

# The NDDiss2 $\epsilon$ class\*

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## Abstract

The NDDiss2 $\epsilon$  class can be used to typeset dissertations submitted to the University of Notre Dame's Graduate School. This class conforms with the Graduate School guidelines as of Spring 2013 for the layout of the Ph.D. dissertations and Master's theses.

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# 1 Introduction

The L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> document class NDdiss2<sub>ε</sub> is suitable for producing dissertations and theses conforming to the Spring 2013 guidelines of the Graduate School at the University of Notre Dame. The package extends the standard L<sup>A</sup>T<sub>E</sub>X `book` class.

The latest version of this class and related documentation can be found in a few places:

- On CTAN: <https://ctan.org/pkg/nddiss>
- On GitHub: <https://github.com/ndlib/nddiss>
- On the University of Notre Dame's Graduate School website: <http://graduateschool.nd.edu/>

## 1.1 Disclaimer

While this class does as much formatting as it can, there are a few formatting items that you, the user, must do manually (see Section 5). Please keep in mind that only *you* are responsible for the correct formatting of your dissertation/thesis. Should you have questions, please consult the official formatting guide or email [dteditor@nd.edu](mailto:dteditor@nd.edu).

## 1.2 Dependencies and Limitations

This classfile depends on many other packages to be installed. All of these required packages are available through MiKTeX and TeXLive, and chances are good they are already installed by your TeX distribution. Refer to section 6 for a list of the essential packages.

The document class has only been tested with a small subset of available packages. There are numerous packages you may want to use for your work, but they may have to be modified accordingly. Things lacking include support for the `subfigure` and `subcaption` package and proper formatting of the captions in such an environment. Formatting of the captions could be much easier with the `caption`<sup>1</sup> in general, and is a thing-to-do for future versions. Permitting use of the `subfigure` and `subcaption` packages would also be a good thing to do if an update is

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<sup>1</sup>`caption` package by Axel Sommerfeldt v3.0b[2004/05/16] and higher

ever made for reasons other than resolving conflicts caused by changing Graduate School regulations. If you want to use a `subfigure` environment and don't need the caption capabilities of the `subcaption` package, adding the following code to your preamble may allow you to do this and still have your captions formatted according to the Graduate School's rules.

```
\usepackage{subcaption}
\makeatletter
\renewcommand\LT@makecaption[3]{%
  \LT@mcol\LT@cols c{\hbox to\z@{\hss\parbox[t]{\LTcapwidth{%
    \vskip\abovetableskip%
    \centering\normalspacing
    #1{#2 }\\[\single@skip]
    {#3}\par
    \endgraf\vskip\belowtablesip}%
    \hss}}}
\makeatother
```

### 1.3 History

The `NDdiss2 $\epsilon$`  package is an extensive rewrite by Sameer Vijay of an earlier `NDthesis` class for formatting dissertations. Megan Patnott updated `NDdiss2 $\epsilon$`  to the 2013 Graduate School Formatting guidelines. The `NDThesis` class was by D. A. Peterson.

## 2 Quick Start

This section provides a template you can use to get started. The distribution comes with a more detailed file, `template.tex`, that is similar, but more detailed.

```
\documentclass[numrefs,final]{nddiss2e}

\begin{document}

\frontmatter

\title{Title in Title Caps}
\author{Your Name}
\work{Dissertation}
\degaward{Doctor of Philosophy}
\advisor{}
\program{}
\maketitle
\makepublicdomain % There is also a copyright option

\begin{abstract}
Abstract here
```

```

\end{abstract}

% dedication is optional
\begin{dedication}
For Someone
\end{dedication}

\tableofcontents
\listoffigures
\listoftables

% list of symbols is optional
\begin{symbols}
\sym{a}{definition of a}
\end{symbol}

% preface is optional
\begin{preface}
Preface here
\end{preface}

\begin{acknowledge}
Thanks to everyone
\end{acknowledge}

\mainmatter

\chapter{A New Dawn} % Chapter 1
All the text ...

\appendix
\chapter{Additional Data} % Appendix A

\backmatter
\bibliographystyle{nddiss2e}
\bibliography{bibdatabase}

\end{document}

```

### 3 Usage

Invoke the  $\text{NDdiss2}_\epsilon$  document class by adding `\documentclass[<options>]{nddiss2e}` at the beginning of your  $\text{\LaTeX}$  source file. For most people the options `\documentclass[draft]{nddiss2e}` is good enough for the initial revisions. If you want your figures to display, use `\documentclass[review]{nddiss2e}`.

Use the option `\documentclass[final]{nddiss2e}` for your formatting check submission, and `\documentclass[final,noinfo]{nddiss2e}` for the final sub-

mitted version.

If you have two advisors, add the option `twoadvisors` here, and then use `\secondadvisor{}` later on the title page to give the name of the second advisor.

By default, all documents produced using this class are formatted as one-sided, doublespaced, letter-sized pages, per the Graduate School requirements. In theory, the class file's specifications should override your system's defaults. If, however, you are getting A4 paper, try adding `\pdfpagewidth{8.5in}` and `\pdfpageheight{11in}` immediately after the `\documentclass` in your file.

### 3.1 Options

<code>draft</code>	Exactly <i>one</i> of these options must be used. The <code>draft</code> and <code>review</code> options enable
<code>review</code>	faster processing of the document and also include annotations to help write and
<code>final</code>	edit it.
	The <code>draft</code> option enables a fast processing and preliminary document showing the labels for citations, tables, figures etc. and a black solid rule highlighting the horizontal overflows. Additionally, figures are replaced with placement boxes showing where the included figure would be placed. Such a document would be the one you would prepare for revising your text during writing stages.
	The <code>review</code> option makes it possible to prepare a document that is one step closer to the final version. Almost all the formatting of the final version is present, but the labels and keys as in the <code>draft</code> option are also displayed. A document prepared with the <code>review</code> option would be the one to personally check for proper formatting and possibly giving to your advisor if she wished to suggest corrections.
	The <code>final</code> option produces the document to be submitted to the Graduate School for formatting checks and as the final version.
<code>twoadvisors</code>	The <code>twoadvisors</code> option will produce a title page with space for two advisors. Use the <code>\secondadvisor</code> macro command (discussed in Section 4.1) on the title page to give the name of the second advisor.
<code>noinfo</code>	The <code>noinfo</code> option disables the information page produced when the <code>review</code> or <code>final</code> style options are used. It is recommended that you only use this option when making the final submission to the Graduate School.
<code>noclassinfo</code>	The <code>noclassinfo</code> option disables the information box on the last page which describes the typesetting program and <code>NDdiss2<sub>ε</sub></code> version used for preparing the dissertation document.
<code>nonatbib</code>	With this option, <code>nddiss2e</code> will not load the <code>natbib</code> package and allow to use a different bibliography package, e.g., <code>biblatex</code> instead.
<code>numrefs</code>	These options determine how citations are displayed in the text. The default style is <code>numrefs</code> . The <code>numrefs</code> option produces a numbered citation style by using <code>natbib</code> and the “ <code>nddiss2e</code> ” or “ <code>nddiss2enoarticletitles</code> ” citation style file <sup>2</sup> . The <code>textrefs</code> option changes the citation style to be similar to “author-date” style with the same files.
<code>textrefs</code>	

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<sup>2</sup>`nddiss2e.bst` is a slight modification of `abbrvnat.bst` in the `natbib` package; `nddiss2enoarticletitles.bst` is essentially the same as `nddiss2e`, but does not display the titles of journal articles, as this is the standard in some fields; `nddiss2enosort.bst` is essentially the same as `nddiss2e`, but sorts by order of appearance in text instead of author name.

<b>sort</b>	At most one of these options should be selected. The <b>sort</b> option will cause
<b>compress</b>	both numerical and “author-date” style references to be sorted in the order that
<b>sort&amp;compress</b>	they appear in the bibliography when multiple references are cited. The <b>compress</b> option compresses numerical citations, e.g. it turns [1,2,3] into [1-3], and does nothing to “author-date” style references. The <b>sort&amp;compress</b> option first sorts and then compresses numerical references, and only sorts “author-date” style references.
	Since the same set of packages and style files result in differing citation formats, refer to the documentation for <b>natnotes.dvi</b> in your <b>TEXMF</b> tree, to be aware of the various ways in which you can make a citation in your text.
<b>10pt</b>	These options adjust the font size of the body text. The choice is only applicable when the <b>draft</b> option is used, and defaults to <b>10pt</b> . When <b>review</b> or <b>final</b>
<b>11pt</b>	is used, this option is ignored and <b>12pt</b> is used.
<b>12pt</b>	
<b>twoside</b>	The <b>twoside</b> option causes the class file to prepare a document meant to be printed double-sided. This option is strictly for if you want to prepare a two-sided document for your own use. The only difference from the one-sided document is in the page layout. Do NOT use this option when preparing to submit it to the Graduate School.
<b>showframe</b>	The <b>showframe</b> option shows visible frames for the text area and page. This can be useful to ensure that all content is within the content area and not running over into the margins.
<b>linenumbers</b>	The <b>linenumbers</b> option enables the display of line numbers throughout the document.
<b>nocenter</b>	The <b>nocenter</b> option allows non-centered chapter titles. Do NOT turn in your document this way to the Graduate School!
<b>openbib</b>	The <b>openbib</b> option formats your bibliography in the following manner: Author Article/book title Other information Website, if applicable Usually you would not need to use this option since the default layout of the <b>bibliography</b> is acceptable.

## 4 Arrangement of Contents

A dissertation or a thesis document contains the following parts, in the order listed. Only those marked as optional may be omitted.

1. Title Page
2. Copyright page
3. Abstract (*optional for Master's thesis*)
4. Dedication (*optional*)
5. Table of Contents

6. List of Figures
7. List of Tables
8. List of Symbols (*optional*)
9. Preface (*optional*)
10. Acknowledgments (*optional*)
11. Text
12. Appendix (or Appendices) (*optional*)
13. Bibliography (or References, or Works cited)

The macros and environments described below ease the formatting of these parts.

## 4.1 Title Page

`\maketitle` The title page is generated by `\maketitle` with no arguments. This macro has been modified for providing a title page in the correct format.

You can set information to display on the title page by using the following commands before invoking `\maketitle`.

- |                               |  |
|-------------------------------|--|
| <code>\title{}</code>         | <ul style="list-style-type: none"> <li>• The title of the document, using the <code>\title</code> macro. You may use linebreaks within the title, protected via <code>\protect\\</code> and the title may be up to four lines long.</li> </ul>   |
| <code>\author{}</code>        | <ul style="list-style-type: none"> <li>• Give your name in full and exactly as registered with the Graduate School, using the <code>\author</code> macro, e.g. <code>\author{Gary Graham Gordon-Graeme}</code>).</li> </ul>  |
| <code>\work{}</code>          | <ul style="list-style-type: none"> <li>• Whether the document is a <i>Thesis</i> or a <i>Dissertation</i> as the argument of the <code>\work</code> macro, e.g. <code>\work{Dissertation}</code>).</li> </ul>  |
| <code>\degaward{}</code>      | <ul style="list-style-type: none"> <li>• Specify the degree you're aiming for with the <code>\degaward</code> macro. Should be one of <code>\degaward{Doctor of Philosophy}</code> (without the “in <i>subject</i>” or <code>\degaward{Master of Science\\in\\Engineering}</code>).</li> </ul> |
| <code>\advisor{}</code>       | <ul style="list-style-type: none"> <li>• Give the name of your advisor with the <code>\advisor</code> macro.</li> </ul>  |
| <code>\secondadvisor{}</code> | <ul style="list-style-type: none"> <li>• Give the name of your second advisor, if any, with the <code>\secondadvisor</code> macro. You also need to pass in the <code>twoadvisors</code> option in the <code>\documentclass</code> declaration.</li> </ul>                                     |
| <code>\program{}</code>       | <ul style="list-style-type: none"> <li>• Give the name of your department with the <code>\program</code> macro, e.g. <code>\program{Gnولوجical Engineering}</code>.</li> </ul>   |
| <code>\degdate{}</code>       | <ul style="list-style-type: none"> <li>• The month and year of the defense of the thesis with the <code>\degdate</code> e.g. <code>\degdate{June 2004}</code>). If you forget to declare this, the current month/year will be used.</li> </ul>   |

## 4.2 Copyright Page

`\makecopyright` The `\makecopyright` macro should be invoked after `\maketitle` to produce a copyright page. Prior to calling `\makecopyright`, you may specify a different name for the copyright holder (the default is the name given through the `\author` macro) and for the copyright year (the default being the current year). Do this with the `\copyrightholder{<name>}` and `\copyrightyear{<year>}` macros.

`\copyrightholder{}`

`\copyrightyear{}`

`\makepublicdomain` Alternatively, you can use `\makepublicdomain` to produce a page with the message “This document is in the public domain.” Note that the absence of the copyright page does *not* place your dissertation in the public domain, you must declare it as such explicitly.

## 4.3 Abstract Page(s)

`abstract` The abstract text should be placed between `\begin{abstract}` and `\end{abstract}`. If the abstract is longer than one page, the environment will place the author’s name in the top-right header.

`\abstractname{}` You may use `\abstractname{<text>}` to change the abstract caption to `text`. Default name: **Abstract**. You probably don’t need to change it.

## 4.4 Dedication

`dedication` The dedication is optional. If you want one, use the `dedication` environment. The format of dedication is essentially free. This environment will center the text of your dedication vertically on the page.

`\dedicationname{}` You may use `\dedicationname{<text>}` to change the title for the dedication page. Default name: `\mbox{}` i.e. an empty title. You probably don’t need to change it.

## 4.5 Table of Contents; Lists of Figures and Tables

`\tableofcontents` Use the macros `\tableofcontents`, `\listoffigures` and `\listoftables`, *in this order*, to produce the required table of contents and lists of figures and tables.

`\listoffigures`

`\listoftables` You may use `\contentsname`, `\listfigurename` and `\listtablename` to change the titles for these sections. By default they are **CONTENTS**, **FIGURES**, and **TABLES**. You probably don’t need to change them.

`\contentsname{}`

`\listfigurename{}`

`\listtablename{}`

## 4.6 List of Symbols

`symbols` The list of symbols is optional. Use the `symbols` environment to format a list of symbols/abbreviations used in your work. The environment takes an optional argument specifying the desired format, e.g. `\begin{symbols}[c1]` for first column centered and the next column aligned left. By default, the first column will be right aligned and the second column will be left aligned. You may use any of the standard `tabular` column alignment options.

`\sym{ }{ }` The command `\sym{<symbol>}{<definition>}` may make the task of entering the symbols and their meanings in the `symbols` environment easier. `\sym` takes



two arguments: the first, a math “object” and the second, the plain text describing the symbol. Since the first argument is in math mode, any plain text needs to be wrapped with `\mathrm{..}`. Likewise, any math symbol in the second argument needs to be placed in `$..$`. Example: `\sym{\beta_\mathrm{norm}}{Definition for  $\beta$ }`

`\symbolsname{}` You may use `\symbolsname{}` to change the title of the symbols section. Default name: SYMBOLS.

## 4.7 Preface

`preface` The preface environment is provided for formatting the preface to your work.

`\prefacename{}` You may use `\prefacename` to change the name of this section. Default name: PREFACE.

## 4.8 Acknowledgments

`acknowledgments` The environment `acknowledgments` is used to format the acknowledgment *chapter*.

`\acknowledgename{}` You may use `\acknowledgename` to change the name of this section. Default name: Acknowledgments.

## 4.9 Text

`\mainmatter` Use the macro `\mainmatter` to mark the beginning of your text. You can then use `\part`, `\chapter`, `\section`, `\subsection`, and `\subsubsection` commands, as you would with the `book` class. Text is formatted in `\normalspacing` i.e. double-spacing. The pages are numbered in `plain` pagestyle such that the page numbers are centered in the bottom. The `chapter` titles can be multi-line, and if so are formatted doubly spaced.

`\unnumchapter{}` Use the macro `\unnumchapter` to create to create unnumbered chapters that appear in the Table of Contents.

## 4.10 Appendix

`\appendix` Use the command `\appendix` after the last normal chapter to signal that all following chapters are to be appendices. This use is the same as in the `book` class. To begin an appendix, use the `\chapter{<title>}` macro.

## 4.11 Backmatter

`\backmatter` The `\backmatter` macro separates the bibliography, index and glossary from the main matter and any appendices.

## 4.12 Bibliography

`\bibliography` If you are using BIB<sub>T</sub>E<sub>X</sub> (and why would you not want to use BIB<sub>T</sub>E<sub>X</sub>?), use the `\bibliography{<bibfile>}` macro to generate the bibliography. You should refer to BIB<sub>T</sub>E<sub>X</sub> manual for details about making a `.bib` file and format for the entries.

For citing references in the text, the package `natbib` is included with either the settings `numbers,sort&compress` (`numrefs` option) or `authoryear,sort` (`textrefs` option). The package `natbib` is a package that has numerous macros for *citing* in different ways.

**Warning:** The packages `cite` and `citation` are NOT compatible with the `natbib` package, and will cause errors if used.

`thebibliography` If you are not using `BIBTEX` make your own bibliography by using the `thebibliography` environment. In this case, you would have to write the reference entries in the right format in your `.tex` source file itself. If you are using the `textrefs` option, you'll need to consult the `natbib` manual to ensure that you enter your entries in the format required by the package.

`\bibname{}` You may use `\bibname{newbibname}` to change the name of this section. Default name: `Bibliography`.

### 4.13 Chapter-wise Bibliography

By default the bibliography appears at the end of your work and contains all the references from the entire entity. If you need to have a separate bibliography for each chapter, you can do it in the following way. First, load the package `chapterbib` without any options in the preamble of your main source file and redefine the commands `\bibname` and `\bibsection` as shown below.

```
%% Main source file %%
\documentclass[...]{nddiss2e}
\usepackage{chapterbib}
\renewcommand{\bibname}{Cited works}
\renewcommand{\bibsection}{\section{\bibname}}
...
\begin{document}
\include{chptr1}
...
\include{appndx}
\end{document}
```

To process the bibliography for each chapter individually, the chapters or sections must be separated into different files and *include* them in the main file, as shown above. Each such `\included` file must contain its own `\bibliographystyle{nddiss2e}` and `\bibliography{...}` command at an appropriate position. There should not be any bibliographic commands in the main source file.

After compiling the main `tex` file once (with `latex` or `pdflatex`), the `.aux` files needed by `bibtex` will have been created and you can then run `bibtex` on each of the separate source files to obtain a `.bbl` for each file. The remaining steps are the same as for a normal `.tex` file.

You can find more details of this in the `natbib` manual.

## 5 Note For Authors

The dissertation author must make sure that the following conditions are met in order to generate a dissertation acceptable by the Graduate School:

- The List of Figures must be *before* the List of Tables, i.e. the macro command `\listoffigures` comes before `\listoftables` in the frontmatter.
- Table captions must be *above* the corresponding table, In case of the `table` environment, this can be achieved by putting `\caption` before you include the table (e.g. in a `tabular` environment).
- Figure captions should be *below* the corresponding figure. In the figure environment, the `\caption` goes after the `\includegraphics` macro command.
- The bibliography is the last section/chapter of the thesis—unless you are using the *chapter-wise* bibliography.

### 5.1 Tips and Suggestions

- It is *strongly* recommended that you compile your document with pdf $\LaTeX$ . Compiling to dvi or postscript first may result in “fuzzy” fonts when viewing the document on your screen. Additionally, the benefits of `hyperref` and `pdflscape` are only available if you compile using pdf $\LaTeX$ .
- Use the `\toprule`, `\midrule` and `\bottomrule` macro commands (from the `booktabs` package) in tables for generating the appropriate horizontal rules. Refrain from using vertical rules to separate columns in tables as much as possible.
- Use the `threeparttable` environment for tables with tablenotes.
- Use the `longtable` environment for handling very long tabular materials. Example:

```
\begin{longtable}{lc}
\caption[] {LONG TABLE CAPTION \label{tab:longtable} }
\toprule
Heading 1 & Heading 2 \\
\midrule
\endfirsthead
\caption[] { } \\ % doesn't matter what text is in the continued caption.
\midrule
Heading 1 & Heading 2 \\
\midrule
\endhead
\endfoot
\bottomrule
\endlastfoot
% Now the tabular material %
```

```
Long & Table etc. \\
\end{longtable}
```

- If a figure or table is very wide and will not fit on a page, use the `landscape` environment (from the included `lscape` package) to format them in *landscape* mode. They will automatically appear on a separate page. If you use `pdfLATEX` to compile your document, then the included `pdfscape` package will flip this page on the screen for easier reading.

If the positioning of the `landscape` environment is inconvenient and leads to half-empty pages, the `afterpage` command, made available by the package with the same name, allows the text to flow around the `landscape` environment better:

```
\afterpage{%
  \begin{landscape}
    \centering
    \input{my_landscape_table}
  \end{landscape}
}
```

- The `sidewaystable` environment (from the included `rotating` package) is incompatible with the current class and should be avoided.
- Usually the width of the figure and table captions is 90% of the `textwidth` (i.e. `0.9\textwidth`). If needed, the width can be changed on a case-by-case basis by doing one of the following:

- Use a `minipage` environment of appropriate width and enclose your tabular or figure float inside it, or
- set the `\capwidth` inside the `table` or the `figure` environment, and `\LTcapwidth` *outside* the `longtable` environment, e.g.,

```
\begin{table}[H]
\setlength{\capwidth}{0.8\textwidth}
\centering
\caption{TABLE CAP\label{tab:this}}
\begin{tabular}{lc}
...
\end{tabular}
\end{table}

\setlength{\LTcapwidth}{6in}
\begin{longtable}{lccc}
...
\end{\longtable}
```

- Use the `tabularx` environment for the actual formatting of the tables (within the `table` environment). It differs slightly from `tabular` environment and you should refer to their documentation in the `TEXMF` tree for more information.

- If you've used a `longtable` environment in your document, it might be necessary to compile the document multiple times so as to get proper alignment of columns. This is documented in the `longtable` manual.
- If you wish to use `\footnotes` in the `longtable` environment, please read its documentation. There are some handicaps present.
- To cite a website in your bibliography<sup>3</sup>, use the following format in your `.bib` file:

```
@Misc{fairley2000,
author =      "N. Fairley",
title =      "Casa{XPS} {VAMAS} processing software",
howpublished = "Website",
note =      "\url{http://www.casaxps.com}",
}
```

When processed with the `nddiss2e.bst` citation style file this gives:  
 111. N. Fairley. CasaXPS VAMAS processing software. Website. `http://www.casaxps.com`.

## 5.2 You Found Errors?

Errors in a  $\text{\LaTeX}$  document are to be expected. If you have a problem that is that seems to be more than a typo or unbalanced brace, it is possible that there is a conflict between the packages you have included and those that `NDdiss2 $\epsilon$`  uses. If you find yourself in that situation, there is a mailing list for handling support issues with `NDdiss2 $\epsilon$` . Look through the archive, and if there are no answers, please send an email to `ND-LATEX-USERS@listserv.nd.edu` (registration required). The more effort you spend in isolating the problem or in troubleshooting will make it more likely that others can reproduce the problem and help you solve it. Also if you have a problem that you then solve, please also email the list. Your doing so will help the next person to have that problem, and will also make the maintainers aware of it, so future versions of the class file can be better.

## 6 Other Packages Used

A number of packages are required by default and must be present in your  $\text{\TeX}$  search path (if you use a package manager such as `MiKTeX` or `TeXLive`, it will take care of this for you). As far as possible, these have been tested for proper formatting style with the `NDdiss2 $\epsilon$`  class file. The list includes `ifthen`, `exscale`, `ifpdf`, `ifluatex`, `ifxetex`, `xspace`, `longtable`, `indentfirst`, `tabularx`, `showkeys`, `enumerate`,

<sup>3</sup>More info at <http://www.tex.ac.uk/cgi-bin/texfaq2html?label=citeURL>

latexsym, epsfig, color, graphicx, setspace<sup>4</sup>, amsmath, float, lscap, rotating, booktabs, and natbib<sup>5</sup>. Sameer urges you to read the documentation of these packages available in the TEXMF tree, if you think you might use their features or want to tweak some advanced options. Of these packages, ifpdf, longtable, natbib, booktabs, rotating, and setspace are not part of the L<sup>A</sup>T<sub>E</sub>X required distribution, so you may need to download them. They are all available through both MiKTeX and TeXLive; note that ifpdf is part of the oberdiek bundle, which is what you need to download to get that package if it is not already installed on your system.

Other packages may or may not be appropriate for use with the NDdiss2<sub>ε</sub> class when producing copies to be submitted to the Graduate School. Please be careful when using packages that change the default fonts, or the page layout.

In general, the official guidelines of the Graduate School are followed to the maximum extent possible. This includes proper formatting of the title page and the abstract page (from the ndthesis package), numbering of the pages in the *frontmatter*, generation of properly formatted table of contents, list of figures etc., as well as bibliography at the end. Per the guide, the number of different fonts and font sizes used is kept to a minimum. The contents, all lists and the bibliography are single-spaced but the inter-line spacing for the rest of the document is double.

## 6.1 Generating PDF document

The NDdiss2<sub>ε</sub> class also allows production of pdf documents with pdfL<sup>A</sup>T<sub>E</sub>X . As of Spring 2013, this is the preferred method of compilation. In this case, the hyperref and pdfscape packages are also required. The hyperref package ensures that the generated pdf document contains internal as well as external links for citations and bookmarks. A document produced by this method also contains embedded fonts (*press quality* pdf) and is suitable for electronic submission to the library and for microfilm archiving. Although the most appropriate options for hyperref are passed on, for advanced features refer to its documentation. The pdfscape package flips pages with landscape orientation in the pdf file for easier reading, but the location of the page numbers does not change.

Figures must be in pdf, jpeg, png, or gif format, and not in encapsulated postscript (eps). An easy way to convert *eps* files to *pdf* files is to use the utility **epstopdf** or **eps2pdf**, which should be available on your unix-like distribution already (should you have one). It is also possible to convert your eps files to pdfs using an online conversion tool. Searching for “eps to pdf” brought up several free options in Fall 2012.

---

<sup>4</sup>v6.7[2000/12/01] or above

<sup>5</sup>v8.31[2009/07/16] or above

## 7 The Implementation

Following is our attempt at documenting the source of the `NDdiss2 $\epsilon$`  class file for the  $\text{\TeX}$  hackers.

At the start, we define the base version of  $\text{\LaTeX} 2_{\epsilon}$  needed and the label information for the `NDdiss2 $\epsilon$`  class.

```

1 \NeedsTeXFormat{LaTeX2e}[1999/12/01]
2 \ProvidesClass{nddiss2e}
3     [2016/10/16 v3.2016%
4     Notre Dame Dissertation document class]
5 %

\disssfileversion The \disssfileversion and \disssfiledate macros contain the version and the date of
\disssfiledate    the release.

6 \providecommand{\disssfileversion}{3.2017.2}
7 \providecommand{\disssfiledate}{2017/05/09}
8 %
```

New boolean variables for the options used in `NDdiss2 $\epsilon$`  class are set here with default values.

```

9 \newif\ifdisss@draft           \disss@drafttrue
10 \newif\ifdisss@review         \disss@reviewfalse
11 \newif\ifdisss@final          \disss@finalfalse
12 \newif\ifdisss@info@page      \disss@info@pagetrue
13 \newif\ifdisss@class@info     \disss@class@infotrue
14 \newif\ifdisss@advisors@two    \disss@advisors@twofalse
15 \newif\ifdisss@dedication      \disss@dedicationfalse
16 \newif\ifdisss@num@refs        \disss@num@refstrue
17 \newif\ifdisss@natbib@refs     \disss@natbib@refstrue
18 \newif\ifdisss@centered@chapt \disss@centered@chapttrue
19 \newif\ifdisss@line@numbers    \disss@line@numbersfalse
20 \newif\ifdisss@two@side        \disss@two@sidefalse
21 \newif\ifdisss@ltfirstcaption
22 %

draft Exactly one of these options must be present in order to get a proper document. These
review options set appropriate boolean variables (flags) and pass some common options to the
final parent book class.

23 \DeclareOption{draft}{
24     \setlength\overfullrule{5pt}
25     \typeout{DRAFT MODE}\typeout{}\disss@info@pagefalse%
26     \disss@drafttrue\disss@reviewfalse\disss@finalfalse
27     \PassOptionsToClass{letterpaper,oneside,draft}{book} }
28 %
29 \DeclareOption{review}{
30     \typeout{REVIEW MODE}\typeout{}\disss@info@pagetrue%
31     \disss@draftfalse\disss@reviewtrue\disss@finalfalse
```

```

32 \PassOptionsToClass{12pt,letterpaper,oneside,final}{book} }
33 %
34 \DeclareOption{final}{
35 \setlength\overfullrule{0pt}
36 \typeout{FINAL MODE}\typeout{}\info@pagetrue%
37 \diss@draftfalse\diss@reviewfalse\diss@finaltrue
38 \PassOptionsToClass{12pt,letterpaper,oneside,final}{book} }
39 %

```

**numrefs** The options **numrefs** or **textrefs** select the appropriate citation style i.e. “numbered”  
**textrefs** or “textual”, respectively. By choosing **textrefs**, one can get “author-date” style of citation in the text. The default is **numrefs**.

```

40 \DeclareOption{numrefs}{
41 \typeout{NUMBERED REFERENCES}\num@refstrue}
42 \DeclareOption{textrefs}{
43 \typeout{TEXTUAL REFERENCES}\num@refsfalse}
44 \DeclareOption{nonatbib}{
45 \typeout{NO NATBIB}\natbib@refsfalse}

```

The option **nocenter** allows non-centered chapter titles.

```

46 \DeclareOption{nocenter}{\centered@chaptitelfalse}
47 %

```

The **openbib** option is useful in creating indented bibliography. Usually you would not need to use this option since the default layout of the **bibliography** is very much acceptable.

```

48 \DeclareOption{openbib}{%
49 \PassOptionsToPackage{openbib}{natbib}
50 }
51 %

```

The **sort** option is passed to **natbib**, and causes multiple citations to be listed in the sequence they appear in the bibliography.

```

52 \DeclareOption{sort}{%
53 \PassOptionsToPackage{sort}{natbib}
54 }
55 %

```

The **compress** option is passed to **natbib**, and causes numerical citations to be compressed so that, e.g. 1,2,3 becomes 1-3. Does not also sort.

```

56 \DeclareOption{compress}{%
57 \PassOptionsToPackage{compress}{natbib}
58 }
59 %

```

The **sort&compress** option sorts numerical citations, and then compresses them.

```

60 \DeclareOption{sort&compress}{%
61 \PassOptionsToPackage{sort&compress}{natbib}
62 }
63 %

```

The other options are declared in the following lines.



`twoadvisors` The `twoadvisors` option sets the flag for modifying the layout of the title page.

```
64 \DeclareOption{twoadvisors}{\typeout{TWO ADVISORS}\typeout{}}%
65   \advisors@twotrue}
66 %
```

`10pt` The options `10pt`, `11pt` or `12pt` are passed on to the `book` class if appropriate, depending  
`11pt` on whether the `\diss@draft` flag is set true.

```
12pt 67 \DeclareOption{10pt}{%
68   \ifdiss@draft%
69     \PassOptionsToClass{10pt}{book}%
70   \else%
71     \OptionNotUsed%
72     \ClassWarningNoLine{nddiss2e}%
73     {Font size 10pt not allowed; using 12pt}%
74   \fi%
75 }
76 \DeclareOption{11pt}{%
77   \ifdiss@draft%
78     \PassOptionsToClass{11pt}{book}%
79   \else%
80     \OptionNotUsed%
81     \ClassWarningNoLine{nddiss2e}%
82     {Font size 11pt not allowed; using 12pt}%
83   \fi
84 }
85 \DeclareOption{12pt}{%
86   \PassOptionsToClass{12pt}{book}%
87 }
88 %
```

```
89 \DeclareOption{noinfo}{\info@pagefalse}
90 %
```

```
91 \DeclareOption{noclassinfo}{\class@infofalse}
92 %
```

The `twoside` option is for when you want to prepare a two-sided document for your own use. The only difference from the one-sided document is in the page layout. This option is passed on to the parent `book` class.

```
93 \DeclareOption{twoside}{\typeout{TWO SIDED DOCUMENT}\two@sidesettrue%
94   \PassOptionsToClass{twoside}{book} }%
95 %
```

The `showframe` option uses the `geometry` package to draw visible frames for the text area and page. This is useful for checking that none of document content runs outside the content area and into the margins.

```
96 \DeclareOption{showframe}{%
97   \ifdiss@review%
98     \PassOptionsToPackage{showframe}{geometry}%
99   \else%
100     \OptionNotUsed
```

```

101 \ClassWarningNoLine{nddiss2e}%
102 {Frame only shown in review mode; not showing frame}
103 \fi
104 }

```

The `linenumbers` option enables line numbering throughout the document.

```

105 \DeclareOption{linenumbers}{%
106 \ifdiss@final%
107 \OptionNotUsed%
108 \ClassWarningNoLine{nddiss2e}%
109 {Line numbers are disabled in final mode.}%
110 \else%
111 \typeout{LINE NUMBERS}\line@numberstrue%
112 \fi
113 }

```

All options other than those defined above are ignored and a warning is printed on the screen during compile-time. After processing all the options, the `book` class is loaded with the specified options.

```

114 \DeclareOption*{\ClassWarning{nddiss2e}%
115 {UnknownOption '\CurrentOption'} }%
116 \ProcessOptions\relax
117 \LoadClass{book}
118 %

```

At this stage, the packages `ifthen`, `exscale`, `etoolbox` `ifpdf`, `ifluatex`, `ifxetex`, `longtable`, `xspace`, `indentfirst`, `tabularx`, `enumerate` and `latexsym` are loaded. It is important to load these in a specific order so as not to cause conflicts in definitions of certain macros.

```

119 \RequirePackage{ifthen,exscale,etoolbox,xpatch}
120 \RequirePackage{ifpdf,ifluatex,ifxetex}
121 \RequirePackage[
122 plainpages=false,
123 pdfpagelabels,
124 bookmarks=true,%
125 bookmarksnumbered=true,%
126 linktocpage=true,%
127 breaklinks=true,%
128 bookmarkstype=toc,%
129 colorlinks=false,%
130 pdfpagemode=UseOutlines]{hyperref}
131 \RequirePackage[pass]{geometry}
132 \RequirePackage{longtable}
133 \RequirePackage[flushleft]{threeparttable}
134 \RequirePackage[flushleft]{threeparttablex}
135 \RequirePackage{xspace}
136 \RequirePackage{indentfirst}
137 \RequirePackage{tabularx}
138 \RequirePackage{enumitem}
139 \RequirePackage{latexsym}
140 \RequirePackage{textcase}
141 %

```

If the `\diss@final` is set false (when using `draft` or `review` option) then the `showkeys` package is also loaded.

```
142 % \ifdiss@final\relax\else\RequirePackage{showkeys}\fi
143 %
```

Depending in whether you are using pdf $\text{\LaTeX}$  or plain  $\text{\LaTeX}$  , `epsfig`, `color` and `graphicx` are loaded with respective options.

```
144 \ifboolexpr{bool{luatex}}{%
145   \ifcsdef{pdfadjustspacing}{}%
146   \let\pdfadjustspacing \adjustspacing
147 }
148 {}
149 \ifboolexpr{bool{pdf} or bool{xetex} or bool{luatex}}{%
150   \RequirePackage{epsfig}
151   \RequirePackage{color}
152   \RequirePackage{graphicx}
153   \AtBeginDocument{
154     \pdfadjustspacing=1
155   }
156 }{%
157   \RequirePackage[dvips]{epsfig}
158   \RequirePackage[dvips]{color}
159   \RequirePackage[dvips]{graphicx}
160 }
161 %
```

Now the `natbib` package is loaded with its options, appropriate to `numrefs` or `textrefs` class option. If `numrefs` is specified, then `natbib` is read-in with its options for “numbered” references and sorted & compressed (eg. [3–6,8–10]). In this case, the default delimiter is square brackets and the default separator is a comma. For the `textrefs` option, the `natbib` package is read-in so as to sort the references in an “author-date” style of citations. The default delimiter and separator, in this case, are round brackets and colon, respectively.

```
162 \ifnatbib@refs
163   \ifnum@refs
164     \RequirePackage[numbers]{natbib}
165   \else
166     \RequirePackage[authoryear]{natbib}
167   \fi
168 \fi
```

Additionally, the packages `amsmath`, `float`, `booktabs`, `rotating`, `url` and `setspace` are loaded when (pdf) $\text{\LaTeX}$  processes `\begin{document}`. Again, the order of these packages is important. Additionally when using pdf $\text{\LaTeX}$  , the package `hyperref` (for internal/external links in the document) is also loaded. The options for this package have been tested to produce a document which can be printed on laser printers without any problems because of colored link boxes. Megan added required package `pdflscape`, which is part of the oberdiek bundle in MiKTeX and TeXLive. Using this package will flip landscape pages on the screen so that it’s easier to read.

```
169 \AtBeginDocument{
170   \RequirePackage{amsmath}
```

```

171 \RequirePackage{float}
172 \RequirePackage{booktabs}
173 \RequirePackage{rotating}
174 \RequirePackage{url}
175 \RequirePackage[doublespacing]{setspace}[2000/12/01]
176 \ifboolexpr{bool{pdf} or bool{xetex} or bool{luatex}}{%
177   \ifluatex
178     \RequirePackage[luatex]{pdfscape}
179   \else
180     \ifxetex
181       \RequirePackage{xetex}{pdfscape}
182     \else
183       \ifpdf
184         \RequirePackage{pdfscape}
185       \fi
186     \fi
187   \fi
188 }{}
189 }
190 \RequirePackage{metalogo}
191 %

Here, if linenumbers is enabled, we load the lineno package and start numbering with
\linenumbers when (pdf)LaTeX processes \begin{document}.

192 \ifline@numbers
193   \AtBeginDocument{%
194     \RequirePackage{lineno}%

If a new enough version of lineno is installed, that is all we need, as it patches amsmath
appropriately. If the lineno package is older, we include here (verbatim) the (obsolete)
linenoamsmath package for patching amsmath

195     \@ifpackagelater{lineno}{2022/07/30}
196     {}%
197     {%
198       \newcommand*\linenoamsmath@patch[1]{%
199         \cspretto{#1}{\linenomath}%
200         \cspretto{#1*}{\linenomath}%
201         \csappto{end#1}{\endlinenomath}%
202         \csappto{end#1*}{\endlinenomath}%
203       }
204       \newcount\linenoamsmath@ams@eqpen
205       \cspretto{math@cr@}{\global\@eqpen\numexpr\@eqpen+\linenoamsmath@ams@eqpen\relax}
206       \newcommand*\linenoamsmath@patch@ams[1]{%
207         \cspretto{#1}{%
208           \linenomath%
209           \postdisplaypenalty=0%
210           \global\linenoamsmath@ams@eqpen\interdisplaylinepenalty%
211         }%
212         \cspretto{#1*}{%
213           \linenomath%
214           \postdisplaypenalty=0%

```

```

215         \global\linenoamsmath@ams@eqpen\interdisplaylinepenalty%
216     }%
217     \csappto{end#1}{%
218         \global\linenoamsmath@ams@eqpen\z@%
219         \endlinenomath%
220     }%
221     \csappto{end#1*}{%
222         \global\linenoamsmath@ams@eqpen\z@%
223         \endlinenomath%
224     }%
225 }
226 \linenoamsmath@patch{equation}
227 \linenoamsmath@patch@ams{multline}
228 \linenoamsmath@patch@ams{gather}
229 \linenoamsmath@patch@ams{align}
230 \linenoamsmath@patch@ams{alignat}
231 \linenoamsmath@patch@ams{flalign}
232 \let\linenoamsmath@ams@mmeasure\mmeasure@
233 \def\mmeasure@#1{%
234     \global\linenoamsmath@ams@eqpen\z@%
235     \begingroup%
236     \interdisplaylinepenalty=0%
237     \linenoamsmath@ams@mmeasure{#1\\}%
238     \endgroup%
239     \global\linenoamsmath@ams@eqpen\interdisplaylinepenalty%
240 }
241 }%
242 \linenumbers%
243 }
244 \fi

```

Set the `\pagestyle` for the document to `plain` here and define default spacing.

```

245 \AtBeginDocument{
246 \pagestyle{plain}
247 \normalspacing
248 \typeout{Pagestyle and spacing normal}
249 }
250 %

```

Here, define some spacing macros for page layout and doublespacing.

```

251 \newcommand{\normalspacing}{\doublespacing}
252 \newcommand\single@baselinestretch{0.979}
253 \newcommand\double@baselinestretch{1.625}
254 \newlength{\usedtextsize}
255 \setlength{\usedtextsize}{\f@size pt}
256 \newlength{\single@skip}
257 \setlength{\single@skip}{\single@baselinestretch \usedtextsize}
258 \newlength{\double@skip}
259 \setlength{\double@skip}{\double@baselinestretch \usedtextsize}
260 \setlength{\footnotesep}{\double@skip}
261 %

```

Define new lengths for some variables for a proper layout of normal pages, pages with text and figures and pages with only floats. Note that although the geometry package is usually easier, when Megan tried to switch to that she discovered that something ends up overwriting it and, although the the showframe option showed that the margins were setting correctly, the text didn't look like they were. So these length values are set to what geometry said they should be to get a 1.5 in left margin and 1 in margins on all other sides (we'll use vspace commands later to get the 2 in top margin on pages where that's needed). Note that `\evensidemargin` is only used if the `twoside` class option is enabled.

```

262 \setlength{\hoffset}{0pt}
263 \setlength{\voffset}{0pt}
264 \setlength{\topmargin}{-32pt}
265 \setlength{\headsep}{20pt}
266 \setlength{\marginparwidth}{47pt}
267 \setlength{\marginparsep}{7pt}
268 \setlength{\textheight}{648pt}
269 \setlength{\textwidth}{432pt}
270 \setlength{\oddsidemargin}{36pt}
271 \setlength{\evensidemargin}{1.755pt}
272 \setlength{\footskip}{30pt}
273 %
274 \setlength{\floatsep}{30pt}
275 \setlength{\intextsep}{50pt}
276 %

277 \let\@origdoublepage\cleardoublepage
278 \newcommand{\clearempydoublepage}{\newpage{\pagestyle{empty}}%
279   \@origdoublepage}}
280 \iftwo@side\let\cleardoublepage\clearempydoublepage\else\relax\fi
281 %

```

`\nddiss` Define the macro `\nddiss` that is the logo used in the titlepage and the stamp in the dissertation document.

```

282 \DeclareRobustCommand{\nddiss}{%
283   \textsf{\scshape nd}diss}\kern-0.03em%
284   2$_\textsf{\textstyle\varepsilon}$}
285 %

```

`\work` Here define new macros for use in the dissertation title page.

```

\degaward 286 \renewcommand{\title}[1]{\def\@title{#1}}
\advisor 287 \newcommand{\work}[1]{\def\@work{#1}}
\secondadvisor 288 \newcommand{\degaward}[1]{\def\@degaward{#1}}
\program 289 \newcommand{\advisor}[1]{\def\@advisor{#1}}
\degdate 290 \ifadvisors@two
291   \newcommand{\secondadvisor}[1]{\def\@secondadvisor{#1}}
292 \fi
293 \newcommand{\department}[1]{\ClassWarning{nddiss2e}%
294   {The \protect\department\space macro is deprecated. Use \protect\program\space instead.}}%
295   \def\@program{#1}}
296 \newcommand{\program}[1]{\def\@program{#1}}

```

```

297 \newcommand{\degdate}[1]{\def\@degdate{#1}}
298 \degdate{\ifcase\month\or
299     January\or February\or March\or April\or May\or June\or
300     July\or August\or September\or October\or November\or December\fi
301     \space\number\year}
302 %

```

As a default, these macros have an empty argument. Only the `\degdate` macro takes on the current month-year combination in the absence of any assignment.

```

303 % Defaults are empty except the \degdate
304 \title{}
305 \author{}
306 \work{}
307 \degaward{}
308 \advisor{}
309 \ifadvisors@two \secondadvisor{} \fi
310 \program{}
311 %

```

`\@infopage` Define `\@infopage` macro that will create a page which contains important information about the document and the version of `NDdiss2ε` used etc. for the end-user and the proofreader along with a standard disclaimer and details of where to find documentation for the `NDdiss2ε` class file. This information can be suppressed by specifying the “`noinfo`” option while invoking the `NDdiss2ε` class.

```

312 \DeclareRobustCommand{\@infopage}{
313     \thispagestyle{empty}
314     \null\vspace*{\single@skip}
315     \begin{center}
316         This \@work\space \\\ entitled \\\ \MakeTextUppercase{\@title} \\\
317         typeset with \nddiss\ v%
318         \dissfileversion\ (\dissfiledate) %
319         on \today\space for\\
320         \@author\\
321     \end{center}
322
323     \normalfont\normalsize\singlespacing
324
325     \noindent This \LaTeXe\space classfile conforms to the
326     University of Notre Dame style guidelines as of Fall
327     2012. However it is still possible to generate a
328     non-conformant document if the instructions in the class
329     file documentation are not followed!
330
331     \begin{center}
332     \begin{minipage}{0.75\textwidth}
333         \noindent Be sure to refer to the published Graduate
334         School guidelines at \url{http://graduateschool.nd.edu}
335         as well. Those guidelines override everything mentioned
336         about formatting in the documentation for
337         this \nddiss\space class file.

```

```

338 \end{minipage}
339 \end{center}
340
341 \noindent\itshape This page can be disabled by
342 specifying the ‘‘{\upshape\ttfamily noinfo}’’ option to the class invocation.
343 \upshape
344 (i.e.,{\ttfamily{\textbackslash}documentclass[\ldots,noinfo]{\nddiss2e}}
345 )
346 \begin{center}
347 {\bfseries\large\singlespacing This page is \slshape NOT
348 \upshape part of the dissertation/thesis. It should be disabled before
349 making final, formal submission, but should be included in the version
350 submitted for format check.}
351 \end{center}
352 \normalsize\normalfont
353 \nddiss\ documentation can be found at these locations:
354 \begin{center}
355 \url{http://graduateschool.nd.edu} \\
356 \url{https://ctan.org/pkg/nddiss}
357 \end{center}
358
359 \vfill
360 \normalfont\normalsize\normalspacing\eject}
361 %

```

**\maketitle** Redefine the macro \maketitle to set PDF metadata and produce the information page as well as the actual title page of the dissertation.

```

362 \renewcommand{\maketitle}{
363 \hypersetup{
364 pdftitle={\@title},
365 pdfauthor={\@author},
366 pdfsubject={\@program}
367 }
368 \ifinfo@page\@infopage\else\relax\fi%
369 \clearempydoublepage
370 \normalfont\normalsize\normalspacing

```

**titlepage** The structuring begins with checking the proper macros for obtaining correct formatting for the title page. If any of those are not defined, an error is issued and processing stopped. Most of the code for this was taken from the earlier `ndthesis` class and hence, the documentation is also picked from there.

```

371 \begin{titlepage}%
372 \ifthenelse{\equal{\@work}{}}{\ClassError{nddiss2e}%
373 {The \protect\work\space macro is undefined.\MessageBreak
374 The title page may be incorrectly formatted.}%
375 {Specify \protect\work\space as Dissertation or Thesis}}{\relax}
376 \ifthenelse{\equal{\@degaward}{}}{\ClassError{nddiss2e}%
377 {The \protect\degaward\space macro is undefined.\MessageBreak
378 The title page may be incorrectly formatted.}%
379 {Specify \protect\degaward\space. It defines the awarded degree%

```



```

380         (Ph.D., M.S., etc.)}}{\relax}
381 \ifthenelse{\equal{\@advisor}{}}{\ClassError{nddiss2e}}%
382 {The \protect\advisor\space macro is undefined.\MessageBreak
383     The title page may be incorrectly formatted.}%
384 {Specify \protect\advisor\space It is who signs your walking papers!}}{\relax}
385 \ifthenelse{\equal{\@program}{}}{\ClassError{nddiss2e}}%
386 {The \protect\program\space macro is undefined.\MessageBreak
387     The title page may be incorrectly formatted.}%
388 {Specify which \protect\program\space is awarding your degree?}}{\relax}
389 \ifadvisors@two
390 \ifthenelse{\equal{\@secondadvisor}{}}{\ClassError{nddiss2e}}%
391 {The \protect\secondadvisor\space macro is undefined.\MessageBreak
392     The title page may be incorrectly formatted.}%
393 {Use \protect\secondadvisor\space for your second advisor}}{\relax}
394 \fi
395 %

```

Now set up some skip registers to hold the inter-data spacing. The initial values will create a two-inch top margin for the title page, provided the title is only one line long. `\skip1` is the primary internal spacing command; `\skip2` is the spacing between the student's name and the line for the first adviser to sign if there are two advisers and `\skip3` is the spacing between the student's name and the line for the adviser to sign if there is only one adviser; `\skip4` controls the top margin. We'll account for titles longer than one line in a bit ...

```

396 \skip1=2.1\double@skip
397 \skip2=1.7\double@skip
398 \skip3=2.7\double@skip
399 \skip4=36pt
400 %

```

If the author has two advisers, we need to do a little tweaking to the internal spacing.

```

401 \ifadvisors@two
402     \skip1=1.6\double@skip
403 \else\relax
404 \fi

```

The 2012 formatting guidelines require the title to be 2" from the top of page. If it's more than one line long, we need to adjust the internal spacing:

```

405 \setbox0=\vbox{\MakeTextUppercase{\@title}}
406 \ifdim \ht0 > 3\double@skip
407     \advance \skip1 -.75\double@skip
408 \else
409     \ifdim \ht0 > 2\double@skip
410         \advance\skip1 -.5\double@skip
411     \else
412         \ifdim \ht0 > \double@skip
413             \advance\skip1 -.25\double@skip
414         \fi
415     \fi
416 \fi

```

Our default assumes a one-line degree field such as

## Doctor of Philosophy

but we check to see if it is two or three lines long. If so, we need to remove those extra lines from the internal spacing.

```

417 \setbox1=\vbox{\@degaward}
418 \ifdim \ht1 > 2\double@skip
419   \advance\skip1 -.5\double@skip
420 \else
421   \ifdim \ht1 > \double@skip
422     \advance \skip1 -.25\double@skip
423   \else
424     \relax
425   \fi
426 \fi

```

If we have two advisers, a three or four line title, and a three line degree field or two advisers, a four line title, and a two line degree field, then we need to remove some spacing between the name and the first adviser and from the top margin, and give that space to the internal spacing.

```

427 \ifadvisors@two
428   \ifdim \ht0 > 3\double@skip
429     \ifdim \ht1 > \double@skip
430       \advance \skip4 -.675\double@skip
431       \advance \skip2 -.4\double@skip
432       \advance \skip1 .25\double@skip
433     \else \relax
434     \fi
435   \else
436     \ifdim \ht0 > 2\double@skip
437       \ifdim \ht1 > 2\double@skip
438         \advance \skip2 -.4\double@skip
439         \advance \skip1 .1\double@skip
440       \else \relax
441       \fi
442     \else \relax
443     \fi
444   \fi
445 \else \relax
446 \fi

```

Finally we start putting the text in place ...centered, of course.

```

447 \null\vspace*{\skip4}
448 \begin{center}%
449   \MakeTextUppercase{\@title} \par%
450   \vskip\skip1%
451 %

```

Now skip the required vertical space, declare that this is for the University of Notre Dame, and list what degree has been earned.

```

452   A \@work \par%
453   \vskip\skip1%

```

```

454 Submitted to the Graduate School \\
455 of the University of Notre Dame \\
456 in Partial Fulfillment of the Requirements \\
457 for the Degree of \par
458 \vskip\skip1%
459 \@degaward%
460 \vskip\skip1%
461 by \\%
462 %

```

Now format the author's name.

```

463 \@author
464 %

```

Now skip the proper space and place the signature line for the advisor with his/her name typeset below it. This is accomplished by essentially centering a box that is twice as long as the required length of the signature line and placing the line in only the right-hand side.

```

465 \ifadvisors@two
466 \vskip\skip2
467 \hspace*{2.75in}\underline{\hspace{2.75in}}\\%
468 \hspace*{2.75in}\@advisor, Co-Director\\
469 \else
470 \vskip\skip3
471 \hspace*{2.75in}\underline{\hspace{2.75in}}\\%
472 \hspace*{2.75in}\@advisor, Director\\
473 \fi%
474 %

```

If there is a second advisor, place that line here now.

```

475 \ifadvisors@two %
476 \vskip\double@skip%
477 \hspace*{2.75in}\underline{\hspace{2.75in}}\\%
478 \hspace*{2.75in}\@secondadvisor, Co-Director\\
479 \fi
480 %

```

We end with the department and date; the internal spacing is chosen so that these are at the page bottom.

```

481 \vskip\skip1%
482 Graduate Program in \@program \\%
483 Notre Dame, Indiana \\
484 \@degdate
485 \end{center}
486 \end{titlepage}%
487 }
488 %

```

**copyrightpage** The environment **copyrightpage** defines the defaults for proper formatting the copyright page (if opted).

```

489 \newenvironment{copyrightpage}{%
490 \clearpage

```

```

491 \typeout{Copyright page}
492 \pagestyle{empty}
493 \null\vfil
494 \begin{center}\normalspacing}%
495 { \end{center}\vfil\null \clearpage }
496 %

```

`\copyrightholder` Define a few macros for defining the copyright holder and the year desired. By default, they are taken as the current year and the author of the dissertation.

```

497 \newcommand{\@copyrightyear}{\the\year}
498 \newcommand{\@copyrightholder}{\@author}
499 \newcommand{\@copyrightlicense}{All Rights Reserved}
500 \newcommand{\copyrightyear}[1]{\renewcommand{\@copyrightyear}{#1}}
501 \newcommand{\copyrightholder}[1]{\renewcommand{\@copyrightholder}{#1}}
502 \newcommand{\copyrightlicense}[1]{\renewcommand{\@copyrightlicense}{#1}}
503 %

```

`\makecopyright` Finally, the `\makecopyright` macro creates the copyright page as per defined in the `copyrightpage` environment.

```

504 \newcommand{\makecopyright}{%
505 \ifdiss@final
506 \begin{copyrightpage}
507 \normalfont\normalsize
508 \copyright\space Copyright by \\\
509 \@copyrightholder \\\
510 \@copyrightyear\\
511 \@copyrightlicense \\\[10mm]
512 \end{copyrightpage}
513 \fi
514 }%
515 %

```

`\makepublicdomain` Or, if chosen, `\makepublicdomain` macro creates a copyright page (using earlier `copyrightpage` environment) that puts the document in public domain.

```

516 \newcommand{\makepublicdomain}{%
517 \ifdiss@final
518 \begin{copyrightpage}
519 This document is in the public domain.
520 \end{copyrightpage}
521 \fi
522 }%
523 %

```

Define some new name macros and redefine other name macros as below. These are the names of the respective sections in your dissertation document. If there's a need to change any name, you must use a similar command in the preamble of your document.

```

524 \providecommand{\abstractname}{Abstract}
525 \providecommand{\dedicationname}{\mbox{}}
526 \providecommand{\prefacename}{Preface}
527 \providecommand{\acknowledgename}{Acknowledgments}

```

```

528 \providecommand{\symbolsname}{Symbols}
529 \renewcommand{\tablename}{Table}
530 \renewcommand{\figurename}{Figure}
531 \renewcommand{\partname}{Part}
532 \renewcommand{\chaptername}{Chapter}
533 \renewcommand{\appendixname}{Appendix}
534 \renewcommand{\contentsname}{Contents}
535 \renewcommand{\listfigurename}{Figures}
536 \renewcommand{\listtablename}{Tables}
537 \renewcommand{\bibname}{Bibliography}
538 \renewcommand{\indexname}{Index}
539 %

```

**abstract** This environment is adapted from the `report` class since the `book` class does not have one. Additionally, we add a `\pdfbookmark` for the abstract in the pdf document.

```

540 \newenvironment{abstract}{%
541   \ifboolexpr{bool{pdf} or bool{xetex} or bool{luatex}}{%
542     \pdfbookmark[0]{\abstractname}{abstract}%abstract.0
543   }{}
544   \typeout{Abstract page(s)}
545   \renewcommand{\@oddfoot}{\@empty}
546   \renewcommand{\@evenfoot}{\@empty}

```

If the abstract extends to a second page, place the author's name in top right corner of that page. Make sure it's upright, as required by the University and that this appears at 0.75" from the top.

```

547   \iftwo@side
548     \let\@oddhead\@evenhead
549     \renewcommand{\@evenhead}{\hfil\upshape\@author}}
550   \else
551     \let\@evenhead\@oddhead
552     \renewcommand{\@oddhead}{\hfil\upshape\@author}}
553   \fi
554   \titlepage
555   \null
556   \begin{center}
557     \vspace*{36pt}
558     {\normalsize\mdseries \normalspacing
559       \MakeTextUppercase{\@title} \@[3.5ex]
560       \normalsize\abstractname \[ by \[ \@author\space}%
561     \@endparpenalty \@M
562     \end{center}\par}%
563 {\par\vfil\null\endtitlepage}
564 %

```

**dedication** The dedication environment is similar to the `abstract` environment. This page is numbered 2 (numbered 3 if `twoside` is in use) and the subsequent pages are numbered accordingly. A `pdfbookmark` is not created because of a reported issue that Adobe products have with `pdfbookmarks` containing an `\mbox`.

```

565 \newenvironment{dedication}{%

```

```

566 \global\dis@deds@dedicationtrue
567 \typeout{Dedication page}
568 \chapter*{\dedicationname}%
569 \thispagestyle{plain}
570 \iftwo@side%
571   \setcounter{page}{3}%
572 \else%
573   \setcounter{page}{2}%
574 \fi
575 \null\centering}
576 {\par\null\clearpage}%
577 %

```

**\tableofcontents** The **\tableofcontents** macro is redefined to begin at page 2 (page 3 if **twoside** is in use) if the dedication environment does not exist. It is single-spaced.

```

578 \renewcommand\tableofcontents{%
579   \ifdis@deds@dedication%
580     \relax%
581   \else%
582     \iftwo@side%
583       \setcounter{page}{3}%
584     \else%
585       \setcounter{page}{2}%
586     \fi
587   \fi
588   \chapter*{\contentsname}%
589   \ifboolexpr{bool{pdf} or bool{xetex} or bool{luatex}}{%
590     \pdfbookmark[0]{\contentsname}{contents}%contents.0
591   }{}
592   \singlespacing
593   \@starttoc{toc}%
594   \normalspacing
595 }
596 %

```

**\listoffigures** These macros are modified to add the **\listfigurename** and **\listoftables** to the Table of Contents. Both of these are also single spaced. The inter-entry spacing is changed by adding a **\vskip** after each entry. This is done in the **figure** and **table** environments later.

```

597 \renewcommand\listoffigures{%
598   \chapter*{\listfigurename}%
599   \addcontentsline{toc}{chapter}{\listfigurename}%
600   \typeout{List of figures - \listfigurename}
601   \singlespacing
602   \@starttoc{lof}%
603   \normalspacing
604 }
605 %
606 \renewcommand\listoftables{%
607   \chapter*{\listtablename}%

```

```

608     \addcontentsline{toc}{chapter}{\listtablename}%
609     \typeout{List of tables - \listtablename}
610     \singlespacing
611     \@starttoc{lot}%
612     \normalspacing
613 }
614 %

preface    These environments are similar to the dedication environment. They are defined as
acknowledgement \chapter*{} so they are not numbered and not added to Table of Contents and so, add
              that manually by using \addcontentsline.

615 \newenvironment{preface}{%
616   \typeout{Preface page}
617   \chapter*{\prefacename}
618   \addcontentsline{toc}{chapter}{\prefacename}%
619 }%
620 {\par\null\clearpage}%
621 %
622 \newenvironment{acknowledge}{%
623   \typeout{Acknowledgment page}
624   \chapter*{\acknowledgename}
625   \addcontentsline{toc}{chapter}{\acknowledgename}%
626 }%
627 {\par\null\clearpage}%
628 %

\unnumchapter Allows the user to create unnumbered chapters that appear in the TOC.

629 \newcommand\unnumchapter[1]{%
630   \chapter*{#1}%
631   \addcontentsline{toc}{chapter}{#1}}

symbols    Define symbols environment which lays out it as a \chapter* and adds \symbolsname
\symbols   to the TOC. The environment is actually a horizontally centered longtable environment.
           To aid entry of a symbol and its definition, \sym macro command is also defined.

632 \newcommand{\sym}[2]{\ensuremath{#1} & #2 \\\}
633 \newenvironment{symbols}[1][r1]{%
634   \typeout{Symbols page}
635   \chapter*{\symbolsname}%
636   \addcontentsline{toc}{chapter}{\symbolsname}%
637   \begin{center}\begin{longtable}{#1}%
638 {\end{longtable}\end{center}\par\null}
639 %

Modify chapter definition in \@chapter to put the word “Chapter” (\@chapapp) in the
Table of Contents. That is, now the TOC will contain “Chapter 1: First chapter” rather
than “1. First chapter.” The rest of the format code is essentially the same as that in
the book class.

640 \def\@chapter[#1]#2{
641   \ifnum \c@secnumdepth >\m@ne
642   \if@mainmatter

```

```

643 \refstepcounter{chapter}%
644 \typeout{\MakeTextUppercase{\@chapapp\space\thechapter.}}%
645 \addcontentsline{toc}{chapter}%
646   {\@chapapp\ \thechapter: #1}%
647 \else
648   \addcontentsline{toc}{chapter}{#1}%
649 \fi
650 \else
651   \addcontentsline{toc}{chapter}{#1}%
652 \fi
653 \chaptermark{#1}%
654 \addtocontents{lof}{\protect\addvspace{10\p@}}%
655 \addtocontents{lot}{\protect\addvspace{10\p@}}%
656 \@makechapterhead{\MakeTextUppercase{#2}}%
657 \@afterheading }%
658 %

```

Modify part definition in \@part and \@spart to keep the font size for part headings \normalsize and \mdseries. It is otherwise the same as in the book class.

```

659 \def\@part[#1]#2{%
660   \ifnum \c@secnumdepth >-2\relax
661     \refstepcounter{part}%
662     \addcontentsline{toc}{part}{\partname\ \thepart:\hspace{1em}#1}%
663   \else
664     \addcontentsline{toc}{part}{#1}%
665   \fi
666   \markboth{}{}%
667   {\centering
668     \interlinepenalty \@M
669     \normalfont
670     \ifnum \c@secnumdepth >-2\relax
671       \normalsize\mdseries \MakeTextUppercase{\partname}\nobreakspace\thepart
672       \par
673       \vskip 20\p@
674     \fi
675     \normalsize\mdseries \MakeTextUppercase{#2}\par}%
676   \@endpart}
677 \def\@spart#1{%
678   {\centering
679     \interlinepenalty \@M
680     \normalfont
681     \normalsize\mdseries #1\par}%
682   \@endpart}
683 %

```

Now format section headings to conform to the official guidelines.

**\@makechapterhead** First, modify the chapter heading label to be normalsize'd and centered. Instead of the bold-faced heading label, also make it \mdseries. If we are in the \mainmatter, we add “CHAPTER” and chapter number before actually putting the chapter name otherwise only the “chapter name” is put. Note that chapter/section headings must all



be double-spaced.

```

684 \renewcommand{\@makechapterhead}[1]{%
685   \vspace*{30pt}%
686   {\parindent \z@ \raggedright
687     \ifnum \c@secnumdepth >\m@ne
688       \normalfont\normalsize%
689       \if@mainmatter
690         \ifcentered@chaptitle\center\else\relax\fi%
691         \MakeTextUppercase{\@chapapp{} \thechapter}\par\nobreak
692       \fi
693     \fi
694     \interlinepenalty\@M
695     \ifcentered@chaptitle\center\else\relax\fi%
696     \mdseries{#1}\par\nobreak
697     \vskip 30\p@
698   }}
699 %

```

`\@makeschapterhead` Make the TOC, LOF, LOT and other `\chapter*` headings in normal size, and `\mdseries` by modifying the macro `\@makeschapterhead`. Although these heading labels usually fit in a single-line, we copy the formatting for the chapter heading label (single-spacing) and make the spacing double again for the text.

```

700 \renewcommand{\@makeschapterhead}[1]{%
701   \vspace*{30pt}%
702   {\parindent \z@ \raggedright
703     \normalfont\normalsize%
704     \interlinepenalty\@M
705     \ifcentered@chaptitle\center\else\relax\fi
706     \mdseries{\MakeTextUppercase{#1}}\par\nobreak
707     \vskip 30\p@
708   }}
709 %

```

Now, set the section labels to `\mdseries` rather than bold-faced. We also make sure that these are set in normal spacing, font and size. This is done for each of `\section`, `\subsection`, `\subsubsection`, `\subsubsubsection`, `\paragraph` and `\subparagraph`.

```

710 \renewcommand\section{\suppressfloats[t]%
711   \@startsection {section}{1}{\z@}%
712   {-4.2ex \@plus -1ex \@minus -.2ex}%
713   {1.8ex \@plus .2ex}%
714   {\normalfont\normalsize\mdseries} }
715 \renewcommand\subsection{\suppressfloats[t]%
716   \@startsection{subsection}{2}{\z@}%
717   {-3.9ex \@plus -1ex \@minus -.2ex}%
718   {1.2ex \@plus .2ex}%
719   {\normalfont\normalsize\mdseries} }
720 \renewcommand\subsubsection{\suppressfloats[t]%
721   \@startsection{subsubsection}{3}{\z@}%
722   {-3.9ex \@plus -1ex \@minus -.2ex}%
723   {1.2ex \@plus .2ex}%

```

```

724     {\normalfont\normalsize\mdseries} }
725 \renewcommand\paragraph{%
726     \@startsection{paragraph}{4}{\z@}%
727     {3.9ex \@plus1ex \@minus.2ex}%
728     {-1em}%
729     {\normalfont\normalsize\mdseries} }
730 \renewcommand\subparagraph{%
731     \@startsection{subparagraph}{5}{\parindent}%
732     {3.9ex \@plus1ex \@minus.2ex}%
733     {-1em}%
734     {\normalfont\normalsize\mdseries} }
735 %

```

**\l@part** Modify the macro `\l@part` that formats part titles in the contents-like files (`.toc`, `.lof` and `.lot`) by adding a `\@dottedtocline` macro. The indent width is set to 1.5em - to line up a continued line with the section number below it. We also leave less space between each part and the last section entry than the default and don't change the font.

```

736 \renewcommand*\l@part[2]{%
737     \ifnum \c@tocdepth >-2\relax
738         \addpenalty{-\@highpenalty}%
739         \setlength\@tempdima{1.5em}%
740         \begingroup
741             {\leavevmode
742                 \@dottedtocline{1}{0pt}{\@tempdima}{#1}{#2}
743             }\par
744             \nobreak
745             \global\@nobreaktrue
746             \everypar{\global\@nobreakfalse\everypar{}}%
747         \endgroup
748     \fi}
749 %

```

**\l@chapter** Modify the macro `\l@chapter` that formats chapter titles in the contents-like files (`.toc`, `.lof` and `.lot`) by adding a `\@dottedtocline` macro. The indent width is set to 1.5em - to line up a continued line with the section number below it. We also leave less space between each chapter and the last section entry than the default.

```

750 \renewcommand*\l@chapter[2]{%
751     \addpenalty{-\@highpenalty}%
752     \setlength\@tempdima{1.5em}%
753     \begingroup \leavevmode
754     \@dottedtocline{1}{0pt}{\@tempdima}{#1}{#2}
755     \par
756     \penalty\@highpenalty
757     \endgroup
758 }
759 %

```

**\thesubsubsection** We increase the number of section-depth by 1 and force subsubsection entry in the TOC by increasing the `\tocdepth`. In addition, the label number of `\subsubsection` is defined to be similar to that for `\subsection` i.e. all arabic numerals.

```

760 \addtocounter{secnumdepth}{1}
761 \addtocounter{tocdepth}{1}
762 \renewcommand{\thesubsubsection}{%
763   \thesubsection.\arabic{subsubsection}}
764 %

```

**quote** Redefine the `quote` environment to be single-spaced instead of being same as the rest of the text.

```

765 \renewenvironment{quote}
766     {\list{}{\rightmargin\leftmargin}%
767      \singlespacing
768      \item\relax}
769     {\endlist}
770 %

```

Have singlespaced items in lists.

```

771 \AtBeginEnvironment{itemize}{\par\singlespacing}
772 \AtBeginEnvironment{enumerate}{\par\singlespacing}
773 \AtBeginEnvironment{description}{\par\singlespacing}
774 \AtBeginEnvironment{tablenotes}{\footnotesize}
775 \xpatchcmd{\TPTdoTablenotes}{\itemsep\z@}{\itemsep10pt}{}{}
776 \xpatchcmd{\TPTdoTablenotes}{\itemindent\z@}{\itemindent18pt}{}{}

```

Set some lengths that are used in the `table` and the `figure` environments. Note that we set the caption width (`\capwidth`) to be 90% of the `\textwidth`.

```

777 \setlength\abovecaptionskip{20\p@}
778 \newlength\capwidth
779 \setlength{\capwidth}{0.90\textwidth}
780 \newlength\abovetableskip
781 \newlength\belowtablesip
782 \newlength\abovefigureskip
783 \newlength\belowfigureskip
784 \setlength\abovetableskip\belowcaptionskip
785 \setlength\belowtablesip\abovecaptionskip
786 \setlength\abovefigureskip\abovecaptionskip
787 \setlength\belowfigureskip\belowcaptionskip
788 %

```

**figure** For the `figure` environment, first some skip lengths are set, then use `\@makefigurecaption` to format the captions instead of the default `\@makecaption`, since the layout is different for `figure` and the `table` environment. Further add a `\vskip` to each entry in `.lof` file so that the inter-caption spacing seems double-spaced.

```

789 \renewenvironment{figure}{%
790   \setlength{\abovecaptionskip}{\abovefigureskip}
791   \setlength{\belowcaptionskip}{\belowfigureskip}
792   \let\@makecaption\@makefigurecaption
793   \@float{figure}}%
794   {%
795   \addtocontents{lof}{\vskip 0.4em} }%
796   \end@float%

```

```

797 }
798 %

```

`\@makefigurecaption` The `\@makefigurecaption` is defined to format the caption in a parbox with width equal to `\capwidth` and is formatted in single-spacing. The interline-spacing is then changed to double after the caption.

```

799 \long\def\@makefigurecaption#1#2{%
800   \vskip\abovecaptionskip
801   \begin{center}
802     \parbox{\capwidth}{
803       \centering\singlespacing
804       {#1}. {#2}%\par
805     \vskip\belowcaptionskip\normalspacing }%
806   \end{center}
807 }%
808 %

```

`table` After setting the above and below skip lengths, the `table` environment is set to be single spaced. However, to obtain double-spacing between the entries, redefine the `\arraystretch` to be equivalent to the `\double@baselinestretch`. This way, while there are double-spaced entries, the entry itself is single-spaced. Similar to that in `\@makefigurecaption`, a `\vskip` is added to each entry in the `.lot` file.

```

809 \renewenvironment{table}[1][tbp]{%
810   \setlength{\abovecaptionskip}{\abovetableskip}
811   \setlength{\belowcaptionskip}{\belowtableskip}
812   \renewcommand{\arraystretch}{\double@baselinestretch}
813   \let\scaption\caption%
814   \renewcommand*{\caption}[2][ ]{%
815     \ifthenelse{\equal{##1}{}}{%
816       \def\shortcaption{##2}%
817     }{%
818       \def\shortcaption{##1}%
819     }%
820     \scaption[\shortcaption]{\MakeTextUppercase{##2}}%
821   }%
822   \let\@makecaption\@maketablecaption
823   \@float{table}[#1]%
824   \singlespacing%
825   }%
826   {%
827     \addtocontents{lot}{ { \vskip 0.4em} }%
828     \end@float%
829   }
830 %

```

`\@maketablecaption` The `\@maketablecaption` is defined similarly to `\@makefigurecaption` to have the table label and caption in separate lines and with normal-spacing (double-spaced).

```

831 \long\def\@maketablecaption#1#2{
832   \vskip\abovecaptionskip
833   \begin{center}

```

```

834 \makebox[\linewidth]{
835   \parbox{\capwidth}{
836     \centering\normalspacing
837     \MakeTextUppercase{#1}\[\single@skip]
838     {#2}%\par
839     \vskip\belowcaptionskip }%
840   }%
841 \end{center}
842 }
843 %

```

**\longtable** Similar to the `table` environment, the `longtable` environment is made singly-spaced but the `\arraystretch` is made equal to double the `baselinestretch`.

```

844 \renewcommand\longtable{%
845   \singlespacing
846   \renewcommand{\arraystretch}{\double@baselinestretch}
847   \begingroup
848   \let\firstcaptiontrue
849   \@ifnextchar[\LT@array{\LT@array[x]}}
850 %

```

**\endlongtable** This bit is taken from `longtable.sty`. In order to obtain double-spacing in the list of tables, a `\vskip` of 0.4em is added to `.lot` file.

```

851 \renewcommand\endlongtable{%
852   \crrc
853   \noalign{%
854     \let\LT@entry\LT@entry@chop
855     \xdef\LT@save@row{\LT@save@row}}%
856   \LT@echunk
857   \LT@start
858   \unvbox\z@
859   \LT@get@widths
860   \if@filesw
861     {\let\LT@entry\LT@entry@write\immediate\write\@auxout{%
862       \gdef\expandafter\noexpand
863       \csname LT@\romannumeral\c@LT@tables\endcsname
864       {\LT@save@row}}}%
865   \fi
866   \ifx\LT@save@row\LT@@@save@row
867   \else
868     \LT@warn{Column \@width s have changed\MessageBreak
869       in table \thetable}%
870     \LT@final@warn
871   \fi
872   \endgraf\penalty -\LT@end@pen
873   \addtocontents{lot}{\{\vskip 0.4em\} }%
874   \endgroup
875   \global\@mparbottom\z@
876   \pagegoal\vsize
877   \endgraf\penalty\z@\addvspace\LTpost

```

```

878 \ifvoid\footins\else\insert\footins{}\fi
879 }
880 %

\LT@makecaption For the longtable environment, the \LTcapwidth is set equal to \capwidth. In order to
obtain consistent table captions, the command \LT@makecaption is modified in a similar
manner as \maketablecaption.
881 \setlength{\LTcapwidth}{\capwidth}
882 \renewcommand\LT@makecaption[3]{%
883 \LT@mcol\LT@cols c{\hbox to\z@{\hss\parbox[t]{\LTcapwidth{%
884 \vskip\abovetableskip%
885 \centering\normalspacing
886 \if@ltfirstcaption
887 #1{\MakeTextUppercase{#2} }\\[\single@skip]
888 \MakeTextUppercase{#3}\par
889 \else%
890 #1{\MakeTextUppercase{#2 (continued)}} \par
891 \fi
892 \global\@ltfirstcaptionfalse
893 \endgraf\vskip\belowtableskip}%
894 \hss}}}
895 %

\timenow This macro is used in making the \drafthead and \reviewheader below. It outputs
time in HH:MM format.
896 \newcommand\timenow{%
897 \@tempcnta=\time \divide\@tempcnta by 60 \number\@tempcnta:\multiply
898 \@tempcnta by 60 \@tempcntb=\time \advance\@tempcntb by -\@tempcnta
899 \ifnum\@tempcntb <10 0\number\@tempcntb\else\number\@tempcntb\fi}
900 %

\diss@header This header is used in the dissertation document when the draft or review option is
used. These headers serve as a note for the date and time of the document compilation.
901 \newcommand{\diss@header}{%
902 \ifdiss@review Review \else Draft \fi document [\today\ at \timenow\]}
903 }%
904 %

The header prepared above is put in the document by modifying the plain and empty
pagetypes except when the final option is chosen.
905 \ifdiss@final
906 \renewcommand{\ps@plain}{
907 \renewcommand{\@oddhead}{\@empty}
908 \renewcommand{\@oddfoot}{\hfil\thepage\hfil}
909 \let\@evenhead\@oddhead
910 \let\@evenfoot\@oddfoot
911 }%
912 \else
913 \renewcommand{\ps@plain}{
914 \renewcommand{\@oddhead}{\framebox[\textwidth]{

```

```

915         \centering\footnotesize\tt\diss@header}}%
916     \renewcommand{\@oddfoot}{\hfil\textrm{\thepage}\hfil}
917     \let\@evenhead\@oddhead
918     \let\@evenfoot\@oddfoot
919 }%
920 \renewcommand{\ps@empty}{
921     \renewcommand{\@oddhead}{\framebox[\textwidth]{
922         \centering\footnotesize\tt\diss@header}}%
923     \renewcommand{\@oddfoot}{\@empty}
924     \let\@evenhead\@oddhead
925     \let\@evenfoot\@oddfoot
926 }%
927 \fi
928 %

```

**\bibsection** By redefining **\bibsection** macro, add the **\bibname** to the table of contents and as a chapter heading for the bibliography.

```

929 \ifnatbib@refs
930     \renewcommand{\bibsection}{
931         \chapter*{\bibname}%
932         \addcontentsline{toc}{chapter}{\bibname}%
933     }%
934 \fi
935 %

```

**\bibfont** Changed the **\bibfont** macro to obtain single-spacing within each bibliographic entry. Between different entries, it is still **\normalspacing**. In addition, when the **numrefs** option is selected, the **\@biblabel** is redefined to number the bibliographic entries as 1. xxxx instead of the default [1] xxxx.

```

936 \ifnatbib@refs
937     \renewcommand{\bibfont}{\singlespacing}
938     \ifnum@refs
939         \renewcommand{\@biblabel}[1]{\hfill#1.\hfill}
940     \fi
941 \fi
942 %

```

Lastly, after the bibliography in the final document, add a framed box which contains a blurb about the typesetting program and **NDdiss2<sub>ε</sub>** version used for preparing the dissertation document.

```

943 \ifclass@info
944 \ifdiss@final
945 \AtEndDocument{
946     \vfill
947     \centering\singlespacing
948     \framebox[0.85\textwidth]{
949         \begin{minipage}{0.80\textwidth}\footnotesize%
950             \centering \itshape This document was prepared \& typeset with
951             \upshape
952             \ifluatex

```

```

953     \LuaLaTeX
954     \else\ifxetex
955         \XeLaTeX
956     \else\ifpdf
957         pdf\LaTeX
958     \else
959         \LaTeXe
960     \fi\fi\fi
961     \itshape , and
962     formatted with \upshape\nddiss\xspace\itshape classfile
963     (v\disssfileversion [\disssfiledate])
964     \end{minipage} }
965     \clearpage}
966 \else\relax\fi
967 \else\relax\fi
968 %
969 % \endinput
970 % End of file 'nddiss2e.cls'.

```

## Change History

v0.98		addition of support for parts. -	
General: Initial <i>beta</i> version	1	MP	1
v1.0		v3.2013 $\beta$	
Release: First release	1	Release: Initial release of updates	
v1.1		in order to comply with the	
General: Minor changes and		Graduate School's current	
clean-up	1	formatting regulations and to	
v2.0		take advantage of some LaTeX	
General: Some bugfixes, cleaned		package updates. Should be	
some of documentation	1	functional, and has been	
v2.1		approved by the	
General: More bugfixes, changes in		Dissertation/Thesis editors,	
documentation	1	but has not undergone	
v3.0		wide-scale testing. - Megan	
Release: Major revamp and		Patnott	1
clean-up of the code, added		v3.2016	
<b>numrefs</b> and <b>textrefs</b> to allow		Release: Fix natbib/showkeys	
different kinds of citation		ordering bug	1
styles, added some more		v3.2017.1	
macros and modified others,		Release: Display (CONTINUED)	
changed the titlepage a bit,		on multipage long table	
completed source		captions	1
documentation	1	v3.2017.2	
v3.2013		Release: Add LuaLaTeX support.	
Release: Some bug fixes, minor		Allow non-capitalized titles. . . .	1
changes in documentation, and			