LaTeX 2ε Quick Reference

Document classes

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

\documentclass{*class*} Used at the very beginning of a document. 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.
\tableofcontents Add a table of contents here.
\listoffigures Add a list of figures here.
\listoftables Add a list of tables here.

Document structure

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

Use \setcounter{secnumdepth}{x} suppresses heading numbers of depth $> x$, where chapter has depth 0. Use a *, as in \section*{*title*}, to not number a particular item—these items will also not appear in the table of contents.

Text environments

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

Lists

\begin{enumerate} Numbered list.(\end{enumerate})
\begin{itemize} Bulleted list. (\end{itemize})
\begin{description} Description list. (\end{itemize})
\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.(\end{table})
\begin{figure}[*place*] Add numbered figure.(\end{figure})
\begin{equation}[*place*] Add numbered equation. (\end{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 (tttt) form handles spacing better than the declaration (ttt) form.

Font size

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

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

Verbatim text

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

Justification

Environment	*Declaration*
\begin{center}	\centering (\end{center})
\begin{flushleft}	\raggedright(\end{flushleft})
\begin{flushright}	\raggedleft (\end{flushright})

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	o͡ \c o	ŏ \v o	ő \H o
ç \c c	o̲ \d o	o͟ \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 August 30, 2017.
$\sim$ 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 or 1cm).
\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}` (`\end{array}`)
`\begin{tabular}[pos]{cols}` (`\end{tabular}`)
`\begin{tabular*}{width}[pos]{cols}` (`\end{tabular*}`)

`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(vertical bar).

`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

For inline math, use `\(...\)` or `$...$`. For displayed math, use `\[...\]` or `\begin{equation}`.

Superscript x^x	`^{x}`	Subscript x_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 (or) 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}
```

email p.j.basu@gmail.com