

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^AT_EX 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, 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
<code>\textrm{text}</code>	<code>\rmfamily text</code>	Roman family
<code>\textsf{text}</code>	<code>\sffamily text</code>	Sans serif family
<code>\texttt{text}</code>	<code>\ttfamily text</code>	Typewriter family
<code>\textmd{text}</code>	<code>\mdseries text</code>	Medium series
<code>\textbf{text}</code>	<code>\bfseries text</code>	Bold series
<code>\textup{text}</code>	<code>\upshape text</code>	Upright shape
<code>\textit{text}</code>	<code>\itshape text</code>	<i>Italic shape</i>
<code>\textsl{text}</code>	<code>\slshape text</code>	<i>Slanted shape</i>
<code>\textsc{text}</code>	<code>\scshape text</code>	SMALL CAPS SHAPE
<code>\emph{text}</code>	<code>\em text</code>	<i>Emphasized</i>
<code>\textnormal{text}</code>	<code>\normalfont text</code>	Document font
<code>\underline{text}</code>		<u>Underline</u>

The command (tttt) form handles spacing better than the declaration (tttt) form.

Font size

<code>\tiny</code>	tiny	<code>\Large</code>	Large
<code>\scriptsize</code>	scriptsize	<code>\LARGE</code>	LARGE
<code>\footnotesize</code>	footnotesize		
<code>\small</code>	small	<code>\huge</code>	huge
<code>\normalsize</code>	normalsize		
<code>\large</code>	large	<code>\Huge</code>	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
<code>\begin{center}</code>	<code>\centering</code>
<code>\begin{flushleft}</code>	<code>\raggedright</code>
<code>\begin{flushright}</code>	<code>\raggedleft</code>

Miscellaneous

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

Text-mode symbols

Symbols

<code>&</code>	<code>\&</code>	<code>-</code>	<code>_</code>	<code>...</code>	<code>\ldots</code>	<code>•</code>	<code>\textbullet</code>
<code>\$</code>	<code>\\$</code>	<code>^</code>	<code>\^{}{}</code>	<code> </code>	<code>\textbar</code>	<code>\</code>	<code>\textbackslash</code>
<code>%</code>	<code>\%</code>	<code>~</code>	<code>\~{}{}</code>	<code>#</code>	<code>\#</code>	<code>§</code>	<code>\S</code>

Delimiters

<code>‘ ‘ ‘ ‘</code>	<code>{ \{</code>	<code>[[</code>	<code>((</code>	<code><</code>	<code>\textless</code>
<code>’ ’ ’ ’</code>	<code>} \}</code>	<code>]]</code>	<code>))</code>	<code>></code>	<code>\textgreater</code>

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` December 4, 2013.
`\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

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

Superscript^{*x*} `\^{\textit{x}}` Subscript_{*x*} `_{{\textit{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	<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)

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

<code>abbrv</code>	Standard	<code>abstract</code>	alpha with abstract
<code>alpha</code>	Standard	<code>apa</code>	APA
<code>plain</code>	Standard	<code>unsrt</code>	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 L^AT_EX 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}
```

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<http://www.stdout.org/~winston/latex/>
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