LaTeX 2ε Cheat Sheet

Document classes

`book`	Default is two-sided.
`report`	No `\part` divisions.
`article`	No `\part` or `\chapter` divisions.
`letter`	Letter (?).
`slides`	Large sans-serif font.

Used at the very beginning of a document: `\documentclass{`*class*`}`. Use `\begin{document}` to start contents and `\end{document}` to end the document.

Common `documentclass` options

`10pt/11pt/12pt`	Font size.
`letterpaper/a4paper`	Paper size.
`twocolumn`	Use two columns.
`twoside`	Set margins for two-sided.
`landscape`	Landscape orientation. Must use `dvips -t landscape`.
`draft`	Double-space lines.

Usage: `\documentclass[`*opt,opt*`]{`*class*`}`.

Packages

`fullpage`	Use 1 inch margins.
`anysize`	Set margins: `\marginsize{`*l*`}{`*r*`}{`*t*`}{`*b*`}`.
`multicol`	Use *n* columns: `\begin{multicols}{`*n*`}`.
`latexsym`	Use LaTeX symbol font.
`graphicx`	Show image: `\includegraphics[width=`*x*`]{`*file*`}`.
`url`	Insert URL: `\url{`*http://...*`}`.

Use before `\begin{document}`. Usage: `\usepackage{`*package*`}`

Title

`\author{`*text*`}`	Author of document.
`\title{`*text*`}`	Title of document.
`\date{`*text*`}`	Date.

These commands go before `\begin{document}`. The declaration `\maketitle` goes at the top of the document.

Miscellaneous

`\pagestyle{empty}`	Empty header, footer and no page numbers.

Document structure

`\part{`*title*`}`	`\subsubsection{`*title*`}`
`\chapter{`*title*`}`	`\paragraph{`*title*`}`
`\section{`*title*`}`	`\subparagraph{`*title*`}`
`\subsection{`*title*`}`	

Section commands can be followed with an `*`, like `\section*{`*title*`}`, to supress heading numbers.

`\setcounter{secnumdepth}{`*x*`}` supresses heading numbers of depth $> x$, where `chapter` has depth 0.

Text environments

`\begin{comment}`	Comment block (not printed).
`\begin{quote}`	Indented quotation block.
`\begin{quotation}`	Like `quote` with indented paragraphs.
`\begin{verse}`	Quotation block for verse.

Lists

`\begin{enumerate}`	Numbered list.
`\begin{itemize}`	Bulleted list.
`\begin{description}`	Description list.
`\item` *text*	Add an item.
`\item[`*x*`]` *text*	Use *x* instead of normal bullet or number. Required for descriptions.

References

`\label{`*marker*`}`	Set a marker for cross-reference, often of the form `\label{sec:item}`.
`\ref{`*marker*`}`	Give section/body number of marker.
`\pageref{`*marker*`}`	Give page number of marker.
`\footnote{`*text*`}`	Print footnote at bottom of page.

Floating bodies

`\begin{table}[`*place*`]`	Add numbered table.
`\begin{figure}[`*place*`]`	Add numbered figure.
`\begin{equation}[`*place*`]`	Add numbered equation.
`\caption{`*text*`}`	Caption for the body.

The *place* is a list valid placements for the body. `t`=top, `h`=here, `b`=bottom, `p`=separate page, `!`=place even if ugly. Captions and label markers should be within the environment.

Text properties

Font face

Command	*Declaration*	*Effect*
`\textrm{`*text*`}`	`{\rmfamily` *text*`}`	Roman family
`\textsf{`*text*`}`	`{\sffamily` *text*`}`	Sans serif family
`\texttt{`*text*`}`	`{\ttfamily` *text*`}`	`Typewriter family`
`\textmd{`*text*`}`	`{\mdseries` *text*`}`	Medium series
`\textbf{`*text*`}`	`{\bfseries` *text*`}`	**Bold series**
`\textup{`*text*`}`	`{\upshape` *text*`}`	Upright shape
`\textit{`*text*`}`	`{\itshape` *text*`}`	*Italic shape*
`\textsl{`*text*`}`	`{\slshape` *text*`}`	*Slanted shape*
`\textsc{`*text*`}`	`{\scshape` *text*`}`	Small Caps shape
`\emph{`*text*`}`	`{\em` *text*`}`	*Emphasized*
`\textnormal{`*text*`}`	`{\normalfont` *text*`}`	Document font
`\underline{`*text*`}`		Underline

The command (t*ttt*) form handles spacing better than the declaration (t*ttt*) form.

Font size

`\tiny`	tiny	`\Large`	Large
`\scriptsize`	scriptsize	`\LARGE`	LARGE
`\footnotesize`	footnotesize	`\huge`	huge
`\small`	small	`\Huge`	Huge
`\normalsize`	normalsize		
`\large`	large		

These are declarations and should be used in the form `{\small ...}`, or without braces to affect the entire document.

Verbatim text

`\begin{verbatim}`	Verbatim environment.
`\begin{verbatim*}`	Spaces are shown as ␣.
`\verb!text!`	Text between the delimiting characters (in this case '`!`') is verbatim.

Justification

Environment	*Declaration*
`\begin{center}`	`\centering`
`\begin{flushleft}`	`\raggedright`
`\begin{flushright}`	`\raggedleft`

Miscellaneous

`\linespread{`*x*`}` changes the line spacing by the multiplier *x*.

Text-mode symbols

Symbols

&	`\&`	_	`\_`	...	`\ldots`	•	`\textbullet`
$	`\$`	^	`\^{}`			`\textbar`	\	`\textbackslash`
%	`\%`	~	`\~{}`	#	`\#`	§	`\S`

Accents

ò	`` \`o ``	ó	`\'o`	ô	`\^o`	õ	`\~o`	ō	`\=o`
ȯ	`\.o`	ö	`\"o`	ǫ	`\c o`	ǒ	`\v o`	ő	`\H o`
ç	`\c c`	ọ	`\d o`	o̱	`\b o`	o͡o	`\t oo`	œ	`\oe`
Œ	`\OE`	æ	`\ae`	Æ	`\AE`	å	`\aa`	Å	`\AA`
ø	`\o`	Ø	`\O`	ł	`\l`	Ł	`\L`	ı	`\i`
ȷ	`\j`	¡	``!` ``	¿	``?` ``				

Delimiters

‘	`` ` ``	“	` `` `	{	`\{`	[	`[`	(	`(`	<	`\textless`
’	`'`	”	`''`	}	`\}`	]	`]`	)	`)`	>	`\textgreater`

Dashes

Name	*Source*	*Example*	*Usage*
hyphen	`-`	X-ray	In words.
en-dash	`--`	1–5	Between numbers.
em-dash	`---`	Yes—or no?	Punctuation.

Line and page breaks

`\\`	Begin new line without new paragraph.
`\\*`	Prohibit pagebreak after linebreak.
`\kill`	Don't print current line.
`\pagebreak`	Start new page.
`\noindent`	Do not indent current line.

Miscellaneous

`\today`	October 23, 2006.
`$\sim$`	Prints ∼ instead of `\~{}`, which makes ˜.
`~`	Space, disallow linebreak (`W.J.~Clinton`).
`\@.`	Indicate that the `.` ends a sentence when following an uppercase letter.
`\hspace{`*l*`}`	Horizontal space of length *l* (Ex: $l =$ `20pt`).
`\vspace{`*l*`}`	Vertical space of length *l*.
`\rule{`*w*`}{`*h*`}`	Line of width *w* and height *h*.

Tabular environments

`tabbing` environment

`\=` Set tab stop. `\>` Go to tab stop.

Tab stops can be set on "invisible" lines with `\kill` at the end of the line. Normally `\\` is used to separate lines.

`tabular` environment

`\begin{array}[`*pos*`]{`*cols*`}`
`\begin{tabular}[`*pos*`]{`*cols*`}`
`\begin{tabular*}{`*width*`}[`*pos*`]{`*cols*`}`

`tabular` column specification

`l`	Left-justified column.
`c`	Centered column.
`r`	Right-justified column.
`p{`*width*`}`	Same as `\parbox[t]{`*width*`}`.
`@{`*decl*`}`	Insert *decl* instead of inter-column space.
`|`	Inserts a vertical line between columns.

`tabular` elements

`\hline`	Horizontal line between rows.
`\cline{`*x*`-`*y*`}`	Horizontal line across columns x through y.
`\multicolumn{`*n*`}{`*cols*`}{`*text*`}`	A cell that spans n columns, with *cols* column specification.

Math mode

To use math mode, surround text with `$` or use `\begin{equation}`.

Superscript^x	`^{x}`	Subscript$_x$	`_{x}`
$\frac{x}{y}$	`\frac{x}{y}`	$\sum_{k=1}^n$	`\sum_{k=1}^n`
$\sqrt[n]{x}$	`\sqrt[n]{x}`	$\prod_{k=1}^n$	`\prod_{k=1}^n`

Math-mode symbols

$\leq$	`\leq`	$\geq$	`\geq`	$\neq$	`\neq`	$\approx$	`\approx`
$\times$	`\times`	$\div$	`\div`	$\pm$	`\pm`	$\cdot$	`\cdot`
$^{\circ}$	`^{\circ}`	$\circ$	`\circ`	$\prime$	`\prime`	$\cdots$	`\cdots`
∞	`\infty`	$\neg$	`\neg`	$\wedge$	`\wedge`	$\vee$	`\vee`
$\supset$	`\supset`	$\forall$	`\forall`	$\in$	`\in`	$\rightarrow$	`\rightarrow`
$\subset$	`\subset`	$\exists$	`\exists`	$\notin$	`\notin`	$\Rightarrow$	`\Rightarrow`
$\cup$	`\cup`	$\cap$	`\cap`	$\mid$	`\mid`	$\Leftrightarrow$	`\Leftrightarrow`
$\dot{a}$	`\dot a`	$\hat{a}$	`\hat a`	$\bar{a}$	`\bar a`	$\tilde{a}$	`\tilde a`
α	`\alpha`	β	`\beta`	γ	`\gamma`	δ	`\delta`
ϵ	`\epsilon`	ζ	`\zeta`	η	`\eta`	ε	`\varepsilon`
θ	`\theta`	ι	`\iota`	κ	`\kappa`	ϑ	`\vartheta`
λ	`\lambda`	μ	`\mu`	ν	`\nu`	ξ	`\xi`
π	`\pi`	ρ	`\rho`	σ	`\sigma`	τ	`\tau`
υ	`\upsilon`	ϕ	`\phi`	χ	`\chi`	ψ	`\psi`
ω	`\omega`	Γ	`\Gamma`	Δ	`\Delta`	Θ	`\Theta`
Λ	`\Lambda`	Ξ	`\Xi`	Π	`\Pi`	Σ	`\Sigma`
Υ	`\Upsilon`	Φ	`\Phi`	Ψ	`\Psi`	Ω	`\Omega`

Bibliography and citations

When using BibTeX, you need to run `latex`, `bibtex`, and `latex` twice more to resolve dependencies.

Citation types

`\cite{`*key*`}`	Full author list and year. (Watson and Crick 1953)
`\citeA{`*key*`}`	Full author list. (Watson and Crick)
`\citeN{`*key*`}`	Full author list and year. Watson and Crick (1953)
`\shortcite{`*key*`}`	Abbreviated author list and year. ?
`\shortciteA{`*key*`}`	Abbreviated author list. ?
`\shortciteN{`*key*`}`	Abbreviated author list and year. ?
`\citeyear{`*key*`}`	Cite year only. (1953)

All the above have an `NP` variant without parentheses; Ex. `\citeNP`.

BibTeX entry types

`@article`	Journal or magazine article.
`@book`	Book with publisher.
`@booklet`	Book without publisher.
`@conference`	Article in conference proceedings.
`@inbook`	A part of a book and/or range of pages.
`@incollection`	A part of book with its own title.
`@misc`	If nothing else fits.
`@phdthesis`	PhD. thesis.
`@proceedings`	Proceedings of a conference.
`@techreport`	Tech report, usually numbered in series.
`@unpublished`	Unpublished.

BibTeX fields

`address`	Address of publisher. Not necessary for major publishers.
`author`	Names of authors, of format ....
`booktitle`	Title of book when part of it is cited.
`chapter`	Chapter or section number.
`edition`	Edition of a book.
`editor`	Names of editors.
`institution`	Sponsoring institution of tech. report.
`journal`	Journal name.
`key`	Used for cross ref. when no author.
`month`	Month published. Use 3-letter abbreviation.
`note`	Any additional information.
`number`	Number of journal or magazine.
`organization`	Organization that sponsors a conference.
`pages`	Page range (`2,6,9--12`).
`publisher`	Publisher's name.
`school`	Name of school (for thesis).
`series`	Name of series of books.
`title`	Title of work.
`type`	Type of tech. report, ex. "Research Note".
`volume`	Volume of a journal or book.
`year`	Year of publication.

Not all fields need to be filled. See example below.

Common BibTeX style files

`abbrv`	Standard	`abstract`	`alpha` with abstract
`alpha`	Standard	`apa`	APA
`plain`	Standard	`unsrt`	Unsorted

The LaTeX document should have the following two lines just before `\end{document}`, where `bibfile.bib` is the name of the BibTeX file.

```
\bibliographystyle{plain}
\bibliography{bibfile}
```

BibTeX example

The BibTeX database goes in a file called *file*`.bib`, which is processed with `bibtex file`.

```
@String{N = {Na\-ture}}
@Article{WC:1953,
  author  = {James Watson and Francis Crick},
  title   = {A structure for Deoxyribose Nucleic Acid},
  journal = N,
  volume  = {171},
  pages   = {737},
  year    = 1953
}
```

Sample LaTeX document

```
\documentclass[11pt]{article}
\usepackage{fullpage}
\title{Template}
\author{Name}
\begin{document}
\maketitle

\section{section}
\subsection*{subsection without number}
text \textbf{bold text} text. Some math: $2+2=5$
\subsection{subsection}
text \emph{emphasized text} text. \cite{WC:1953}
discovered the structure of DNA.

A table:
\begin{table}[!th]
\begin{tabular}{|l|c|r|}
\hline
first  &  row  &  data \\
second &  row  &  data \\
\hline
\end{tabular}
\caption{This is the caption}
\label{ex:table}
\end{table}

The table is numbered \ref{ex:table}.
\end{document}
```


$Revision: 1.10 $, $Date: 2006/10/23 08:40:17 $.
http://www.stdout.org/~winston/latex/