

# The `ut-thesis` class <sup>\*</sup>

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## Abstract

The `ut-thesis` document class and template implements the requirements of the University of Toronto School of Graduate Studies (SGS), as of Winter 2020.

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<sup>\*</sup>v3.0.a [2020/09/01] CTAN repository: <https://ctan.org/pkg/ut-thesis>

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# 1 Usage

```
\documentclass{ut-thesis}  
\documentclass[...options...]{ut-thesis}
```

The default settings produce a final copy, ready for submission to the School of Graduate Studies (SGS) at the University of Toronto: single-sided, "normal" margins (see below), one-and-a-half spaced with single-spaced notes.

## 1.1 Options

- Any standard option for the LaTeX2e `book` class, including `10pt`, `11pt`, `12pt`, `oneside`, `twoside`, etc.

- `narrowmargins`, `normalmargins`, `widemargins`, or `extrawidemargins`: Set the size of the margins, as follows: . `narrow`: 1 1/4" on the left, 3/4" on all other sides, headers & footers 3/8" from body (these are the minimum values required by SGS); . `normal`: 1 1/4" on the left, 1" on all other sides, headers & footers 1/2" from body; . `wide`: 1 1/4" on all sides, headers & footers 5/8" from body; . `extrawide`: 1 1/2" on all sides, headers & footers 3/4" from body. If you have more than just a few marginal notes, it is recommended that you use at least `wide` margins. For other settings, use the `\geometry` command (see the template for details).

- `singlespaced`, `oneandahalfspaced`, or `doublespaced`: Set the entire document's default line spacing (except for notes, which are single-spaced by default). For other settings, use the `\setstretch` command (see the template for details).

- `singlespacednotes` or `standardspacednotes`: Set line spacing for footnotes and marginal notes: either single-spaced or the same as the rest of the document.

- `cleardoublepagestyleempty`, `cleardoublepagestyleplain`, or `cleardoublepagestylestandard`: Set the page style for all "cleared" pages (empty pages inserted in two-sided documents to put the next page on the right-hand side) to either `empty`, `plain`, or whatever style is in effect when the page is cleared (the default).

- `draft`: Produce a draft copy (double-sided, double-spaced, normal margins, with the word "DRAFT" printed at all four corners of every page).

Note that these options can be used to override the default or draft document settings, so that it is possible, for example, to create a double-sided final copy, or a 1 1/2-spaced draft copy with wide margins, etc. You may use standard LaTeX packages to tailor the layout and formatting in other ways. Also note that when producing double-sided documents while *not* in draft mode, new chapters and preliminary sections will always start on a right-hand page under the default settings (inserting a blank page if needed). This can be overridden by using the `openany` or `openright` options. To achieve this effect for individual sections or chapters, use `\cleardoublepage` – or one of the more specific `\clearemptydoublepage`, `\clearplainedoublepage`, `\clearthesisdoublepage`, or `\clearstandarddoublepage` (see below for details).

## 1.2 Environments & Commands

\* `\degree{...}`: (preamble only; REQUIRED) Specify the name of the degree (e.g., "Doctor of Philosophy").

\* `\department{...}`: (preamble only; REQUIRED) Specify the name of the graduate department.

\* `\gradyear{...}`: (preamble only; REQUIRED) Specify the year of graduation (defaults to current year).

\* `\author{...}`: (preamble only; REQUIRED) Specify the name of the author.

\* `\title{...}`: (preamble only; REQUIRED) Specify the title of the thesis.

- `\begin{preliminary}...\end{preliminary}`: Delimit head matter (title page, abstract, table of contents, lists of tables and figures, etc.): set the page style and numbering for the preliminary sections and reset them for the main document.

- `\maketitle`: Generate the title page from the information supplied in the preamble.

- `\begin{abstract}...\end{abstract}`: Generate the abstract page, double-sided. (According to SGS guidelines, this must immediately follow the title page.)

- `\begin{dedication}...\end{dedication}`: Generate a dedication section, if needed (just a paragraph formatted flush right).

- `\begin{acknowledgements}...\end{acknowledgements}`: Generate an acknowledgements section, if needed.

Note that neither the `dedication` nor the `acknowledgements` are put on a separate page by default (use `\newpage` to do this explicitly). Also note that the table of contents, list of tables, and list of figures can be generated using the usual LaTeX commands.

- `\begin{longquote}...\end{longquote}`: Single-spaced version of the `quote` environment.

- `\begin{longquotation}...\end{longquotation}`: Single-spaced version of the `quotation` environment.

- `\clearemydoublepage`, `\clearplainedoublepage`, `\clearthesisdoublepage`: Same as `\cleardoublepage` except that cleared pages have style `empty`, `plain`, or `thesis` respectively.

- `\clearstandarddoublepage`: Same as the original `\cleardoublepage` (cleared pages use the style currently in effect) – used to override the effects of options `cleardoublepagestyleempty` or `cleardoublepagestyleplain`.

The companion file `ut-thesis.tex` contains a skeleton illustrating the use of this class.

## 2 Implementation

### 2.1 Initial Code

Switch for testing draft mode (toggled by `draft` option).

```
1 \newif\if@draft
2 \@draftfalse
```

Switch for testing current page style.

```
3 \newif\if@thesispagestyle
4 \@thesispagestyletrue
```

Save original definitions of footnote and marginal note macros and lengths, to be able to reset them below as needed (when changing between single-spaced and standard-spaced notes).

```
5 \let\@thesis@footnotetext\@footnotetext
6 \let\@thesis@mpfootnotetext\@mpfootnotetext
7 \let\@thesis@marginparreset\@marginparreset
8 \newlength{\@thesisfootnotesep}
9 \newlength{\@thesismarginparpush}
10 \AtBeginDocument
11   {\setlength\@thesisfootnotesep{\footnotesep}
12    \setlength\@thesismarginparpush{\marginparpush}}
```

Save original definition of `\cleardoublepage`.

```
13 \let\clearstandarddoublepage\cleardoublepage
```

The `\singlespacing` macro from `setspace` includes some vertical space (to make it easier to change line spacing within the document). Unfortunately, this has undesirable side-effects within macros, so we define our own replacement here for use within the class.

```
14 \newcommand*{\singlespacingnoskip}{\setstretch{\setspace@singlespace}}
```

### 2.2 Option Declaration

`draft` option: change default document settings.

```
15 \DeclareOption{draft}{\@drafttrue
16   \newcommand*{\tldRAFT}%
17     {\raisebox{3ex}[0pt][0pt]{\llap{\sffamily\scriptsize DRAFT\ \ }}}
18   \newcommand*{\trDRAFT}%
19     {\raisebox{3ex}[0pt][0pt]{\rlap{\sffamily\scriptsize \ \ DRAFT}}}
20   \newcommand*{\bldRAFT}%
```

```

21     {\raisebox{-3ex}[0pt][0pt]{\llap{\sffamily\scriptsize DRAFT\ \ }}}
22     \newcommand*{\brDRAFT}%
23     {\raisebox{-3ex}[0pt][0pt]{\rlap{\sffamily\scriptsize \ \ DRAFT}}}}
24     \ExecuteOptions{doublespaced}
25     \PassOptionsToClass{draft,twoside,openany}{book}}

```

Margin options.

```

26 \DeclareOption{narrowmargins}{\AtEndOfClass % 1 1/4" left, 3/4" others
27   {\geometry{margin=.75in,left=1.25in,headsep=.375in-\headheight,
28     footskip=.375in,marginparwidth=.5in,marginparsep=.125in}}}
29 \DeclareOption{normalmargins}{\AtEndOfClass % 1 1/4" left, 1" others
30   {\geometry{margin=1in,left=1.25in,headsep=.5in-\headheight,
31     footskip=.5in,marginparwidth=.75in,marginparsep=.125in}}}
32 \DeclareOption{widemargins}{\AtEndOfClass % 1 1/4" all around
33   {\geometry{margin=1.25in,headsep=.625in-\headheight,
34     footskip=.625in,marginparwidth=.75in,marginparsep=.25in}}}
35 \DeclareOption{extrawidemargins}{\AtEndOfClass % 1 1/2" all around
36   {\geometry{margin=1.5in,headsep=.75in-\headheight,
37     footskip=.75in,marginparwidth=1in,marginparsep=.25in}}}

```

Line Spacing options.

```

38 \DeclareOption{singlespaced}{\AtEndOfClass{\singlespacingnoskip}}
39 \DeclareOption{onehalfspaced}{\AtEndOfClass{\onehalfspacing}}
40 \DeclareOption{doublespaced}{\AtEndOfClass{\doublespacing}}

```

Line spacing for notes.

```

41 \DeclareOption{singlespacednotes}{\AtBeginDocument
42   {\setlength\footnotesep{\@thesisfootnotesep}
43     \setlength\marginparpush{\@thesismarginparpush}
44     \renewcommand{\@footnotetext}[1]%
45       {\@thesis@footnotetext{#1\singlespacingnoskip}}
46     \renewcommand{\@mpfootnotetext}[1]%
47       {\@thesis@mpfootnotetext{#1\singlespacingnoskip}}
48     \renewcommand*{\@marginparreset}%
49       {\@thesis@marginparreset\singlespacingnoskip}}}
50 \DeclareOption{standardspacednotes}{\AtBeginDocument
51   {\setlength\footnotesep{\baselineskip-\@thesisfootnotesep}
52     \setlength\marginparpush{\baselineskip-\@thesismarginparpush}
53     \let\@footnotetext\@thesis@footnotetext
54     \let\@mpfootnotetext\@thesis@mpfootnotetext
55     \let\@marginparreset\@thesis@marginparreset}}

```

Page styles for cleared pages.

```

56 \DeclareOption{cleardoublepagestyleempty}
57   {\AtEndOfClass{\let\cleardoublepage\cleareptydoublepage}}

```

```

58 \DeclareOption{cleardoublepagestyleplain}
59   {\AtEndOfClass{\let\cleardoublepage\clearplaindoublepage}}
60 \DeclareOption{cleardoublepagestylestandard}
61   {\AtEndOfClass{\let\cleardoublepage\clearstandarddoublepage}}

```

All other options are passed to the base class directly.

```

62 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{book}}

```

## 2.3 Option Execution

Default settings: standard options followed by ut-thesis options.

```

63 \ExecuteOptions{letterpaper,oneside,openright}
64 \ExecuteOptions{normalmargins,onehalfspaced,singlespacednotes}

```

Process options.

```

65 \ProcessOptions

```

## 2.4 Package Loading

Load base class using current setting for basic options.

```

66 \LoadClass{book}

```

To set/change page layout.

```

67 \RequirePackage{calc}
68 \RequirePackage{geometry}

```

To set/change line spacing.

```

69 \RequirePackage{setspace}

```

## 2.5 Main Code

### 2.5.1 Parameters

The following five commands set the respective field values so we can generate the title page and abstract page automatically.

```

70 \newcommand*{\degree}[1]%
71   {\ifx\empty#1\empty\else\gdef\@degree{#1}\fi}
72 \newcommand*{\department}[1]%
73   {\ifx\empty#1\empty\else\gdef\@department{#1}\fi}

```

```

74 \newcommand*{\gradyear}[1]%
75   {\ifx\empty#1\empty\else\gdef\@gradyear{#1}\fi}
76 \renewcommand*{\author}[1]%
77   {\ifx\empty#1\empty\else\gdef\@author{#1}\fi}
78 \renewcommand*{\title}[1]%
79   {\ifx\empty#1\empty\else\gdef\@title{#1}\fi}

```

Default values for the required fields.

```

80 \degree{\emph{(degree)}}}
81 \department{\emph{(department)}}}
82 \gradyear{\emph{(year of graduation)}}}
83 \author{\emph{(author)}}}
84 \title{\emph{(title)}}}

```

## 2.5.2 Environments and Commands

`\begin{preliminary}` sets the pagestyle and page numbering for the preliminary sections; `\end{preliminary}` resets the page numbering. The default page style is used outside of the preliminary block.

```

85 \newenvironment*{preliminary}%
86   {\pagestyle{plain}\pagenumbering{roman}}%
87   {\cleardoublepage\pagenumbering{arabic}}

```

Change `\maketitle` to follow SGS guidelines.

```

88 \renewcommand*{\maketitle}%
89   {\begin{titlepage}
90     \large\singlespacingnoskip
91     \begin{center}
92       \mbox{}
93       \vfill
94       \textsc{\@title}\\
95       \vfill
96       by \\
97       \vfill
98       {\@author}\\
99       \vfill
100      \vfill
101      A thesis submitted in conformity with the requirements\\
102      for the degree of {\@degree}\\
103      Graduate Department of {\@department}\\
104      University of Toronto\\
105      \vfill
106      {\copyright} Copyright {\@gradyear} by {\@author}\\
107      \vspace{.01\textheight}

```

```

108     \mbox{}
109   \end{center}
110   \setcounter{page}{1}
111   \end{titlepage}
112   \setcounter{page}{2}}

```

### 2.5.3 Abstract Page

The abstract is an environment, but it creates its own page (and possibly an extra empty page if using `twoside`). The author and title info is centered and singlespaced. The word “Abstract” uses the `\section*` style, without any numbering. The abstract content is doublespaced.

```

113 \newenvironment*{abstract}%
114   {\thispagestyle{plain}
115   \begin{center}
116     \singlespacing
117     {\@title}\[2ex]
118     {\@author}\[1ex]
119     {\@degree}\[1ex]
120     Graduate Department of {\@department}\[1ex]
121     University of Toronto\
122     {\@gradyear}\[1ex]
123     \section*{Abstract}
124   \end{center}
125   \begin{group}
126     \doublespacing}%
127   {\endgroup\cleardoublepage}

```

`\begin{dedication}...\end{dedication}` formats a dedication section (\*not\* on a separate page – just a paragraph formatted flush right).

```

128 \newenvironment*{dedication}%
129   {\begin{flushright}}%
130   {\end{flushright}}

```

`\begin{acknowledgements}...\end{acknowledgements}` formats an acknowledgements section (\*not\* on a separate page).

```

131 \newenvironment*{acknowledgements}%
132   {\begin{center}
133     \section*{Acknowledgements}
134   \end{center}
135   \begin{group}\noindent}%
136   {\par\endgroup}

```



Redefine `\thebibliography` environment so that it generates headers in the same style as the rest of the document.

```

137 \let\@thesisthebibliography\thebibliography
138 \renewcommand*{\thebibliography}[1]{\@thesisthebibliography{#1}
139   \if@thesispagestyle\mkboth{\textsc{\bibname}}{\textsc{\bibname}}\fi}

```

Variations of `\cleardoublepage` that explicitly set the pagestyle of any inserted blank page.

```

140 \newcommand*{\clearempydoublepage}%
141   {\pagestyle{empty}\clearstandarddoublepage}}
142 \newcommand*{\clearplainedoublepage}%
143   {\pagestyle{plain}\clearstandarddoublepage}}
144 \newcommand*{\clearthesisdoublepage}%
145   {\pagestyle{thesis}\clearstandarddoublepage}}

```

Single-spaced quotes and quotations.

```

146 \newenvironment*{longquote}%
147   {\begin{quote}\singlespacingnoskip}{\end{quote}}
148 \newenvironment*{longquotation}%
149   {\begin{quotation}\singlespacingnoskip}{\end{quotation}}

```

## 2.5.4 Page Styles

Redefine all four standard page styles (empty, plain, headings, myheadings), based on the definitions in `book`, so that they conform to the SGS guidelines (and include draft information if applicable). Then, define a new pagestyle `thesis`.

TODO: Get rid of copy-pasted definitions for pagestyles?

Pagestyle `empty`.

```

150 \renewcommand*{\ps@empty}%
151   {\@thesispagestylefalse
152     \let\@mkboth\@gobbletwo
153     \def\@oddfoot{\if@draft\bldRAFT\hfil
154       {\slshape\small\today}\hfil\brDRAFT\fi}%
155     \let\@evenfoot\@oddfoot
156     \def\@oddhead{\if@draft\tldRAFT\hfil
157       {\slshape\small\today}\hfil\trDRAFT\fi}%
158     \let\@evenhead\@oddhead}

```

Pagestyle `plain`.

```

159 \renewcommand*{\ps@plain}%
160   {\@thesispagestylefalse
161     \let\@mkboth\@gobbletwo

```

```

162 \def\@oddfoot{\if@draft\bldRAFT\fi\hfil
163 \thepage\hfil\if@draft\brDRAFT\fi}%
164 \let\@evenfoot\@oddfoot
165 \def\@oddhead{\if@draft\tldRAFT\hfil
166 {\slshape\small\today}\hfil\trDRAFT\fi}%
167 \let\@evenhead\@oddhead}

```

Pagestyle headings.

```

168 \if@twoside % two-sided printing
169 \renewcommand*\ps@headings{%
170 {\@thesispagestylefalse
171 \let\@mkboth\markboth
172 \def\@oddfoot{\if@draft\bldRAFT\hfil
173 {\slshape\small\today}\hfil\brDRAFT\fi}%
174 \let\@evenfoot\@oddfoot
175 \def\@oddhead{\if@draft\tldRAFT\fi{\slshape\rightmark}\hfil
176 \thepage\if@draft\trDRAFT\fi}%
177 \def\@evenhead{\if@draft\tldRAFT\fi\thepage\hfil
178 {\slshape\leftmark}\if@draft\trDRAFT\fi}%
179 \def\chaptermark##1{\markboth
180 {\MakeUppercase{\ifnum \c@secnumdepth >\m@ne
181 \@chapapp\ thechapter. \ \fi ##1}}{}}%
182 \def\sectionmark##1{\markright
183 {\MakeUppercase{\ifnum \c@secnumdepth >\z@
184 \thesection. \ \fi ##1}}{}}
185 \else % one-sided printing
186 \renewcommand*\ps@headings{%
187 {\@thesispagestylefalse
188 \let\@mkboth\markboth
189 \def\@oddfoot{\if@draft\bldRAFT\hfil
190 {\slshape\small\today}\hfil\brDRAFT\fi}%
191 \def\@oddhead{\if@draft\tldRAFT\fi{\slshape\rightmark}\hfil
192 \thepage\if@draft\trDRAFT\fi}%
193 \def\chaptermark##1{\markright
194 {\MakeUppercase{\ifnum \c@secnumdepth >\m@ne
195 \@chapapp\ thechapter. \ \fi ##1}}{}}
196 \fi}%twoside

```

Pagestyle myheadings.

```

197 \renewcommand*\ps@myheadings{%
198 {\@thesispagestylefalse
199 \let\@mkboth\@gobbles
200 \def\@oddfoot{\if@draft\bldRAFT\hfil
201 {\slshape\small\today}\hfil\brDRAFT\fi}%
202 \let\@evenfoot\@oddfoot
203 \def\@oddhead{\if@draft\tldRAFT\fi{\slshape\rightmark}\hfil

```

```

204 \thepage\if@draft\trDRAFT\fi}%
205 \def\@evenhead{\if@draft\tlDRAFT\fi\thepage\hfil
206 {\slshape\leftmark}\if@draft\trDRAFT\fi}%
207 \let\chaptermark\@gobble\let\sectionmark\@gobble}

```

Pagestyle thesis (based on headings).

```

208 \if@twoside % two-sided printing
209 \newcommand*\ps@thesis%
210 {\@thesispagestyletrue
211 \let\@mkboth\markboth
212 \def\@oddfoot{\if@draft\bldRAFT\hfil
213 {\slshape\small\today}\hfil\brDRAFT\fi}%
214 \let\@evenfoot\@oddfoot
215 \def\@oddhead{\if@draft\tlDRAFT\fi{\slshape\rightmark}\hfil
216 \thepage\if@draft\trDRAFT\fi}%
217 \def\@evenhead{\if@draft\tlDRAFT\fi\thepage\hfil
218 {\slshape\leftmark}\if@draft\trDRAFT\fi}%
219 \def\chaptermark##1{\markboth
220 {\textsc{\ifnum \c@secnumdepth >\m@ne
221 \@chapapp\ thechapter. \ \fi ##1}}}%
222 \def\sectionmark##1{\markright
223 {\textsc{\ifnum \c@secnumdepth >z@
224 \thesection. \ \fi ##1}}}}
225 \else % one-sided printing
226 \newcommand*\ps@thesis%
227 {\@thesispagestyletrue
228 \let\@mkboth\markboth
229 \def\@oddfoot{\if@draft\bldRAFT\hfil
230 {\slshape\small\today}\hfil\brDRAFT\fi}%
231 \def\@oddhead{\if@draft\tlDRAFT\fi{\slshape\rightmark}\hfil
232 \thepage\if@draft\trDRAFT\fi}%
233 \def\chaptermark##1{\markright
234 {\textsc{\ifnum \c@secnumdepth >\m@ne
235 \@chapapp\ thechapter. \ \fi ##1}}}}
236 \fi%twoside

```

Default page style.

```

237 \pagestyle{thesis}

```