

# The mines-thesis class \*

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## Abstract

This package provides a class for graduate students at Colorado School of Mines to prepare their theses and dissertations.

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\*This document corresponds to mines-thesis v1.0, dated 2020/01/10.

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# 1 User's guide

## 1.1 Installation

## 1.2 Invocation and options

`\documentclass` The mines-thesis class is invoked in the standard fashion.

```
\documentclass[\langle options \rangle]{mines-thesis}
```

There are several options corresponding to the type of the document and its general appearance. They are described below. Generally speaking, the options have `key=value` forms, for example,

```
\documentclass[screen=true, review=false]{mines-thesis}
```

The default options are `letterpaper,12pt. TODO review? oneseide? onecol-umn,draft,openany`

## 1.3 Preprogrammed Formats

```
\title
\author
\year
\degree
\advisor
\coadvisor
\department
\departmenthead
abstract
```

The environment `abstract` must *precede* the `\makefrontmatter` command. Again, this is different from the standard L<sup>A</sup>T<sub>E</sub>X. Putting `abstract` after `\makefrontmatter` will trigger an error.

```
\begin{abstract}
Here goes the abstract...
\end{abstract}
```

`\makefrontmatter` The front matter of a thesis includes:

1. Title page (Required)
2. Copyright page
3. Submittal page (Required)
4. Abstract (Required)
5. Table of Contents (Required)
6. Lists (Required if included in thesis)
  - (a) List of Figures

- (b) List of Tables
- (c) List of Equations (optional)
- (d) List of Plates
- (e) List of Symbols

7. Acknowledgments

8. Dedication

Invoking

`\makefrontmatter`

will generate all components listed above. It can be commented out until you need the front matter generated.

`\chapter`  
`\section`  
`\subsection`  
`\subsubsection`  
`\paragraph`

===== Set-up  
===== `\OnehalfSpacing`  
`\OnehalfSpacing* \DoubleSpacing \DoubleSpacing*` Text will be double spaced  
or 1.5 spaced. Sometimes it is also required to make page notes and floats (including captions) in ‘double’ spacing. The starred version of the two macros above takes care of this.

## 2 Implementation

```
1 \RequirePackage{ifthen}
```

The `\collect@body` macro in `amsmath` is defined using `\def`. We load `environ` to access the `\long` version of this command

```
2 \RequirePackage{environ}
```

The `review` boolean is defined here for use with the class options.

```
3 \newboolean{review}
```

### 2.1 Declaration of Options

```
4 \DeclareOption{draft}{\setboolean{review}{true}}
```

```
5 \DeclareOption{final}{\setboolean{review}{false}}
```

```
6 \PassOptionsToClass{final,12pt,onecolumn,openany}{memoir}}
```

```
7 \DeclareOption*{
```

```
8 \PassOptionsToClass{\CurrentOption}{memoir}
```

```
9 }
```

```
10 \ExecuteOptions{final}
```

### 2.2 Execution of Options

```
11 \ProcessOptions\relax
```

### 2.3 Package Loading

```
12 \LoadClass[oneside,letterpaper]{memoir}
```

### 2.4 Main Code

Prevent LaTeX from hyphenating the entire document

#### 2.4.1 Commands to define parameters for the front matter

```
13 \newboolean{auto} % for auto pyramid
```

```
14 \setboolean{auto}{false}
```

```
15 \def\year#1{\gdef\@year{#1}}
```

```
16 \newcommand{\degree}[2]{\gdef\@degreeelv{#1}\gdef\@degreename{#2}}
```

```
17 \def\advisor#1{\gdef\@advisor{#1}}
```

```
18 \def\coadvisor#1{\gdef\@coadvisor{#1}}
```

```
19 \def\department#1{\gdef\@department{#1}}
```

```
20 \def\departmenthead#1{\gdef\@departmenthead{#1}}
```

The following are the initial values for some macros that provide info.

```
21 \gdef\@author{Your Name}
```

```
22 \gdef\@title{This is the first line of a medium length title,
```

```
23 this is the second line}
```

```
24 \gdef\@year{2020}
```

```
25 \gdef\@degreeelv{Doctor of Philosophy}
```

```
26 \gdef\@degreename{Computer Science}
```

```
27 \gdef\@advisor{Dr. Main Advisor}
```

```
28 % ^^A \gdef\@coadvisor{Dr. Co Advisor}
```

```
29 \gdef\@department{Department of Some Name}
```

```

30 \gdef\@departmenthead{Dr. Department Head}

    Set margins
31 % ^^A automatically set by the class option letterpaper
32 % ^^A \setstocksize{11in}{8.5in}
33 % ^^A set paper size equal to stock size
34 % ^^A \settrimmedsize{\stockheight}{\stockwidth}{*}
35 % ^^A set equal trim at the top and bottom
36 % ^^A \setlength{\trimtop}{\stockheight} % \trimtop = \stockheight
37 % ^^A \addtolength{\trimtop}{-\paperheight} % - \paperheight
38 % ^^A \setlength{\trimedge}{\stockwidth} % \trimedge = \stockwidth
39 % ^^A \addtolength{\trimedge}{-\paperwidth} % - \paperwidth
40 % ^^A \settrims{0.5\trimtop}{\trimedge}
41 \setpageecc{11in}{8.5in}{*}
42 % ^^A \settypeblocksize{\paperheight}{\paperwidth}{*}
43 \setlrmarginsandblock{1in}{*}{*}
44 \setulmarginsandblock{1in}{*}{*}
45 \setheadfoot{\onelineskip}{2\onelineskip}
46 \setheaderspaces{*}{2\onelineskip}{*}
47 \DoubleSpacing
48 \checkandfixthelayout
49

```

## 2.4.2 Front Matter

`\makefrontmatter`

```

50 \newcommand{\makefrontmatter}{
51   \pagenumbering{roman}
52   \pagestyle{empty}
53   \maketitlepage
54   \makecopyrightpage
55   \pagestyle{plain}
56   \setcounter{page}{2}
57   \makesubmittalpage
58   \makeabstractpage
59   \maketoc
60   \pagenumbering{arabic}
61   \setcounter{page}{1}
62 }

```

`\maketitlepage`

The thesis title must be in all upper case letters, be centered on the page both horizontally and vertically, be in an inverted pyramid shape and the font size needs to be the same size as all other font in the main text (i.e. do not make the font size larger).

```

63 \DeclareRobustCommand{\invpyr}[1]{
64   \vbox{
65     \vspace{10pt}
66     \hsize=\textwidth
67     \parindent=0pt
68     \emergencystretch=1in

```

```

69 \parshape 6
70 0.01\textwidth .98\textwidth
71 0.1\textwidth .8\textwidth
72 0.15\textwidth .7\textwidth
73 0.2\textwidth .6\textwidth
74 0.25\textwidth .5\textwidth
75 0.3\textwidth .4\textwidth
76 \leftskip=0pt plus 1fil
77 \rightskip=0pt plus -1fil
78 \parfillskip=0pt plus 2fil
79 #1\par
80 }
81 }
82 \newcommand{\autotitle}{\setboolean{auto}{true}}
83 \newcommand{\maketitlepage}{
84 \clearpage
85 \begin{vplace}
86 \centering
87 \ifthenelse{\boolean{auto}}
88 {\invpyr{\MakeUppercase{\@title}}}
89 {\@title}
90 \end{vplace}
91 \begin{center}
92 by\\
93 \@author
94 \end{center}
95 \clearpage
96 }

```

`\makecopyrightpage` Copyright Page. This is an optional page that follows the title page. No displayed page number, centered upper and lower case text.

```

97 \newcommand{\makecopyrightpage}{
98 \clearpage
99 \begin{vplace}[0.8]
100 \centering
101 Copyright~by~\@author~\@year\\
102 All~Rights~Reserved
103 \end{vplace}
104 \clearpage
105 }

```

`\makesubmittalpage` Submittal Page. This is a required page that displays the Roman numeral ii page number. Beginning with this page, front matter Roman numeral page numbers are centered 1/2 inch from the bottom edge of page. All signatures are required before the final thesis format review.

```

106 \newcommand{\makesubmittalpage}{
107 \clearpage
108 A thesis submitted to the Faculty and the Board of
109 Trustees of the Colorado School of Mines in partial

```

```

110 fulfillment of the requirements for the degree of
111 {\@degreeelv} ({\@degreeenname}).
112
113 \vspace{2em}
114 \begin{flushleft}
115 Golden, Colorado\\[.5em]
116 Date \underline{\hspace{2in}}
117 \end{flushleft}
118
119 \vspace{.5em}
120 \begin{flushright}
121 Signed: \underline{\hspace{2in}}\\
122 {\@author}\\[2em]
123
124 Signed: \underline{\hspace{2in}}\\
125 \begin{SingleSpace}
126 {\@advisor}\\
127 Thesis Advisor\\[2em]
128 \end{SingleSpace}
129
130
131 \ifundefined{@coadvisor}
132 {
133 \vspace{2.5em}
134 }
135 {
136 Signed: \underline{\hspace{2in}}\\
137 \begin{SingleSpace}
138 {\@coadvisor}\\
139 Thesis Advisor
140 \end{SingleSpace}
141 }
142
143 \end{flushright}
144
145 \begin{flushleft}
146 Golden, Colorado\\[.5em]
147 Date \underline{\hspace{2in}}
148 \end{flushleft}
149
150 \vspace{.5em}
151 \begin{flushright}
152 Signed: \underline{\hspace{2in}}\\
153
154 \begin{SingleSpace}
155 {\@departmenthead}\\
156 Professor and Head\\
157 {\@department}
158 \end{SingleSpace}
159

```

```

160 \end{flushright}
161
162 \clearpage
163 }

abstract We redefine the abstract enviroment. First, we need to save the text
164 \renewenvironment{abstract}{\Collect@Body\@saveabstract}{\}

\@saveabstract And saving the abstract
165 \newcommand{\@saveabstract}[1]{
166 \long\gdef\@abstract{#1}
167 }

\makeabstractpage ABSTRACT (title) is centered horizontally, 1 keyboard return below 1 inch top
margin and in ALL UPPER CASE LETTERS. Each paragraph should be
indented.

168 \newcommand{\makeabstractpage}{
169 \clearpage
170 \chapter*{Abstract}
171 \@abstract
172 \addcontentsline{toc}{chapter}{\MakeUppercase{Abstract}}
173 \clearpage
174 }

We rename the headings for the toc, lof, and the references.

175 \renewcommand\contentsname{Table of Contents}
176 \renewcommand\listfigurename{List of Figures}
177 \renewcommand\listtablename{List of Tables}

178 \renewcommand{\cftchapterdotsep}{\cftdotsep}
179 \renewcommand{\cftchapterfont}{\normalfont\MakeUppercase}
180 \renewcommand{\cftchapterpagefont}{\normalfont}
181 \renewcommand{\cftchapterleader}{\cftdotfill{\cftchapterdotsep}}
182 \renewcommand{\chapternumberline}[1]{
183 \makebox[6.5em][l]{\MakeUppercase{\@chapapp~#1}}
184 }
185 \renewcommand{\l@chapter}{\@dottedtocline{0}{0em}{6.5em}}
186 \renewcommand{\l@section}{\@dottedtocline{1}{3em}{2em}}
187 \renewcommand{\@dotsep}{1}
188 %%% no extra space before the entry, or in the LoF/LoT
189 \setlength{\cftbeforechapterskip}{0pt plus 0pt}
190 \renewcommand{\insertchapterspace}{\}

\maketoc TABLE OF CONTENTS (Title) is centered horizontally, 1 keyboard return below
1 inch top margin and in ALL UPPER CASE LETTERS

191 \newcommand{\maketoc}{
192 \tableofcontents*
193 }

```



```

194 \makechapterstyle{mineschapter}{%
195 \setlength{\midchapskip}{5pt}
196 \setlength{\afterchapskip}{5pt}
197 \renewcommand{\chapnumfont}{\normalfont}
198 \renewcommand{\chapttitlefont}{\normalfont}
199 \renewcommand*{\chapterheadstart}{}
200 \renewcommand{\printchapternum}{}
201 \renewcommand{\printchapternonum}{}
202 \renewcommand{\printchaptername}{%
203 \centerline{\chapnumfont\MakeUppercase{\@chapapp\ \thechapter}}}
204 \renewcommand{\printchaptertitle}[1]{%
205 \centering \vbox{\chapttitlefont\invpyr{\MakeUppercase{##1}}}
206 }
207 }
208 \chapterstyle{mineschapter}

```

`\section` This section of code re-defines some standard stuff for sanity.

```

209 \renewcommand{\section}{\@startsection {section}{1}{\z@}%
210                               {-3.5ex \@plus -1ex \@minus -.2ex}%
211                               {2.3ex \@plus.2ex}%
212                               {\normalfont\normalsize\bfseries}}
213 \renewcommand{\subsection}{\@startsection {subsection}{1}{\z@}%
214                               {-3.5ex \@plus -1ex \@minus -.2ex}%
215                               {2.3ex \@plus.2ex}%
216                               {\normalfont\normalsize\bfseries}}
217 \renewcommand{\subsubsection}{\@startsection {subsubsection}{1}{\z@}%
218                               {-3.5ex \@plus -1ex \@minus -.2ex}%
219                               {2.3ex \@plus.2ex}%
220                               {\normalfont\normalsize\bfseries}}

```