

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.
anysize 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}
For russian language:
\usepackage[utf8]{inputenc}
\usepackage[russian]{babel}
For footnotes in headings:
\usepackage[stable]{footmisc}

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
\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 (ttt) 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

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.
~\\ In article, after the paragraph heading: begin new line.
\kill Don’t print current line.
\pagebreak Start new page.
\noindent Do not indent current line.

Miscellaneous

\today December 5, 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* = 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

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

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

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@unpublished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	Unpublished.

BibTeX fields

<code>address</code>	Address of publisher. Not necessary for major publishers.
<code>author</code>	Names of authors. No commas, only and .
<code>booktitle</code>	Title of book when part of it is cited.
<code>chapter</code>	Chapter or section number.
<code>edition</code>	Edition of a book.
<code>editor</code>	Names of editors.
<code>howpublished</code>	How it was published (usefull for giving a URL).
<code>institution</code>	Sponsoring institution of tech. report.
<code>journal</code>	Journal name.
<code>key</code>	Used for cross ref. when no author.
<code>month</code>	Month published. Use 3-letter abbreviation.
<code>note</code>	Any additional information.
<code>number</code>	Number of journal or magazine.
<code>organization</code>	Organization that sponsors a conference.
<code>pages</code>	Page range (2,6,9--12).
<code>publisher</code>	Publisher's name.
<code>school</code>	Name of school (for thesis).
<code>series</code>	Name of series of books.
<code>title</code>	Title of work.
<code>type</code>	Type of tech. report, ex. "Research Note".
<code>volume</code>	Volume of a journal or book.
<code>year</code>	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\~{t}ure}}
@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}
```

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<http://www.stdout.org/~winston/latex/>
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<https://github.com/katyatitkova/LaTeX-cheat-sheet>