Research Computing Services

LaTeX Cheat Sheet

Introduction

Document classes

`book`	Default is two-sided.
`report`	No `\part` divisions.
`article`	No `\part` or `\chapter` divisions.

Common `documentclass` options

`10pt/11pt/12pt`	Font size.
`letterpaper/a4paper`	Paper size.
`landscape`	Landscape orientation.
`draft`	Double-space lines.

Packages

`graphicx` Graphics Package.
`marvosym` Font Package.
`amsmath` Maths Package.
`hyperref` Referencing package.
`geometry` Customise page layout.
`fancyhdr` For constructing headers and footers.

Title

`\author{`*text*`}`	Author of document.
`\title{`*text*`}`	Title of document.
`\date{`*text*`}`	Date.
`\tableofcontents`	Add a table of contents here.

Document structure

`\chapter{`*title*`}`
`\section{`*title*`}`
`\subsection{`*title*`}`
`\subsubsection{`*title*`}`

Use a `*`, as in `\section*{`*title*`}`, to not number for an item.

Line and page breaks

LaTeX ignores extra spaces and new lines.
Leave one full empty line between two paragraphs.

`\\`	Begin new line without new paragraph.
`\pagebreak`	Start new page.
`\noindent`	Do not indent current line.

Miscellaneous

`\today`	March 10, 2020.
`\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*.

Creating a document: www.overleaf.com/learn/latex/Creating_a_document_in_LaTeX

Environments

Lists

`\begin{enumerate}`	Numbered list.
`\begin{itemize}`	Bulleted list.
`\item` *text*	Add an item.
`\item[`*x*`]` *text*	Use *x* instead of normal bullet or number. Required for descriptions.

List type	*Command*	*Output*

unordered list	`\begin{itemize}`
	`  \item Thing 1`
	`  \item Thing 2`
	`\end{itemize}`
		• Thing 1
		• Thing 2

ordered list	`\begin{enumerate}`
	`  \item Thing 1`
	`  \item Thing 2`
	`\end{enumerate}`
		1. Thing 1
		2. Thing 2

Lists: www.overleaf.com/learn/latex/Lists

Figures and Tables

`\begin{table}[`*place*`]`	Add numbered table.
`\begin{figure}[`*place*`]`	Add numbered figure.
`\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.

```
\begin{figure}[ht]
\includegraphics[width=.5in]{imagename.jpg}
\caption{The (optional) caption goes here.}
\end{figure}
```

Tabular environment

`\begin{tabular}[`*pos*`]{`*cols*`}`

`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.
`\hline`	Horizontal line between rows.

Environments: www.overleaf.com/learn/latex/Environments
Generating tables in LaTeX: www.tablesgenerator.com

Formatting

Justification

Environment	*Declaration*
`\begin{center}`	`\centering`
`\begin{flushleft}`	`\raggedright`
`\begin{flushright}`	`\raggedleft`

Paragraph formatting: www.overleaf.com/learn/latex/Paragraph_formatting

Font face

Command	*Declaration*	*Output*
`\textit{`*text*`}`	`{\textit` *text*`}`	*Italics text*
`\textbf{text}`	`{\textbf` *text*`}`	**Boldface text**
`\underline{`*text*`}`	`{\underline` *text*`}`	Underlined text
`\texttt{`*text*`}`	`{\ttfamily` *text*`}`	`Typewriter family`
`\textsl{`*text*`}`	`{\slshape` *text*`}`	*Slanted shape*
`\textsc{`*text*`}`	`{\scshape` *text*`}`	Small Caps shape
`\emph{`*text*`}`	`{\em` *text*`}`	*Emphasized*
`\textnormal{`*text*`}`	`{\normalfont` *text*`}`	Document font

Font size

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

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

Use `\noindent` to prevent a paragraph from indenting.

Fonts:
www.overleaf.com/learn/latex/Font_sizes,_families,_and_styles

Symbols

Text-mode symbols

The following symbols appear in text mode (not math mode).

Symbol	*Command*	*Output*
dollar sign	`\$`	$
sterling	`\textsterling`	£
percent	`\%`	%
ampersand	`\&`	&
pound	`\#`	#
backslash	`\textbackslash`	\
single left quote	`	‘
single right quote	'	’
hyphen	`X-ray`	X-ray
en-dash	`pp. 5--15`	pp. 5–15
em-dash	`Yes---or no?`	Yes—or no?
LaTeX	`\LaTeX`	LaTeX
copyright	`\copyright`	©
trademark	`\texttrademark`	TM
paragraph	`\textparagraph`	¶
dots	`\dots`	...
dagger	`\dag`	†
asterix	`\textasteriskcentered`	*

Symbol identification: http://detexify.kirelabs.org
Remember to use the required packages.
Symbol list: tug.ctan.org/info/symbols/comprehensive/symbols-a4.pdf

Mathematics & Statistics

Math mode

For inline math, use `\(...\)` or `$...$`.
For displayed math, use `\[...\]`, or `$$...$$`
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`

Tips & Tricks Video: http://go.unimelb.edu.au/9xz6
Mathpix: https://mathpix.com

Referencing

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.

BibTeX example

```
@Article{WC1953,
  author  = {James Watson and Francis Crick},
  title   = {A structure for Deoxyribose Nucleic Acid},
  journal = {Nature},
  volume  = {171},
  pages   = {737},
  year    = 1953
}
```

Common BibTeX style files

`abbrv`	Standard	`abstract`	`alpha` with abstract
`alpha`	Standard	`apa6`	APA
`apsrev`	Phys Review	`ieeetr`	IEEE Transactions
`plain`	Standard	`unsrt`	Unsorted

The BibTeX database (list of BibTeX entries) is in a `.bib` file. The `.tex` file should have these two lines, where `bibfile.bib` is the name of the BibTeX file:

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

Reference management tools and guides:
http://library.unimelb.edu.au/reference-management
Guides for reference management in LaTeX:
http://unimelb.libguides.com/referencemanaginginlatex

Notes

Sample

```
\documentclass{article}

\title{Example document}
\author{Name}
\date{\today}

\begin{document}

\maketitle

\section{section}

Hello world. \textbf{bold text}. Some math: $2+2=5$.

\subsection{Subsection}
\cite{WC1953} 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{tab:mydata}
\end{table}

Refer to my data in \autoref{tab:mydata}.
\end{document}
```

Resources

- Check our Eventbrite page for upcoming workshops and events: http://rescomunimelb.eventbrite.com
- Research Computing Services offer a range of other services: http://go.unimelb.edu.au/n5yr
- Overleaf documentation and guides: www.overleaf.com/learn
- Install a local distribution: www.latex-project.org/get
- Community for asking LaTeX questions and sharing ideas: http://tex.stackexchange.com
- Comprehensive TeX Archive Network: www.ctan.org
- TeX Users Group: www.tug.org
- The Not So Short Introduction to LaTeX 2ε: http://tug.ctan.org/info/lshort/english/lshort.pdf

The file used in the workshop I attended is: _____

This Cheat Sheet was developed by Brian Boyce and Meirian Lovelace-Tozer for use in LaTeX training at Research Computing Services.
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