

# L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> 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 L<sup>A</sup>T<sub>E</sub>X 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 num-  
 bers.

## 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 suppress heading numbers.  
 \setcounter{secnumdepth}{x} suppresses 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}	<b>Bold series</b>
\textup{text}	{\upshape text}	Upright shape
\textit{text}	{\itshape text}	<i>Italic shape</i>
\textsl{text}	{\slshape text}	<i>Slanted shape</i>
\textsc{text}	{\scshape text}	SMALL CAPS SHAPE
\emph{text}	{\em text}	<i>Emphasized</i>
\textnormal{text}	{\normalfont text}	Document font
\underline{text}		<u>Underline</u>

The command (ttt) form handles spacing better than the  
 declaration (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 <sub>␣</sub>.  
 \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
ó \.o	ö \\"o	q \c o	õ \v o	ö \H o
ç \c c	q \d o	q \b o	õ \t oo	œ \oe
Œ \OE	æ \ae	Æ \AE	å \aa	Å \AA
ø \o	Ø \O	ı \l	L \L	ı \i
J \j	i \i	ı \i	ı \i	ı \i

### 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 May 29, 2008.  
 \$\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<sup>x</sup>  $\hat{x}$  Subscript<sub>x</sub>  $\_x$   
 $\frac{x}{y}$   $\frac{x}{y}$   $\sum_{k=1}^n$   $\sum_{k=1}^n$   
 $\sqrt[n]{x}$   $\sqrt[n]{x}$   $\prod_{k=1}^n$   $\prod_{k=1}^n$

## 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  
 $\infty$  \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  $\Leftrightarrow$  \Leftrightarrow  
 $\dot{a}$  \dot{a}  $\hat{a}$  \hat{a}  $\bar{a}$  \bar{a}  $\tilde{a}$  \tilde{a}  
 $\alpha$  \alpha  $\beta$  \beta  $\gamma$  \gamma  $\delta$  \delta  
 $\epsilon$  \epsilon  $\zeta$  \zeta  $\eta$  \eta  $\varepsilon$  \varepsilon  
 $\theta$  \theta  $\iota$  \iota  $\kappa$  \kappa  $\vartheta$  \vartheta  
 $\lambda$  \lambda  $\mu$  \mu  $\nu$  \nu  $\xi$  \xi  
 $\pi$  \pi  $\rho$  \rho  $\sigma$  \sigma  $\tau$  \tau  
 $\upsilon$  \upsilon  $\phi$  \phi  $\chi$  \chi  $\psi$  \psi  
 $\omega$  \omega  $\Gamma$  \Gamma  $\Delta$  \Delta  $\Theta$  \Theta  
 $\Lambda$  \Lambda  $\Xi$  \Xi  $\Pi$  \Pi  $\Sigma$  \Sigma  
 $\Upsilon$  \Upsilon  $\Phi$  \Phi  $\Psi$  \Psi  $\Omega$  \Omega

## Bibliography and citations

When using BIB<sub>TEX</sub>, you need to run latex, bib<sub>TEX</sub>, 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.

## BIB<sub>TEX</sub> 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.

## BIB<sub>TEX</sub> 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 BIB<sub>TEX</sub> style files

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

The L<sup>A</sup>T<sub>E</sub>X document should have the following two lines just before \end{document}, where bibfile.bib is the name of the BIB<sub>TEX</sub> file.

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

## BIB<sub>TEX</sub> example

The BIB<sub>TEX</sub> database goes in a file called file.bib, which is processed with bib<sub>TEX</sub> 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 L<sup>A</sup>T<sub>E</sub>X 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 \\ \\\br/>second & row & data \\ \\\br/>\end{tabular}  
\caption{This is the caption}  
\label{ex:table}  
\end{table}

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

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\$Revision: 1.13 \$, \$Date: 2008/05/29 06:11:56 \$.  
<http://www.stdout.org/~winston/latex/>