A quick guide to LaTeX

What is LaTeX?

LaTeX(usually pronounced "LAY teck," sometimes "LAH teck," and never "LAY tex") is a mathematics typesetting program that is the standard for most professional mathematics writing. It is based on the typesetting program TeX created by Donald Knuth of Stanford University (his first version appeared in 1978). Leslie Lamport was responsible for creating LaTeX a more user friendly version of TeX. A team of LaTeX programmers created the current version, LaTeX 2ε.

Math vs. text vs. functions

In properly typeset mathematics variables appear in italics (e.g., $f(x) = x^2 + 2x - 3$). The exception to this rule is predefined functions (e.g., $\sin(x)$). Thus it is important to **always** treat text, variables, and functions correctly. See the difference between x and x, -1 and -1, and $sin(x)$ and $\sin(x)$. There are two ways to present a mathematical expression—*inline* or as an *equation*.

Inline mathematical expressions

Inline expressions occur in the middle of a sentence. To produce an inline expression, place the math expression between dollar signs (`$`). For example, typing
`$90^{\circ}$ is the same as $\frac{\pi}{2}$ radians`
yields 90° is the same as $\frac{\pi}{2}$ radians.

Equations

Equations are mathematical expressions that are given their own line and are centered on the page. These are usually used for important equations that deserve to be showcased on their own line or for large equations that cannot fit inline. To produce an inline expression, place the mathematical expression between the symbols `\[` and `\]`. Typing
`\[x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}\]` yields

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

Displaystyle

To get full-sized inline mathematical expressions use `\displaystyle`. Use this sparingly. Typing
`I want this $\displaystyle \sum_{n=1}^{\infty} \frac{1}{n}$, not this $\sum_{n=1}^{\infty} \frac{1}{n}$.` yields

I want this $\displaystyle \sum_{n=1}^{\infty} \frac{1}{n}$, not this $\sum_{n=1}^{\infty} \frac{1}{n}$.

Images

You can put images (pdf, png, jpg, or gif) in your document. They need to be in the same location as your .tex file when you compile the document. Omit `[width=.5in]` if you want the image to be full-sized.

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

Text decorations

Your text can be *italics* (`\textit{italics}`), **boldface** (`\textbf{boldface}`), or <u>underlined</u> (`\underline{underlined}`).

Your math can contain boldface, $\mathbf{R}$ (`\mathbf{R}`), or blackboard bold, $\mathbb{R}$ (`\mathbb{R}`). You may want to used these to express the sets of real numbers ($\mathbb{R}$ or $\mathbf{R}$), integers ($\mathbb{Z}$ or $\mathbf{Z}$), rational numbers ($\mathbb{Q}$ or $\mathbf{Q}$), and natural numbers ($\mathbb{N}$ or $\mathbf{N}$).

To have text appear in a math expression use `\text`.
`(0,1]=\{x\in\mathbb{R}:x>0\text{ and }x\le 1\}` yields $(0,1] = \{x \in \mathbb{R} : x > 0 \text{ and } x \le 1\}$. (Without the `\text` command it treats "and" as three variables: $(0,1] = \{x \in \mathbb{R} : x > 0 and x \le 1\}$.)

Spaces and new lines

LaTeX ignores extra spaces and new lines. For example,

```
This   sentence will       look
fine after      it is     compiled.
```

This sentence will look fine after it is compiled.

Leave one full empty line between two paragraphs. Place `\\` at the end of a line to create a new line (but not create a new paragraph).

```
This
compiles


like\\
this.
```

This compiles
like
this.

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

Comments

Use `%` to create a comment. Nothing on the line after the `%` will be typeset. `$f(x)=\sin(x)$ %this is the sine function` yields $f(x) = \sin(x)$

Delimiters

description	*command*	*output*
parentheses	`(x)`	(x)
brackets	`[x]`	[x]
curly braces	`\{x\}`	{x}

To make your delimiters large enough to fit the content, use them together with `\right` and `\left`. For example,
`\left\{\sin\left(\frac{1}{n}\right)\right\}_{n}^{\infty}` produces

$$\left\{\sin\left(\frac{1}{n}\right)\right\}_{n}^{\infty}.$$

Curly braces are non-printing characters that are used to gather text that has more than one character. Observe the differences between the four expressions `x^2`, `x^{2}`, `x^2t`, `x^{2t}` when typeset: x^2, x^{2}, x^2t, x^{2t}.

Lists

You can produce ordered and unordered lists.

description	*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

Symbols (in *math* mode)

The basics

description	*command*	*output*
addition	`+`	$+$
subtraction	`-`	$-$
plus or minus	`\pm`	$\pm$
multiplication (times)	`\times`	$\times$
multiplication (dot)	`\cdot`	$\cdot$
division symbol	`\div`	$\div$
division (slash)	`/`	$/$
circle plus	`\oplus`	$\oplus$
circle times	`\otimes`	$\otimes$
equal	`=`	$=$
not equal	`\ne`	$\neq$
less than	`<`	$<$
greater than	`>`	$>$
less than or equal to	`\le`	$\leq$
greater than or equal to	`\ge`	$\geq$
approximately equal to	`\approx`	$\approx$
infinity	`\infty`	∞
dots	`1,2,3,\ldots`	$1, 2, 3, \ldots$
dots	`1+2+3+\cdots`	$1 + 2 + 3 + \cdots$
fraction	`\frac{a}{b}`	$\frac{a}{b}$
square root	`\sqrt{x}`	$\sqrt{x}$
nth root	`\sqrt[n]{x}`	$\sqrt[n]{x}$
exponentiation	`a^b`	a^b
subscript	`a_b`	a_b
absolute value	`|x|`	$\|x\|$
natural log	`\ln(x)`	$\ln(x)$
logarithms	`\log_{a}b`	$\log_a b$
exponential function	`e^x=\exp(x)`	$e^x = \exp(x)$
degree	`\deg(f)`	$\deg(f)$

Functions

description	*command*	*output*
maps to	`\to`	$\to$
composition	`\circ`	$\circ$

piecewise function	`|x|=`
	`\begin{cases}`
	`x & x\ge 0\\`
	`-x & x<0`
	`\end{cases}`
		$\|x\| = \begin{cases} x & x \ge 0 \\ -x & x < 0 \end{cases}$

Greek and Hebrew letters

command	*output*	*command*	*output*
`\alpha`	α	`\tau`	τ
`\beta`	β	`\theta`	θ
`\chi`	χ	`\upsilon`	υ
`\delta`	δ	`\xi`	ξ
`\epsilon`	ϵ	`\zeta`	ζ
`\varepsilon`	ε	`\Delta`	Δ
`\eta`	η	`\Gamma`	Γ
`\gamma`	γ	`\Lambda`	Λ
`\iota`	ι	`\Omega`	Ω
`\kappa`	κ	`\Phi`	Φ
`\lambda`	λ	`\Pi`	Π
`\mu`	μ	`\Psi`	Ψ
`\nu`	ν	`\Sigma`	Σ
`\omega`	ω	`\Theta`	Θ
`\phi`	ϕ	`\Upsilon`	Υ
`\varphi`	φ	`\Xi`	Ξ
`\pi`	π	`\aleph`	$\aleph$
`\psi`	ψ	`\beth`	$\beth$
`\rho`	ρ	`\daleth`	$\daleth$
`\sigma`	σ	`\gimel`	$\gimel$

Set theory

description	*command*	*output*
set brackets	`\{1,2,3\}`	$\{1,2,3\}$
element of	`\in`	$\in$
not an element of	`\not\in`	$\notin$
subset of	`\subset`	$\subset$
subset of	`\subseteq`	$\subseteq$
not a subset of	`\not\subset`	$\not\subset$
contains	`\supset`	$\supset$
contains	`\supseteq`	$\supseteq$
union	`\cup`	$\cup$
intersection	`\cap`	$\cap$
big union	`\bigcup_{n=1}^{10}A_n`	$\bigcup_{n=1}^{10} A_n$
big intersection	`\bigcap_{n=1}^{10}A_n`	$\bigcap_{n=1}^{10} A_n$
empty set	`\emptyset`	$\emptyset$
power set	`\mathcal{P}`	$\mathcal{P}$
minimum	`\min`	$\min$
maximum	`\max`	$\max$
supremum	`\sup`	$\sup$
infimum	`\inf`	$\inf$
limit superior	`\limsup`	$\limsup$
limit inferior	`\liminf`	$\liminf$
closure	`\overline{A}`	$\overline{A}$

Calculus

description	*command*	*output*
derivative	`\frac{df}{dx}`	$\frac{df}{dx}$
derivative	`\f'`	f'
partial derivative	`\frac{\partial f}` `{\partial x}`	$\frac{\partial f}{\partial x}$
integral	`\int`	$\int$
double integral	`\iint`	$\iint$
triple integral	`\iiint`	$\iiint$
limits	`\lim_{x\to \infty}`	$\lim_{x\to\infty}$
summation	`\sum_{n=1}^{\infty}a_n`	$\sum_{n=1}^{\infty} a_n$
product	`\prod_{n=1}^{\infty}a_n`	$\prod_{n=1}^{\infty} a_n$

Logic

description	*command*	*output*
not	`\neg`	$\neg$
and	`\land`	$\land$
or	`\lor`	$\lor$
if...then	`\implies`	$\implies$
if and only if	`\iff`	$\iff$
logical equivalence	`\equiv`	$\equiv$
therefore	`\therefore`	$\therefore$
there exists	`\exists`	$\exists$
for all	`\forall`	$\forall$

Linear algebra

description	*command*	*output*
vector	`\vec{v}`	$\vec{v}$
vector	`\mathbf{v}`	$\mathbf{v}$
norm	`||\vec{v}||`	$\|\|\vec{v}\|\|$

matrix	`\left[`
	`\begin{array}{ccc}`
	`1 & 2 & 3 \\`
	`4 & 5 & 6\\`
	`7 & 8 & 0`
	`\end{array}`
	`\right]`
		$\left[\begin{array}{ccc} 1 & 2 & 3 \\ 4 & 5 & 6\\ 7 & 8 & 0 \end{array}\right]$

determinant	`\left|`
	`\begin{array}{ccc}`
	`1 & 2 & 3 \\`
	`4 & 5 & 6 \\`
	`7 & 8 & 0`
	`\end{array}`
	`\right|`
		$\left\|\begin{array}{ccc} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 0 \end{array}\right\|$

determinant	`\det(A)`	$\det(A)$
trace	`\operatorname{tr}(A)`	$\operatorname{tr}(A)$
dimension	`\dim(V)`	$\dim(V)$

Number theory

description	*command*	*output*
divides	`|`	$\|$
does not divide	`\ndv`	$\nmid$
div	`\dv`	div
mod	`\mod`	mod
greatest common divisor	`\gcd`	gcd
ceiling	`\lceil x \rceil`	$\lceil x \rceil$
floor	`\lfloor x \rfloor`	$\lfloor x \rfloor$

Geometry and trigonometry

description	*command*	*output*
angle	`\angle ABC`	$\angle ABC$
degree	`90^{\circ}`	90°
triangle	`\triangle ABC`	$\triangle ABC$
segment	`\overline{AB}`	$\overline{AB}$
sine	`\sin`	sin
cosine	`\cos`	cos
tangent	`\tan`	tan
cotangent	`\cot`	cot
secant	`\sec`	sec
cosecant	`\csc`	csc
inverse sine	`\arcsin`	arcsin
inverse cosine	`\arccos`	arccos
inverse tangent	`\arctan`	arctan

Symbols (in *text* mode)

The followign symbols do **not** have to be surrounded by dollar signs.

description	*command*	*output*
dollar sign	`\$`	$
percent	`\%`	%
ampersand	`\&`	&
pound	`\#`	#
backslash	`\textbackslash`	\
left quote marks	` `` `	“
right quote marks	`''`	”
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?

Resources

TUG: The TEX Users Group
CTAN: The Comprehensive TEX Archive Network
Handwriting-to-LATEX sites: Detexify, WebEquation
The Comprehensive LATEX Symbol List
The Not So Short Introduction to LATEX 2ε
Software that generates LATEX code: Mathematica, Maple, GeoGebra
LATEX for the Mac: MacTEX
LATEX for the PC: TEXnicCenter and MiKTEX
LATEX online: Overleaf, Sage
LATEX integration with Microsoft Office, Apple iWork, etc: MathType, LATEXiT

Dave Richeson, Dickinson College, http://divisbyzero.com/

LaTeX 2ε 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 LaTeX 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*`}`
`\chapter{`*title*`}`
`\section{`*title*`}`
`\subsection{`*title*`}`
`\subsubsection{`*title*`}`
`\paragraph{`*title*`}`
`\subparagraph{`*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*`}`	*Italic shape*
`\textsl{`*text*`}`	`{\slshape` *text*`}`	*Slanted shape*
`\textsc{`*text*`}`	`{\scshape` *text*`}`	Small Caps shape
`\emph{`*text*`}`	`{\em` *text*`}`	*Emphasized*
`\textnormal{`*text*`}`	`{\normalfont` *text*`}`	Document font
`\underline{`*text*`}`		Underline

The command (t*ttt*) form handles spacing better than the declaration (t*ttt*) form.

Font size

`\tiny` tiny
`\scriptsize` scriptsize
`\footnotesize` footnotesize
`\small` small
`\normalsize` normalsize
`\large` large
`\Large` Large
`\LARGE` LARGE
`\huge` huge
`\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	`\^o`	õ	`\~o`	ō	`\=o`
ȯ	`\.o`	ö	`\"o`	o̧	`\c o`	ŏ	`\v o`	ő	`\H o`
ç	`\c c`	o̤	`\d o`	o̲	`\b o`	o͡o	`\t oo`	œ	`\oe`
Œ	`\OE`	æ	`\ae`	Æ	`\AE`	å	`\aa`	Å	`\AA`
ø	`\o`	Ø	`\O`	ł	`\l`	Ł	`\L`	ı	`\i`
ȷ	`\j`	¡	`~‘`	¿	`?‘`				

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* = `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	`^{x}`	Subscript$_x$	`_{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`

Math-mode symbols

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

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

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 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}
```