

L^AT_EX 2_ε 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.
ansysize	Set margins: \marginsize{l}{r}{t}{b}.
multicol	Use n columns: \begin{multicols}{ n }.
latexsym	Use L ^A T _E 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 numbers.
\tableofcontents	Add a table of contents here.

Document structure

\part{title}	\subsubsection{title}
\chapter{title}	\paragraph{title}
\section{title}	\subparagraph{title}
\subsection{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.
\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, 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	<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 (tttt) form handles spacing better than the declaration (tttt) form.

Font size

\tiny	<small>tiny</small>	\Large	Large
\scriptsize	<small>scriptsize</small>	\LARGE	LARGE
\footnotesize	<small>footnotesize</small>	\huge	huge
\small	<small>small</small>		
\normalsize	<small>normalsize</small>		
\large	<small>large</small>	\Huge	Huge

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 \ˆo	õ \˜o	ō \=o
ô \.o	ö \¨o	q \c o	ö \v o	ő \H o
ç \c c	q \d o	q \b o	öo \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	March 28, 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: $l = 20\text{pt}$).
\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

Tom Hanna

```
\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

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

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

Math-mode symbols

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

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



A 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}
```

LaTeX 2e Cheat Sheet

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