Then you would include in the preamble of your `.tex` file the command “`\renewcommand{\abstractname}{Praecis}`”. Then, when you run  $\text{\LaTeX}$  on your file, not only is the abstract named Praecis, but it occurs all in caps on its page, but in ordinary fashion in the table of contents.

All in all, the Mathematics & Statistics Doctoral Candidate can be fairly confident that it will perform as advertised, although, as with all free software, it is provided with warranty real or implied of any kind.

Finally, it is hoped that by placing it in the public domain, various annoying details that remain may be resolved by future enterprising Candidates. If you are one who introduces such an improvement, be certain to document it in this file.

*David E. Kephart, Ph.D.*

*April 6, 2007*

## 1 Basic use of the class file

### 1.1 Contents of this Document

As with every class file, your dissertation `.tex` file begins with the line invoking it:

```
\documentclass[option list]{USFDissertation}
```

Between this line and the `\begin{document}` command, lies the preamble. It must contain several things, and so these are dealt with in Section 2.

Next, there is a specific order to the parts of a dissertation, outside the body thereof, and a number of specialized environments (you know: the things that begin `\begin{yadayada}` and end with a matching `\end{yadayada}`). These are for producing typical and sometimes *required* portions of the dissertation. These are discussed in Section 3.

Finally, (more or less) there are a number of environments for math entities, namely Theorems and the type, that are available by use of the **thrmmacros** option. In addition, there are peculiarities to the use of other of the options. These are discussed in Section 4.

The actual last word is in regard to processing the file and various pitfalls that may be avoided. This document is hardly the place for dealing with every  $\text{\LaTeX}$  you may see – buy a good book on the system for that – but a few difficulties related purely to dissertation composition are mentioned. These, and some general advice about composing a dissertation using  $\text{\LaTeX}$  are to be found in Section 5.

This seems like a good point to mention the program LyX, which provides a nice GUI front end to the  $\text{\LaTeX}$  system. It can produce other documents as well, and special modifications are required to use the **USFDissertation** class file under LyX. I would be happy to provide what I have, so just contact me at [dkephart@mail.usf.edu](mailto:dkephart@mail.usf.edu) if you are interested.

### 1.2 Class Options for USFDissertation

Although this material may be repeated later on, it is customary to list up front the option that may be passed to a class file. That is, these are the things



USFDissertation will act on if they are included in square brackets after the invocation of the class file, like this:

```
\documentclass[option1,option2,...]{USFDissertation}
```

The following options are the default options for USFDissertation: **letterpaper,oneside,openany,titlepage,11pt,outsidechair,final**. Alternatives to these and additional options are discussed in this section.

### 1.2.1 a4paper/a5paper/b5paper/letterpaper /legalpaper/executivepaper/landscape

It is dubious that any of these paper sizes other than the default, **letterpaper**, is of any use, but, just in case, they have been retained. USF standards basically require you to print on U.S. letter size paper.

### 1.2.2 10pt/11pt/12pt

You can control the fontsize in which USFDissertation attempts to set your dissertation. The default is the middling 11 point size, which looks pretty good.

### 1.2.3 draft/finaldraft/final

The **draft** option causes the document to be processed double-spaced, with heavy lines in the margin to mark horizontal overflow (lines that L<sup>A</sup>T<sub>E</sub>X could not figure out how to break properly).

This **finaldraft** option causes the document to be processed with 1½ line spacing, and with light lines in the margin to indicate horizontal overflow.

This **final** option, which is the default, causes the document to be processed with 1½ line spacing, and without indication of horizontal overflows. This, it should be noted that this is “final” in the sense that this author used this format for the final production of his dissertation.

### 1.2.4 showlabels

USFDissertation prints the names of labelled text (where the **label** macro is used for cross-referencing. Note that this implies a dependency: the file **showlabels.sty** must be present in your T<sub>E</sub>X installation. Labels are not show, by default in either finaldraft or final mode, so this option allows you to display them, anyhow.

### 1.2.5 thrmdefs

Activates a set of theorem-like environments (see Section 3), predefined for your convenience. One this you may or may not like: they use small caps for their titles. This option is the default.

### 1.2.6 ams

Activates all AMS $\text{\LaTeX}$  packages. And by all, it is intended that *all* of them are called. This implies another dependency: you must have *all* of AMS $\text{\LaTeX}$  in your  $\text{\TeX}$  installation.

### 1.2.7 bbm

Activates black board math lettering. Just in case you didn't pick it up by using **ams**. This implies another dependency.

### 1.2.8 boldheadings/plainheadings

By defaults, with **plainheadings**, the title of the dedication, acknowledgments, table of contents, list of tables, list of figures, references, and bio (About the Author) are in bold. With the **boldheadings** option, the title, author name, and ABSTRACT on the abstract page, the chapters, sections, and subsections, and the labels of the floats (like “Table 1”) within the dissertation are also bolded.

### 1.2.9 rsfs

Activates Ralph Smith Formal Script font. The font may be elicited in text with the  $\text{\RS}\{formal script text\}$  command, or in a math context with the  $\text{\mRS}\{formal script symbols\}$  command. The dependency involved here is more than slight, since there seems to be a hair-splitting distinction between the CTAN interpretation of “free”, i.e., GPL code and the indefinite permissions granted by Ralph Smith, the distributor of the **rsfs.sty** package.

### 1.2.10 times/arial

The option **times** activates the **time.sty** font package, and this is the default setting for **USFDissertation**. It is a peculiarity of USF formatting that *only* Times and Arial are mentioned as permissible fonts. So forget your Computer Modern, or the much more attractive Charter.

The option **arial** activates the alternative Arial font for your dissertation. If this tempts you, be sure to try reading a page or two of math text written in a sans-serif font like Arial, first!

### 1.2.11 titlepage/notitlepage

This is a purely  $\text{\LaTeX}$  option, although the **titlepage** option is pretty much *de rigeur* for a dissertation, and it is the default. You might want to use **notitlepage** from time to time, to save paper. But remember that only the prefatory pages (title, table of contents, abstract) are required for the format check. So you want to get it working pretty early into the game. Contents of the title page are discussed in Section 2 and Section 3.

### 1.2.12 `oneside/twoside`

This choice is a standard one in L<sup>A</sup>T<sub>E</sub>X class files. As it turns out, only **oneside** makes sense for dissertations, although **twoside** may come in handy for paper-saving preprints.

### 1.2.13 `openany/openright`

Again, a standard L<sup>A</sup>T<sub>E</sub>X choice which only makes sense, however in combination with **twoside**.

### 1.2.14 `chair/outsidechair`

This choice allows you to elicit or suppress printing of the name of your committee chairperson, which is supplied in the `\chair{...}{...}` macro. The option **outsidechair** is the default. For, while it is strongly customary to select a committee chairperson from outside the Mathematics Department, such a person is not regarded as an ordinary Committee member for publication purposes and his or her name should therefore *not* appear on the title page. This option allows the ultimate in flexibility in this matter.

### 1.2.15 `leqno/fleqno`

These are different options for the placement of equation labels.

### 1.2.16 `openbib`

Frankly, I don't have experience with this option. Therefore, I retained it in case others do and like it.

## 2 The Dissertation Preamble

Of course, you will include manifold abbreviating macros in your preamble. **USFDissertation** also includes a battery of macros intended to help set up the title page of the dissertation, as this is the most prominent page of the document.

For certain things need to be set up before the document begins. Even some things common to L<sup>A</sup>T<sub>E</sub>X files have special effects for compliance with USF formatting. This section deals with these.

### 2.1 `author`

Format: `\author{your full name}`

Use: This is you. It is required.

Notes: Don't misspell this. However, it's okay to continue a particularly long name onto two lines, using `\\`.

## 2.2 degree

Format: `\degree{ degree, spelled out }`  
Use: Specifies the degree you are receiving. Required.  
Notes: No abbreviations, here. For example, “Doctorate of Philosophy.”

## 2.3 department

Format: `\department{ name of department }`  
Use: Specifies the department awarding your degree. Required.  
Notes: For example “Mathematics.” No abbreviation allowed.

## 2.4 college

Format: `\college{ college name }`  
Use: Specifies which college is awarding your degree. Required.  
Notes: For example, “Arts and Sciences”

## 2.5 university

Format: `\university{ University of South Florida }`  
Use: Specifies the university awarding your degree.  
Notes: If nothing is specified, this defaults to the University of South Florida.

## 2.6 majorprofessor

Format: `\majorprofessor{ name }{ degree }`  
Use: Specifies your advisor. Required.  
Notes:

## 2.7 chair

Format: `\chair{ name }{ degree }`  
Use: Specifies the chairperson of your committee.  
Notes: *Do not use this if this person is not a regular committee member also!*

## 2.8 committeemember

Format: `\committeemember{ name }{ degree }`  
Use: Specifies regular committee members. Required.  
Notes: You need several, but that is a whole other topic.  
The maximum for the purposes of this class file is seven.

## 2.9 keyword

Format: `\keyword{ key1 }{key2 }{key3 }{key4 }{key5 }`  
Use: A minimum of five keywords is required. They should not repeat words or phrases in the title. Required.  
Notes: If there are more than five, the remaining keywords may be inserted into keyword five, separated by commas.

## 2.10 approvaldate

Format: `\approvaldate{ date }`  
Use: Date should be in format *MMMM D, YYYY*. Required.  
Notes: Be sure to include this when you submit this for the format check!

## 2.11 copyrightdate

Format: `\copyrightdate{ date }`  
Use: This is a year, *YYYY*  
Notes: Protects your intellectual property, don't you know...

# 3 Sections of the Dissertation

There are only certain subdivisions of a dissertation permitted by the USF formatting standards. Among these, certain ones are required. We mention only briefly subdivisions of the body of the dissertation, mentioning instead what the sequence of optional and required sections of the document as a whole, which are required, etc. Certain oddities of  $\text{\LaTeX}$  processing should be heeded here. The printed portion of the document is enclosed, of course, by `\begin{document}` and `\end{document}`. Evoking the `\maketitle` command sets the title page and must occur as the *first* next command. The additional environments prior to the dissertation body are discussed here, in the order in which they appear. Next, the macro `\dissertation` starts the body of the dissertation, and after it there are additional requisite divisions of the paper, discussed here.

### 3.1 The Title Page

The title page of the dissertation is the center of the whole thing, as far as formatting is concerned. The environment is not explicitly elicited, but, assuming that the **titlepage** option has been selected, all of the macros from the preamble, described in Section 2 above, come into effect. The macro

```
\maketitle
```

generates the title page. This should be the first command issued *after*

```
\begin{document}.
```

A more significant reservation is that, L<sup>A</sup>T<sub>E</sub>X programming aside, all the information from the previous section when printed must fit onto the single title page. At the same time, spacing must be as specified by USF formatting guide. Therefore, it is necessary that you print it out and compare with the specifications. No programming is really good enough to cover all possible cases.

### 3.2 Dedication

An optional page may now occur in the dissertation: a dedication to anyone at all may be inserted. This is accomplished with the environment command

```
\begin{dedication}
```

followed by the text of the dedication, which will be appropriately indented and double-spaced. The dedication is concluded with

```
\end{dedication}
```

### 3.3 Acknowledgements

The highly customary Acknowledgements page is generated by the environment of the same name, which begins

```
\begin{acknowledgement}
```

and ends

```
\end{acknowledgement}
```

Again, indenting and other formatting details are handled correctly by `USFDissertation`.

### 3.4 Table of Contents

This is a standard section of L<sup>A</sup>T<sub>E</sub>X documents, and merely requires you to type the macro:

```
\tableofcontents
```

It is possible that some details of this table may not be perfectly pleasing to the eye, but it will satisfy the USF requirements. Honest.

### 3.5 List of Tables

Supposing that your dissertation contains tables, a list of them may be gotten (as usual) with the macro

```
\listoftables
```

### 3.6 List of Figures

Supposing that your dissertation contains figures, they must be listed up front, and the list is elicited as usual with

```
\listoffigures
```

### 3.7 Abstract

Your dissertation must have an abstract, and it is limited in length. Further, it must be formatted somewhat differently than the rest of the text, but nothing like the customary abstract formatting for math papers.

The environment beginning

```
\begin{abstract}
```

and ending

```
\end{abstract}
```

will generate the abstract, consisting of whatever you type between these two lines.

### 3.8 The Body of the Dissertation

Prior to beginning the body of the dissertation, you must issue the macro

```
\dissertation
```

to readjust all settings to what they should be inside the document. Everything that occurs up to this point is what you are required to submit for your format check, so, in a sense the entire must already exist at that time (otherwise, no table of contents).

Now things get serious, and the customary L<sup>A</sup>T<sub>E</sub>X commands such as `\chapter{...}` and so forth act in the way that the USF formatting standards wish them to act. Also, floats such as `table` and `figure` environments behave reasonably well. All of these things will be listed in the various lists in the prefatory material after two or three times of T<sub>E</sub>Xing your file.

### 3.9 References and Bibliography

If you happen to look at the USF standards, you will see there a distinction between References (works actually cited in the paper) and Bibliography (works useful in its preparation but not cited by it).

The aspiring candidate is invited to go to the trouble of rounding out the set of environments with one called `\references`.

As it stands,

```
\begin{thebibliography}{ number }
```

– the usual way of creating a bibliography – generates the References. This ends with

```
\end{thebibliography}
```

### 3.10 About the Author

The USF formatting scheme demands that you place a brief biography on the last page, which will be listed in the table of contents as the End Page.

The environment

`\begin{bio}`

– contents of the About the Author page –

`\end{bio}`

does just this, including the proper listing of the page in the table of contents.

## 4 Math Aids In the Class File

There are few actual macros proper to `USFDissertation`. This section lists, first, the math environments invoked by the use of the `thrmdefs` option, and, secondly, the means of making use of some of the other options that are purely mathematics-related.

### 4.1 Theorem-like environments

Made available by the `thrmdefs` option, these are just the usual gang of theorem-like things which may be of use to you. In the following subsections, each named environment is elicited in the usual way, i.e., beginning with

`\begin{theorem-like environment name}`

and ending with

`\end{theorem-like environment name}`

#### 4.1.1 definition

This provides a `definition` environment labelled DEFINITION. It increments at section changes.

#### 4.1.2 varremark and remark

Where `remark` sets its contents in emphasized text, `varremark` does not. Both are labelled with REMARK

#### 4.1.3 conjecture and varconjecture

Similar to the pair of environments above, these are labelled CONJECTURE, but the text of the `varconjecture` is not emphasized.

#### 4.1.4 proposition and varproposition

Similar to the pair of environments above, these are labelled PROPOSITION, but the text of the `varproposition` is not emphasized.



#### 4.1.5 **fact** *and* **varfact**

Similar to the pair of environments above, these are labelled FACT, but the text of the **varfact** is not emphasized.

#### 4.1.6 **note** *and* **varnote**

Similar to the pair of environments above, these are labelled NOTE, but the text of the **varnote** is not emphasized.

#### 4.1.7 **observation** *and* **varobservation**

Similar to the pair of environments above, these are labelled OBSERVATION, but the text of the **varobservation** is not emphasized.

#### 4.1.8 **example** *and* **varexample**

Similar to the pair of environments above, these are labelled EXAMPLE, but the text of the **varexample** is not emphasized.

#### 4.1.9 **lemma**

This is numbered with relation to the Chapter in which it occurs, and is labelled LEMMA.

#### 4.1.10 **theorem**

This is numbered with relation to the Chapter in which it occurs, and is labelled THEOREM.

#### 4.1.11 **corollary**, **tcorollary**, *and* **pcorollary**

The plain **corollary** is for a Lemma, the **tcorollary** is for a Theorem, and the **pcorollary** is for a Proposition. That is, the numbering of the corollary (labelled COROLLARY) is with relation to a Lemma, Theorem, or Proposition.

#### 4.1.12 **proof**

Proof environment, entitled *Proof*. and concluding with  $\square$ . Emphasized text label.

## 4.2 Other mathematics features

# 5 Getting it to Work

## 5.1 Read the README.txt file!

## 5.2 Float titles

USF asks you to include the entirety of a figure or table caption in the list of figures or list of tables. Here I hit a wall as far as straightforward L<sup>A</sup>T<sub>E</sub>X implementation. Unless you feel like messing with the low-level T<sub>E</sub>X code to get the second and subsequent lines of a long figure or table caption title, here is a work-around you can use. It is seen in the “USFDissertationTemplate.tex” file which accompanies this.

Say that a figure caption is excessively long: `\caption{This shows the interaction of sets and subsets as components of nearly-continuous functions from the space of morphisms in general to morphisms from containers to elements of those containers.}` When you run L<sup>A</sup>T<sub>E</sub>X on your file, this line breaks up correctly in the list of figures, except that the second and third lines do not line up with the beginning of the first line. Instead, the start somewhere between the “g” and the “u” of the word “Figure”.

To force correct alignment, insert `\hspace*{.25in}` judiciously in the caption itself. Positioned correctly, this will not look terribly odd in the text, and it will fix the alignment problem in the list.

## 5.3 Non-sequitur

The following is not strictly a matter of getting this file to work, but rather an issue that has plagued certain writers.

A considerable amount of effort has been put into the issue of the placement of floats (Tables and Figures) in the document. Difficulties with excessive numbers of floats per chapter, it has been found, can, to a degree, be ameliorated by timely use of the `\clearpage` command. I suggest getting in touch with recent statistics graduates to find out how they have handled the matter.