The **uiucthesis** class *

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(Adapted from version by David Hull)

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Abstract

Load the **uiucthesis** class for use with LaTeX2e to produce a document that conforms to the format described in *Handbook for Graduate Students Preparing to Deposit*[1].

1   The User Interface

This section describes how to use the **uiucthesis** class to produce a thesis satisfying the format requirements of the Grad College at UIUC. I assume that you are familiar with LaTeX, and highly recommend that anyone attempting to use LaTeX to produce a thesis have access to a copy of the LaTeX book[2].

1.1   Using **uiucthesis**

To write a thesis, you load the UIUC thesis definitions by loading the **uiucthesis** class at the beginning of your LaTeX document with the `\documentclass` command. For example,

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`\documentclass[draftthesis,fullpage]{uiucthesis}`

[draftthesis]
[fancy]
[fullpage]

The **uiucthesis** class provides a number of options. The `[draftthesis]` option causes each page to have a header proclaiming the document to be a draft copy, along with the current time and date. It also omits the preliminary part of the thesis—currently only the copyright page. This is marginally useful for saving paper before you produce the final version of the thesis. The `[fancy]` style option produces slightly fancier chapter headings. The `[fullpage]` style option makes the margins as small as the format requirements allow. Because wide text columns are generally considered harder on the reader this is not the default, but is provided as an option because people seem to want it. The `[fancy]` and `[fullpage]` options are incompatible—choose one or the other.

[proquest]
This option is meant to be used when you are ready to deposit your thesis. For doctorates, the Grad College requires the submission of a specially formatted abstract for the ProQuest publication service. To produce this abstract, include the `[proquest]` option are reprocess your file. Everything in your LaTeX document

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will be ignored except the contents of the abstract environment, which are printed out in the format required. Once the option is removed from the \documentclass command, you can reprocess your thesis as normal (the auxiliary files should be intact). To use this option, the name of your thesis advisor needs to be specified with the \advisor command (see below).

[edeposit] Use this option if you are depositing your thesis electronically. The title page is different and the page numbering is slightly different since the committee approval form is not included with your thesis. If this option is used, you must specify your committee members with the \committee command (see below).

[toclabels] This option includes the "Page" label on the right-hand side of the first page in the Table of Contents, List of Figures, and List of Tables. This is required by some departments (or you may just like the way it looks).

[offcenter] In the last version of uiucthesis, the [fancy] option produced text with asymmetric margins so that enough room for the chapter numbers was available in the left margin. This version by default uses symmetric margins, even with the [fancy] option. If you have a lot of chapters, your chapter numbers may spill into the 1 inch margin required by the Grad College. In this case, the previous behavior can be reproduced with the [offcenter] option, which shifts the margins approximately 1/2 inch to the right.

1.2 The Title Page

The \maketitle command is redefined so that it creates a title page with the correct format for a thesis at UIUC.

\phdthesis Use the \phdthesis or \msthesis to set the correct thesis type. If your
\otherdoctorate thesis isn't for a "Ph.D." or "M.S.", you can specify your degree with either
\msthesis \otherdoctorate{⟨*degree name*⟩}{⟨*abbreviation*⟩} or
\othermasters \othermasters{⟨*degree name*⟩}{⟨*abbreviation*⟩}.
\department For example, specifying \phdthesis is equivalent to giving the command
\college \otherdoctorate{Doctor of Philosophy}{Ph.D.}.
The default thesis type is \phdthesis. Set your department with \department{⟨*department*⟩}. This defines the field your degree will be in, so leave out "Department of." The default department is "Physics". Define your college with \college{⟨*college*⟩}. The default is college is "Graduate College"; you shouldn't need to change it.

\schools Use \schools{⟨*school list*⟩} to list the previous degrees you have received and the schools that you received them from. Separate multiple degrees with \\.

\degreeyear Use \degreeyear{⟨*year*⟩} to define the year in which you will receive your degree. The default is the current year.

\advisor Use \advisor{⟨*advisor name*⟩} or \adviser{⟨*advisor name*⟩} to specify the
\adviser name of your advisor. This is needed to produce the ProQuest abstract (see the [proquest] option above). You only need to submit a ProQuest abstract if you are a doctoral candidate.

\committee Use \committee{⟨*committee members*⟩} to specify the members of your committee and their titles as you want them to appear on the title page. Separate members with \\. This is only needed for electronically deposited theses.

\volume This macro provides nominal support for very long theses that must be broken up into multiple volumes. Use \volume{⟨*number*⟩} to specify the volume number (a single arabic numeral). All this macro does is place the word VOLUME with the number you specify on the title page. You have to take care of what appears

in each volume. The easiest way to do this is to create two separate source files, one for each volume.

Here's how to produce an example similar to that in [1].

```
\begin{document}

\title{Coffee Consumption of Graduate Students \\
        Trying to Finish Dissertations}
\author{Juan Valdez}
\department{Food Science}
\schools{B.A., University of Columbia, 1981\\
            A.M., University of Illinois at Urbana-Champaign, 1986}
\phdthesis
\advisor{Java Jack}
\degreeyear{1994}
\maketitle
```

1.3 Front Matter

\frontmatter
Typically, a thesis might have an Abstract, a Dedication, some Acknowledgments, and a Preface before the Table of Contents. Use the \frontmatter command to start this preliminary section of the thesis. The \frontmatter command sets the page number of the next page to roman numeral iii (or ii if the [edeposit] option is used). (The title page is page i, and the certificate of committee approval, the "red-bordered form," is page ii.)

abstract
The abstract should appear in the abstract environment. Normally, this just produces another chapter with \chapter*{Abstract}, but if the [proquest] option is specified, then the contents of this environment are used for the ProQuest abstract.

dedication
A dedication page can be printed with the dedication environment. This produces a separate page with the dedication centered horizontally and vertically, with the text in italics.

After this front matter comes the Table of Contents, List of Tables, List of Figures, etc. Use the standard LaTeX commands \tableofcontents, \listoftables, \listoffigures, etc., to generate them. In the uiucthesis format these lists are all single spaced.

symbollist
symbollist*
Optionally, these tables can be followed by a List of Abbreviations and/or List of Symbols. Introduce these with the \chapter* command. To aid in making these lists, the symbollist and symbollist* environments are defined in uiucthesis. These environments produce a two-column list as illustrated below. By default the left column is 1 inch wide but can be specified with an optional argument. In the starred environment, the left column is left-justified, otherwise it is centered. See the example below.

Here's an example of what the front matter of a typical thesis looks like. First comes the Abstract and the Dedication, both of which are optional.

```
\frontmatter

% Create an abstract that can also be used for the ProQuest abstract.
% Note that ProQuest truncates their abstracts at 350 words.
\begin{abstract}
This is a comprehensive study of caffeine consumption by graduate
```

```
students at the University of Illinois who are in the very final
stages of completing their doctoral degrees. A study group of six
hundred doctoral students\ldots.
\end{abstract}

% Create a dedication in italics with no heading, centered vertically
% on the page.
\begin{dedication}
To Father and Mother.
\end{dedication}

% Create an Acknowledgements page, many departments require you to
% include funding support in this.
\chapter*{Acknowledgements}

This project would not have been possible without the support of
many people. Many thanks to my adviser, Lawrence T. Strongarm, who
read my numerous revisions and helped make some sense of the
confusion. Also thanks to my committee members, Reginald Bottoms,
Karin Vegas, and Cindy Willy, who offered guidance and support.
Thanks to the University of Illinois Graduate College for awarding
me a Dissertation Completion Fellowship, providing me with the
financial means to complete this project. And finally, thanks to
my husband, parents, and numerous friends who endured this long
process with me, always offering support and love.

% The thesis format requires these lists to come in the following
% order, all major sections after the Table of Contents must be listed
% therein, which is automatically taken care of in uiucthesis:
%
% Table of Contents
% List of Tables
% List of Figures or List of Illustrations
% List of Symbols and/or Abbreviations

\tableofcontents
\listoftables
\listoffigures
```

If you want a List of Symbols or Abbreviations, you can do so as follows:

```
% Create a List of Abbreviations. The left column
% is 1 inch wide and left-justified
\chapter*{List of Abbreviations}

\begin{symbollist*}
\item[CA] Caffeine Addict.
\item[CD] Coffee Drinker.
\end{symbollist*}

% Create a List of Symbols. The left column
% is 0.7 inch wide and centered
\chapter*{List of Symbols}

\begin{symbollist}[0.7in]
```

```
\item[$\tau$] Time taken to drink one cup of coffee.
\item[$\mu$g] Micrograms (of caffeine, generally).
\end{symbollist}
```

1.4   Main Matter

\mainmatter   Begin the main body of your thesis with the `\mainmatter` command. It resets the
page number to arabic numeral 1. You can now use any of the commands defined
by the the book document class to write your thesis.

In the following example, each of the chapters has been broken out into separate
files that are inserted into this main file with the `\include` command. This allows
the thesis to be proofed quickly while it is being revised with the `\includeonly`
command. To provide an example of what the chapter headings look like, one
chapter has been explicitly coded. (Try recompiling the example file with the
`[fancy]` option instead of `[fullpage]` to see the effect.)

```
\mainmatter

\include{1-introduction}
\include{2-related}
\include{3-model}
\include{4-predictions}

\chapter{Conclusions}

We conclude that graduate students like coffee.
```

1.5   Reference Matter

\appendix   To switch from the body of your thesis to the reference material at the end, you
should use the standard LATEX `\appendix` command.

```
\appendix

\include{A-data.tex}
```

1.6   Back Matter

\backmatter   The last few chapters in your thesis should not have chapter numbers, but should
be listed in the Table of Contents. These chapters include the Bibliography, the
Index, and the Vita. LATEX's `\backmatter` command provides the correct format-
ting for these chapters.

\bibliography   Use the standard LATEX bibliography commands to create your bibliography.
Most people will use BibTEXto do this. (See [2]). For those in the sciences, you
may want to check out the cite package (it's pretty standard), which will produce
numerical citations that are sorted and compressed. You can also use the natbib
package, although it creates a problem if the headings pagestyle is used.

\vita   The `\vita` command begins a new chapter for your vita. In fact, it does exactly
the same thing as `\chapter{\vitaname}`, where `\vitaname` is "Vita."

```
\backmatter

\bibliography{thesisbib}

\chapter{Vita}

Juan Valdez was born\ldots.

\end{document}
```

2 User Customization

\draftheader   If you don't like the header that the the `[draftthesis]` option creates, you can redefine the `\draftheader` command so that it produces whatever text you want.

\thesisspacing   The uiucthesis class loads setspace for the line spacing commands. See the documentation in that package for more information on the commands it provides. By default, uiucthesis uses one and a half line spacing, or double spacing if the `[fullpage]` option is specified. If you're unhappy with that, you can override it by redefining the `\thesisspacing` command.

\chaptertitlefont
\sectiontitlefont
\subsectiontitlefont
\subsubsectiontitlefont
\chapternumberfont   These macros contain the font declarations for the corresponding sectioning levels and can be redefined to suit your aesthetic desires. Use `\renewcommand` to do this in the preamble.

    The `\chapternumberfont` macro is really most applicable when the `[fancy]` option is used. It specifies the font declaration used for the chapter number set in the left margin next to the title. Otherwise it specifies the font used to print the words "Chapter #" at the top of each chapter's opening page. Use `\renewcommand` to redefine this macro in the preamble.

\chaptertitleheight   This is the amount of space allotted for the chapter title at the top of the page. You can redefine it using `\setlength` in the preamble.

\bibname   This is a standard LaTeX macro that contains the title of the reference section at the end of your thesis; "References" by default. Use `\renewcommand` to redefine it in the preamble.

\vitaname   Like `\bibname` but it contains the name used for your vita at the very end. The Grad College allows "Vita", "Author's Biography", or "Curriculum Vitae", each of which is slightly different in format. See [1].

\note   This command inserts a marginal note just like `\marginpar` with two distinctions: First, the note is single-spaced for compactness. Second, it is only printed when the `[draftthesis]` option is used. Since marginal notes are not allowed in the final draft, the `\note` command is recommended over the `\marginpar` command.

3 Compatibility

Compatibility with previous versions of uiucthesis are supported. Previously it was implemented as a package rather than a class, in which case you opened the document with:

```
\documentclass[oneside,...]{book}
\usepackage[...]{uiucthesis}
```

To provide backwards-compatibility, a style file is provided that has the same functionality of the class file described herein. Similarly, (really) old versions of uiucthesis used the preliminary and thesis environments, which are now deprecated but backwards-compatibility support is still provided.

4   Implementation

This section shows the implementation of the uiucthesis class. Unless you are interested in the details of how uiucthesis works, you probably don't need to read it.

4.1   Compatibility

Provide compatibililty with older versions of LaTeX.

\@ifundefined

```
1 \expandafter\ifx\csname @ifundefined\endcsname\relax
2   \def\@ifundefined#1{%
3     \expandafter\ifx\csname#1\endcsname\relax
4       \expandafter\@firstoftwo
5     \else
6       \expandafter\@secondoftwo
7     \fi}
8 \fi
```

\MakeUppercase

```
9 \@ifundefined{MakeUppercase}{\let\MakeUppercase=\uppercase}{}
```

4.2   Option Processing

```
10 \newif\if@thesisdraft \@thesisdraftfalse
11 \newif\if@thesisfancy \@thesisfancyfalse
12 \newif\if@fullpage \@fullpagefalse
13 \newif\if@largecaps \@largecapsfalse
14 \newif\if@proquest \@proquestfalse
15 \newif\if@edeposit \@edepositfalse
16 \newif\if@thesisoffcenter \@thesisoffcenterfalse

17 \DeclareOption{draftthesis}{\@thesisdrafttrue}
18 \DeclareOption{fancy}{\@thesisfancytrue}
19 \DeclareOption{fullpage}{\@fullpagetrue}
20 \DeclareOption{proquest}{\@proquesttrue}
21 \DeclareOption{toclabels}{\AtBeginDocument{\fancytoc}}
22 \DeclareOption{edeposit}{\@edeposittrue}
23 \DeclareOption{offcenter}{\@thesisoffcentertrue}
```

The [largecaps] option causes the title and author's name to be use a "large caps" font on the title page. Otherwise, uiucthesis just converts them to uppercase and uses the normal fonts. The difference is that the spacing between the characters in the large caps font is tuned for setting type in all caps.

The large caps font is *not a standard font*, and so it will not exist unless you have installed it.

```
24 \DeclareOption{largecaps}{\@largecapstrue}
```

Load the book class with the [oneside] and [letterpaper] options

```
25 ⟨class⟩\DeclareOption*{\PassOptionsToClass{\CurrentOption}{book}}
26 ⟨class⟩\PassOptionsToClass{letterpaper,oneside}{book}
27 \ProcessOptions
28 ⟨class⟩\LoadClass{book}
```

If the [proquest] option is used, turn off output to auxiliary files so that the thesis doesn't have to be recompiled again to get all the references correct. Also double-space the ProQuest abstract and use the full page.

```
29 \if@proquest
30     \nofiles    % don't overwrite the .aux files
31     \def\makeindex{}
32     \@thesisfancyfalse
33     \@fullpagetrue
34 \fi
```

If the [draftthesis] option was specified, define the \draftheader macro.

```
35 \if@thesisdraft
36   \newcount\timehh\newcount\timemm
37   \timehh=\time \divide\timehh by 60
38   \timemm=\time \count255=\timehh \multiply\count255 by -60
39     \advance\timemm by \count255
40   \def\draftheader{\slshape Draft of \today\ at
41   \ifnum\timehh<10 0\fi\number\timehh\,:\,\ifnum\timemm<10 0\fi\number\timemm}%
42 \fi
```

Define the \fancytoc command which prints the headings in the Table of Contents, List of Figures and List of Tables if the [toclabels] option is used.

```
43 \newcommand{\fancytoc}{%
44     \addtocontents{toc}{\vspace*{-\baselineskip}\hfill Page\endgraf}%
45     \addtocontents{lof}{\vspace*{-\baselineskip}~Figure\hfill Page\endgraf}%
46     \addtocontents{lot}{\vspace*{-\baselineskip}~Table\hfill Page\endgraf}}
```

4.3 Title Page

\title
\author

Override the standard definitions of \title and \author to also define uppercased versions.

```
47 \def\@mkuptitle#1{\gdef\@Utitle{#1}}
48 \def\title#1{\gdef\@title{#1}\MakeUppercase{\protect\@mkuptitle{#1}}}
49 \def\@mkupauthor#1{\gdef\@Uauthor{#1}}
50 \def\author#1{\gdef\@author{#1}\MakeUppercase{\protect\@mkupauthor{#1}}}
```

\phdthesis
\msthesis
\otherdoctorate
\othermasters
\department
\college
\schools
\degreeyear
\committee
\volume

Macros to set title page elements.

```
51 \def\phdthesis{\def\@degree{Doctor of Philosophy}
52     \def\degree{Ph.D.}
53     \def\@thesisname{DISSERTATION}
54     }
55 \def\msthesis{\def\@degree{Master of Science}
56     \def\degree{M.S.}
57     \def\@thesisname{THESIS}
58     }
59 \newcommand{\otherdoctorate}[2]{\def\@degree{#1}
60     \def\degree{#2}
61     \def\@thesisname{DISSERTATION}
```

```
62      }
63 \newcommand{\othermasters}[2]{\def\@degree{#1}
64      \def\degree{#2}
65      \def\@thesisname{THESIS}
66      }
67 \def\department#1{\def\@dept{#1}}
68 \def\college#1{\def\@college{#1}}
69 \def\schools#1{\def\@schools{#1}}
70 \def\degreeyear#1{\def\@degreeyear{#1}}
71 \newcommand{\committee}[1]{\gdef\@committee{#1}}
72 \newcommand*{\volume}[1]{\gdef\thesis@volume{VOLUME~#1}}
73 \newcommand*{\thesis@volume}{}
74 \if@edeposit
75   \gdef\@committee{%
76 ⟨class⟩      \ClassError{uiucthesis}{A committee must be specified for e-deposit dissertations.}%
77 ⟨package⟩      \PackageError{uiucthesis}{A committee must be specified for e-deposit dissertation
78      {Use \protect\committee\space with members separated by \protect\\'s.}}
79 \fi
```

\copyrightnotice Define the copyright notice as a macro so that the user can change it if desired.

```
80 \def\copyrightnotice{\copyright~\@degreeyear~by \@author. All rights reserved.}
```

Set the default title page elements.

```
81 \phdthesis
82 \department{Physics}
83 \college{Graduate College}
84 \def\@schools{}
85 \def\@degreeyear{\number\year}
```

\maketitle Redefine book's \maketitle command to produce the titlepage in the correct format.

```
86 \renewcommand\maketitle{
```

If this is not a draft version, print the copyright page.

```
87      \if@thesisdraft\else
88          \newpage
89          \thispagestyle{empty}
90          \null\vfill
91          \centerline{\copyrightnotice}%
92          \vskip 3ex % skip to visually center copyright notice
93          \vfill
94      \fi
```

Now start a new page for the title page. It is single-spaced.

```
95      \newpage
96      \thispagestyle{empty}%
97      \enlargethispage{1in}%
98      \begingroup
99      \def\baselinestretch{1}
```

Check what size font we are using for the text and select a smaller size appropriately.

```
100      \ifnum \@ptsize=2
101          \@normalsize
```

```
102        \newcommand{\thesis@small}{\small}
103    \else
104        \large
105        \newcommand{\thesis@small}{\@normalsize}
106    \fi
```

We have to be careful to get the vertical position right. The easiest way to do this seems to be to just set `\topmargin`, `\headheight`, and `\headsep` for this page.

```
107        \headheight=0pt \headsep=0pt
108        \topmargin=0in
```

Adjust the horizontal spacing so that the title page is centered on the page even if the rest of the document isn't. I'm not sure when `\textwidth` changes take place, so instead we calculate the correct `\oddsidemargin` to center the text column.

```
109        \@tempdima=\paperwidth
110        \advance\@tempdima by -\textwidth
111        \divide\@tempdima by 2
112        \advance\@tempdima by -1in
113        \oddsidemargin=\@tempdima
114        \let\evensidemargin=\oddsidemargin
```

Create the title page. Different spacing is used depending on whether the `[edeposit]` option is specified. Include the committee and the paragraph at the bottom of the page for e-deposit theses, as required by the Grad College.

```
115        \newdimen\thesis@dim
116        \if@edeposit
117            \thesis@dim=1.25in
118        \else
119            \thesis@dim=1.75in
120        \fi
121        \if@largecaps
122            \def\lc@selectfont{\fontshape{lc}\selectfont}%
123        \else
124            \def\lc@selectfont{}%
125        \fi
126        \begin{center}
127        \if@edeposit\else
128            \vbox to 1.25in{}
129        \fi
130        \vbox to \thesis@dim{%
131            {\lc@selectfont\@Utitle}
132            \if@thesisdraft
133            \\[12pt]
134            \draftheader
135            \fi
136            \vfil}%
137        \vbox to 2in{%
138            {\lc@selectfont BY}\\[12pt]
139            {\lc@selectfont\@Uauthor}\\[12pt]
140            \begin{tabular}{c}\@schools\end{tabular}\vfil}%
141        \vbox to 0.5in{\thesis@volume\vfil}
142        \vbox to 2.5in{%
143            {\lc@selectfont \@thesisname}\\[12pt]
144            Submitted in partial fulfillment of the requirements\\
145            for the degree of \@degree\ in \@dept\\
```

```
146        in the \@college\ of the\\
147        University of Illinois at Urbana-Champaign, \@degreeyear\vfil}
148    \if@edeposit
149        \vbox to 2.1in{
150        COMMITTEE ON FINAL EXAMINATION*\\[12pt]
151        \begin{tabular}{c}\@committee\end{tabular}\vfil}
152        \hspace*{-\oddsidemargin}\parbox[t]{6.5in}{\thesis@small%
153        * The Certificate of Committee Approval is not part of dissertations
154        deposited electronically through the Graduate College of the University
155        of Illinois at Urbana-Champaign. A copy of the original Certificate of
156        Committee Approval is permanently archived with the student's record.}%
157    \else
158        \vskip -2ex
159        Urbana, Illinois
160    \fi
161    \end{center}
162    \newpage
163    \endgroup
164 }
```

4.4   Front Matter

\frontmatter   Redefine \frontmatter so that it sets the page number to 2 or 3, depending on whether or not the [edeposit] option is given.

```
165 \let\thesis@frontmatter=\frontmatter
166 \def\frontmatter{%
167     \thesis@frontmatter
168     \if@edeposit
169         \setcounter{page}{2}
170     \else
171         \setcounter{page}{3}
172     \fi}
```

4.5   Table of Contents

\contentsname   Use "Table of Contents" instead of "Contents".

```
173 \renewcommand\contentsname{Table of Contents}
```

\l@chapter   This code is a modified version of the code in the 1996/05/26 release of classes.dtx that produces leader dots between the chapter name and the page number.

This macro formats the entries in the table of contents for chapters. It is very similar to \l@part

First we make sure that if a pagebreak should occur, it occurs *before* this entry. Also a little whitespace is added and a group begun to keep changes local.

```
174 \renewcommand*\l@chapter[2]{%
175   \ifnum \c@tocdepth >\m@ne
176     \addpenalty{-\@highpenalty}%
177     \vskip 1.0em \@plus\p@
```

The macro \numberline requires that the width of the box that holds the part number is stored in LaTeX's scratch register \@tempdima. Therefore we put it there. We begin a group, and change some of the paragraph parameters. These are different from the defaults for the standard report or book class.

```
178      \setlength\@tempdima{1.5em}
179      \begingroup
180        \leftskip \z@ \rightskip \@tocrmarg \parfillskip -\rightskip
181        \parindent \z@
```

Then we leave vertical mode and switch to a bold font.

```
182        \leavevmode \bfseries
```

Because we do not use `\numberline` here, we have do some fine tuning 'by hand', before we can set the entry. We discourage but not disallow a pagebreak immediately after a chapter entry. We use leaders between the chapter title and the page number, unlike the standard report or book class.

```
183        \advance\leftskip\@tempdima
184        \hskip -\leftskip
185        #1\nobreak
186        \leaders\hbox{$\m@th\mkern\@dotsep mu\hbox{.}\mkern\@dotsep mu$}
187        \hfil \nobreak\hbox to\@pnumwidth{\hss #2}\par
188        \penalty\@highpenalty
189      \endgroup
190    \fi}
```

Create a flag that is set after the Table of Contents where every chapter (even the starred chapters) are put in the TOC.

```
191 \newif\ifthesis@addtoc \thesis@addtocfalse
```

\tableofcontents We want the Table of Contents to be single-spaced, so we save the original definition, and then arrange it so that the new `\tableofcontents` calls `\singlespacing` before calling the original definition. Then set the flag mentioned above.

```
192 \let\thesis@tableofcontents=\tableofcontents
193 \def\tableofcontents{%
194     \@mkboth{\MakeUppercase{\contentsname}}{\MakeUppercase{\contentsname}}%
195     {\singlespacing\thesis@tableofcontents}%
196     \thesis@addtoctrue%
197 }
```

\listoftables   Similarly, redefine `\listoftables` and `\listoffigures` so that they use single
\listoffigures spacing. Why bother, you ask? Well, it *is* possible that some user might call `\listoffigures` without calling `\tableofcontents`. Right?

```
198 \let\thesis@listoftables=\listoftables
199 \def\listoftables{{\singlespacing\thesis@listoftables}}
200 \let\thesis@listoffigures=\listoffigures
201 \def\listoffigures{{\singlespacing\thesis@listoffigures}}
```

4.6   Other Frontmatter

abstract The abstract environment is special because its contents are also used for the ProQuest abstract, which we need the advisor's name for:

\adviser Two versions of this macro are provided due to the ambiguity of the spelling of
\advisor the word "adviser".

```
202 \newcommand*{\advisor}[1]{\gdef\@advisor{#1}}
203 \newcommand*{\adviser}[1]{\gdef\@advisor{#1}}
```

If the [proquest] option was specified, erase the definition for \maketitle since we don't want a title page, and print an error if the advisor's name is not specified. Then define the abstract environment to create the ProQuest abstract and then end the document.

```
204 \if@proquest
205   \def\maketitle{}
206   \def\@advisor{%
207 ⟨class⟩      \ClassError{uiucthesis}{An advisor must be specified for the ProQuest abstract}%
208 ⟨package⟩      \PackageError{uiucthesis}{An advisor must be specified for the ProQuest abstract}%
209     {Use \protect\advisor\space to specify a name}}
210   \newenvironment{abstract}{%
211     \newpage
212     \pagestyle{empty}
213     \setcounter{page}{1}
214     \begin{singlespace}\begin{center}
215     \@Utitle\\[\baselineskip]
216     \@author, \degree\\
217     Department of \@dept\\
218     University of Illinois at Urbana-Champaign, \@degreeyear\\
219     \@advisor, Adviser\\[\baselineskip]
220     \end{center}\end{singlespace}\par\noindent\ignorespaces
221     }{
222     \newpage
223     \aftergroup\enddocument
224     \aftergroup\endinput
225     }
```

If we are doing normal processing (no [proquest] option), simply define the abstract environment to start a regular chapter.

```
226 \else
227   \newenvironment{abstract}{\chapter*{Abstract}}{}
228 \fi
```

dedication The dedication environment just starts a new page and prints the dedication in the center in italics.

```
229 \newenvironment{dedication}{
230     \newpage
231     \leavevmode\vfill
232     \begin{center}
233     \itshape
234     }{
235     \end{center}
236     \vskip 3ex
237     \vfill
238     \newpage
239     }
```

symbollist   The symbollist environments can be used to create a list of symbols or abbrevia-
symbollist* tions. The starred version left-justifies the left column (good for lists of abbrevia-
             tions) whereas the unstarred version centers the contents of the left column (good
             for lists of symbols).

```
240 \newenvironment*{symbollist}[1][1in]{
241     \begin{list}{}{\singlespacing
```

```
242     \setlength{\leftmargin}{#1}
243     \setlength{\labelwidth}{#1}
244     \addtolength{\labelwidth}{-\labelsep}
245     \setlength{\topsep}{0in}}%
246     \def\makelabel##1{\hfil##1\hfil}%
247   }{
248   \end{list}}
249 \newenvironment*{symbollist*}[1][1in]{
250   \begin{symbollist}[#1]
251   \def\makelabel##1{##1\hfil}}
252   {\end{symbollist}}
```

4.7   Chapter Headings

Text of chapter title must match exactly with text in Table of Contents. We support both plain chapter headings and "fancy" chapter headings.

\chapternumberfont   Define the font used for chapter numbers in fancy chapter headings. If you're using scalable PostScript fonts, you might want to override it, for example:

```
\renewcommand\chapternumberfont{
    \fontseries{bx}\fontsize{72}{72}\selectfont}
```

```
253 \if@thesisfancy
254   \font\cminch=cminch at 60pt
255   \newcommand\chapternumberfont{\cminch}
256 \else
257   \newcommand\chapternumberfont{\huge\bfseries}
258 \fi
```

\chaptertitlefont   Define the font used for chapter titles.

```
259 \newcommand\chaptertitlefont{\Huge\bfseries}
```

\@chapter   This macro is called when we have a numbered chapter. When secnumdepth is larger than −1 and, in the book class, \@mainmatter is true, we display the chapter number. We also inform the user that a new chapter is about to be typeset by writing a message to the terminal.

```
260 \def\@chapter[#1]#2{%
261   \ifnum \c@secnumdepth >\m@ne
262     \if@mainmatter
263       \refstepcounter{chapter}%
264       \typeout{\@chapapp\space\thechapter.}%
265       \if@thesisfancy
266         \addcontentsline{toc}{chapter}%
267           {\protect\numberline{\thechapter}#1}%
268       \else
269         \addcontentsline{toc}{chapter}%
270           {\@chapapp\ \thechapter\quad #1}%
271       \fi
272     \else
273       \addcontentsline{toc}{chapter}{#1}%
274     \fi
275   \else
```

```
276    \addcontentsline{toc}{chapter}{#1}%
277  \fi
```

After having written an entry to the table of contents we store the (alternative) title of this chapter with `\chaptermark` and add some white space to the lists of figures and tables.

```
278  \chaptermark{#1}%
279  \addtocontents{lof}{\protect\addvspace{10\p@}}%
280  \addtocontents{lot}{\protect\addvspace{10\p@}}%
```

Then we call upon `\@makechapterhead` to format the actual chapter title. We have to do this in a special way when we are in twocolumn mode in order to have the chapter title use the entire `\textwidth`. In one column mode we call `\@afterheading`, which takes care of suppressing the indentation.

```
281  \if@twocolumn
282    \@topnewpage[\@makechapterhead{#2}]%
283  \else
284    \@makechapterhead{#2}%
285    \@afterheading
286  \fi}
```

\@schapter The macro `\@schapter` is called when `\chapter*{...}` is called. We need to modify it so that if the `thesis@addtoc` flag is set, an entry to the Table of Contents is made.

```
287 \def\@schapter#1{\if@twocolumn
288                   \@topnewpage[\@makeschapterhead{#1}]%
289                 \else
290                   \@makeschapterhead{#1}%
291                   \@afterheading
292                 \fi
293                 \ifthesis@addtoc
294                 \@mkboth{\MakeUppercase{#1}}{\MakeUppercase{#1}}
295                 \addcontentsline{toc}{chapter}{#1}
296                 \fi}
```

For fancy chapter headings, compute the correct height to use for the chapter number. I want the chapter number to be centered on the first line of the chapter title. If a is the height of the chapter number and b is the height of the chapter title, then if we set the chapter number in a box of height $b + (a - b)/2 = (a + b)/2$ then it aligns correctly.

We arrange for this value to be computed at the beginning of the document in case the user loads a style file that changed the default fonts.

In addition, we want the chapter titles to have the same vertical placement on the page, regardless whether the chapter is numbered or not. We compute the distance we have to skip for chapters without numbers to accomplish this and store it in `\thesis@chapskip`.

```
297 \newskip\thesis@chapskip
298 \AtBeginDocument{%
299   \newdimen\chapternumberheight
300   \begingroup
301     \chapternumberfont
302     \setbox255=\hbox{A}
303     \if@thesisfancy
```

```
304        \global\thesis@chapskip=\ht255
305      \else
306        \global\thesis@chapskip=\baselineskip
307      \fi
308      \dimen255=\ht255
309      \chaptertitlefont
310      \setbox255=\hbox{A}
311      \advance\dimen255 by \ht255
312      \if@thesisfancy
313        \global\advance\thesis@chapskip by -\ht255
314        \global\divide\thesis@chapskip by 2
315        \global\advance\thesis@chapskip by 10\p@
316      \else
317        \global\advance\thesis@chapskip by 20\p@
318      \fi
319      \divide\dimen255 by 2
320      \global\chapternumberheight=\dimen255
321    \endgroup}
```

<code>\chaptertitleheight</code> The amount of space allotted for the chapter titles is stored in `\chaptertitleheight`. In this manner, the chapter text always appears at the same vertical place for each chapter, even if the title spills over into multiple lines.

```
322 \newlength{\chaptertitleheight}
323 \if@thesisfancy
324   \setlength{\chaptertitleheight}{1.5in}
325 \else
326   \setlength{\chaptertitleheight}{1.85in}
327 \fi
```

<code>\@makechapterhead</code> The macro `\@chapter` uses `\@makechapterhead`⟨*text*⟩ to format the heading of the chapter. This is a modified version of the standard `\@makechapterhead`. It sets the chapter heading in single spacing, and it handles the fancy heading style. The whole heading is placed in a `\vbox` so that it is confined to the spacing allotted to it as defined in `\chaptertitleheight`.

```
328 \def\@makechapterhead#1{%
329   \vbox to \chaptertitleheight{
330     \def\baselinestretch{1}\@normalsize
331     \parindent \z@ \raggedright \normalfont
332     \ifnum \c@secnumdepth >\m@ne
333       \if@mainmatter
334         \thesis@chapskip=\z@
335         \if@thesisfancy
336           \vspace*{10\p@}
337           \leavevmode\llap{\vbox to \chapternumberheight{\hbox{%
338             \chapternumberfont\thechapter\,}\vss}}%
339         \else
340           {\chapternumberfont \@chapapp\space \thechapter}
341           \par\nobreak
342           \vskip 20\p@
343         \fi
344       \fi
345     \fi
346     \interlinepenalty\@M
```

```
347        \vspace*{\thesis@chapskip}
348        \chaptertitlefont #1
349        \vfil
350     }%
351     \par\nobreak%
352     }
```

\@makeschapterhead   The macro \@schapter uses \@makeschapterhead⟨text⟩to format the heading of
the chapter. It is similar to \@makechapterhead except that it never has to print
a chapter number.

```
353 \def\@makeschapterhead#1{%
354   \vbox to \chaptertitleheight{
355     \def\baselinestretch{1}\@normalsize
356     \parindent \z@ \raggedright \normalfont
357     \interlinepenalty\@M
358     \vspace*{\thesis@chapskip}
359     \chaptertitlefont #1
360     \vfil
361   }%
362   \par\nobreak%
363   }
```

4.8   Lower Level Headings

\sectiontitlefont   These macros contain the font declarations for the sectioning titles.
\subsectiontitlefont
\subsubsectiontitlefont

```
364 \newcommand{\sectiontitlefont}{\Large\bfseries}
365 \newcommand{\subsectiontitlefont}{\large\bfseries}
366 \newcommand{\subsubsectiontitlefont}{\normalsize\bfseries}
```

\section   We redefine the lower level headings to set their titles ragged right. We don't have
\subsection   to change sectioning commands below subsubsection because they produce run-in
\subsubsection   headings.

```
367 \renewcommand\section{\@startsection {section}{1}{\z@}%
368   {-3.5ex \@plus -1ex \@minus -.2ex}%
369   {2.3ex \@plus.2ex}%
370   {\raggedright\normalfont\sectiontitlefont}}
371 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
372   {-3.25ex\@plus -1ex \@minus -.2ex}%
373   {1.5ex \@plus .2ex}%
374   {\raggedright\normalfont\subsectiontitlefont}}
375 \renewcommand\subsubsection{\@startsection{subsubsection}{3}{\z@}%
376   {-3.25ex\@plus -1ex \@minus -.2ex}%
377   {1.5ex \@plus .2ex}%
378   {\raggedright\normalfont\subsubsectiontitlefont}}
```

4.9   Bibliography

\bibname   UIUC Thesis format says that if references are cited as "[1]" then one of the terms
"References," "List of References," or "Literature Cited" should be used instead
of "Bibliography."

```
379 \renewcommand\bibname{References}
```

thebibliography Note that due to the redefinition of the `\@schapter` command, the bibliography is inserted into the Table of Contents as is and no modification to the standard definition of thebibliography environment is really needed. However, for aesthetics it is nice to have it single-spaced.

```
380 \let\thesis@thebib\thebibliography
381 \let\thesis@endbib\endthebibliography
382 \def\thebibliography{\begingroup\singlespacing\thesis@thebib}
383 \def\endthebibliography{\thesis@endbib\endgroup}
```

4.10 Index

theindex The index is single spaced and a line is added to the Table of Contents.

```
384 \let\thesis@theindex=\theindex
385 \def\theindex{\addcontentsline{toc}{chapter}{\indexname}%
386     \begingroup\singlespacing\thesis@theindex}
387 \let\thesis@endtheindex=\endtheindex
388 \def\endtheindex{\thesis@endtheindex\endgroup}
```

4.11 Page Layout

First we set the vertical layout. Adjust the height of the text column so that it takes up the full height of an 8.5 by 11 inch page.

```
389 \topmargin=0pt
390 \advance \topmargin by -\headheight
391 \advance \topmargin by -\headsep
392 \textheight 8.9in
```

Next, set the horizontal layout.

The standard for technical papers seems to be to use extremely wide columns of text, and then to increase the spacing between lines to compensate for the long lines. Unfortunately, because so many papers are typeset this way, the format has become self-propagating.

The `[fullpage]` option sets one-inch margins.

```
393 \if@fullpage
394   \oddsidemargin 0pt
395   \marginparwidth 0.5in
396   \textwidth\paperwidth
397   \advance\textwidth by -2in
398 \fi
```

In the old version of uiucthesis, the "fancy" thesis style used an asymmetrical page layout, shifting the text column slightly over to the right to leave room for the chapter number to the left of the chapter title. This layout is still used if the `[offcenter]` option is given, otherwise symmetrical margins are used.

```
399 \if@thesisfancy
400   \if@thesisoffcenter
401     \advance\oddsidemargin by 36pt
402   \fi
```

Set `\marginparwidth`, leaving 36pt for the right margin. Note that you're not allowed to actually use a marginal paragraph this close to the edge in the final version of a thesis, but it is still handy for leaving notes to yourself in the draft.

```
403   \marginparwidth=\oddsidemargin
```

18

```
404    \advance\marginparwidth by 1in
405    \advance\marginparwidth by -\marginparsep
406    \advance\marginparwidth by -36pt
```

Put the marginal paragraphs on the left side, where there's more room.

```
407    \reversemarginpar
408 \fi
409 \let\evensidemargin=\oddsidemargin
```

4.12   Making Notes

\note   You can leave yourself marginal notes using the \note{⟨*text*⟩} macro. If the final
draft is being printed (i.e., no [draftthesis] option) then these notes are not
printed.

```
410 \if@thesisdraft
411    \newcommand{\note}[1]{\marginpar{\singlespacing\small\raggedright #1}}
412 \else
413    \newcommand{\note}[1]{}
414    \let\thesis@marginpar\marginpar
415    \def\marginpar{%
416 ⟨class⟩        \ClassWarning{uiucthesis}{Margin paragraphs fall outside the allowed margins\Mes
417 ⟨package⟩          \PackageWarning{uiucthesis}{Margin paragraphs fall outside the allowed margins
418            for UIUC Theses, use \protect\note\space instead of \protect\marginpar.}%
419        \thesis@marginpar}
420 \fi
```

4.13   Page Numbering

Page numbers must be in one of three places, and must appear in the same place
on *every page*, including chapter openings.

    To accommodate the draft heading, we redefine the plain page style.

\ps@plain

```
421 \def\ps@plain{%
422    \let\@mkboth\@gobbletwo
423    \if@thesisdraft
424      \def\@oddhead{\draftheader\hfil}
425    \else
426      \let\@oddhead\@empty
427    \fi
428    \let\@evenhead\@oddhead
429    \def\@oddfoot{\reset@font\hfil\thepage\hfil}%
430    \let\@evenfoot\@oddfoot
431 }
```

\ps@headings   The "headings" page style is also supported. The heading at the top will be within
the 1 inch margin that you are supposed to allow, however. If the [draftthesis]
option is given, there is probably not enough room for both the chapter number
and title, so just print the number in that case.

```
432 \if@twoside
433    \def\ps@headings{%
434      \if@thesisdraft
435        \def\@oddhead{\draftheader\hfil\slshape\rightmark}
```

```
436        \def\@evenhead{\slshape\leftmark\hfil\draftheader}
437      \else
438        \def\@oddhead{\hfil\slshape\rightmark}
439        \def\@evenhead{\slshape\leftmark\hfil}
440      \fi
441      \def\@oddfoot{\reset@font\hfil\thepage\hfil}%
442      \let\@evenfoot\@oddfoot
443      \let\@mkboth\markboth
444      \if@thesisdraft
445        \def\chaptermark##1{%
446          \markright {\MakeUppercase{%
447            \ifnum \c@secnumdepth >\m@ne
448              \if@mainmatter
449                \@chapapp\ \thechapter%
450              \fi
451          \fi}}}
452      \else
453        \def\chaptermark##1{%
454          \markright {\MakeUppercase{%
455            \ifnum \c@secnumdepth >\m@ne
456              \if@mainmatter
457                \if@thesisfancy
458                  \thechapter.~~%
459                \else
460                  \@chapapp\ \thechapter.~~%
461                \fi
462              \fi
463            \fi
464          ##1}}}
465      \fi
466      \def\sectionmark##1{%
467        \markright {\MakeUppercase{%
468          \ifnum \c@secnumdepth >\z@
469            \thesection. \ %
470          \fi
471        ##1}}}}
472 \else
473   \def\ps@headings{%
474     \if@thesisdraft
475       \def\@oddhead{\draftheader\hfil\slshape\rightmark}
476     \else
477       \def\@oddhead{\hfil\slshape\rightmark\hfil}
478     \fi
479     \let\@evenhead\@oddhead
480     \def\@oddfoot{\reset@font\hfil\thepage\hfil}%
481     \let\@evenfoot\@oddfoot
482     \let\@mkboth\markboth
483     \if@thesisdraft
484       \def\chaptermark##1{%
485         \markright {\MakeUppercase{%
486           \ifnum \c@secnumdepth >\m@ne
487             \if@mainmatter
488               \@chapapp\ \thechapter%
489             \fi
```

```
490          \fi}}}
491      \else
492        \def\chaptermark##1{%
493          \markright {\MakeUppercase{%
494            \ifnum \c@secnumdepth >\m@ne
495              \if@mainmatter
496                \if@thesisfancy
497                  \thechapter.~~%
498                \else
499                  \@chapapp\ \thechapter.~~%
500                \fi
501              \fi
502            \fi
503            ##1}}}
504      \fi
505        }
506 \fi
```

Set the default page style to (our new definition of) plain.

```
507 \pagestyle{plain}
```

\chapter   Redefine `\chapter` to not do `\thispagestyle{empty}` because even chapter open-
            ings should have page numbers in UIUC theses.

```
508 \renewcommand\chapter{\if@openright\cleardoublepage\else\clearpage\fi
509   \thispagestyle{plain}
510   \global\@topnum\z@
511   \@afterindentfalse
512   \secdef\@chapter\@schapter}
```

4.14   Vita

The support for `\vita` is pretty minimal.

\vitaname   Define `\vitaname` so the user can change it if he wants.

```
513 \newcommand\vitaname{Vita}
```

\vita   Vita should appear in Table of Contents, but should not be numbered.

```
514 \newcommand\vita{
515   \chapter{\vitaname}%
516 }
```

4.15   Body Formatting

\thesisspacing   The `\thesisspacing` command is called to switch to the default line spacing for
                  the thesis. The thesis format requirements require at least line and a half spacing.
                  The uiucthesis class by default uses `\onehalfspacing`, or `\doublespacing` if the
                  [fullpage] option is in effect.

```
517 \def\thesisspacing{\if@fullpage\doublespacing\else\onehalfspacing\fi}
```

At this point, we're ready to set up the actual formatting for the front matter of
the thesis. We use roman page numbers. Also, arrange so that `\thesisspacing`

gets called when the document begins. We don't just call it here because that wouldn't give the user a chance to override it.

```
518 \pagenumbering{roman}
519 \AtBeginDocument{\thesisspacing}
```

4.16 Compatibility

preliminary   The old uiucthesis style defined a preliminary environment for the front matter. This isn't needed with this style, so we redefine it to call `\frontmatter` for compatibility's sake.

```
520 \def\preliminary{\frontmatter}
521 \let\endpreliminary=\relax
```

thesis   Similarly, the old uiucthesis style defined a thesis environment that has been superceded by the `\mainmatter` command. We define it here for backward compatibility.

```
522 \def\thesis{\mainmatter}
523 \let\endthesis=\relax
```

References

[1] *Handbook for Graduate Students Preparing to Deposit.* Graduate College, University of Illinois at Urbana-Champaign, 2004

[2] Leslie Lamport. *LATEX: A Document Preparation System.* Addison-Wesley, 1994.