

How to use LaTeX

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February 2025

Introduction

LaTeX is a document typesetting format that is used to create documents and presentations. LaTeX is able to create high-quality documents that are considered professional.

LaTeX is known for its precision and how each detail is in the hands of the author. One of the best parts of LaTeX is its ability to recreate and type complex mathematical symbols that are not available in most word processing programs.

Install

LaTeX is available on Mac, Linux, and Windows. To install on Windows will also require the installation MikeTeX, Ghostscript, Ghostview, and WinEdit. For Mac you only need to install the the Mac version of LaTeX MacTeX. To install for Linux you only need to install Live Tex.

Basic Syntax

All LaTeX documents have a skeleton which acts as an outline for the document that is filled in. A basic skeleton looks like the following:

`\documentclass{article}` - Decides your document class including font size and spacing

`\begin{document}` - Is where the content of the document begins

Hello, World! - The content of the document

`\end{document}` - Is where the document ends

More Syntax)

List:

`\begin{itemize}` or `\begin{enumerate}` (for numbered Lists)

`\item` First item

`\item` Second item

`\end{itemize}` or `\end{enumerate}`

Sections:

`\section{Introduction}`

`\subsection{Overview}`

`\textbf{bold}`- to bolden text

`\textit{italic}`- to italicize text

`\underline{underline}`- to underline text

Math in Latex

Basic math equation in Latex is formatted like this:

```
\[a^2 + b^2 = c^2\]
```

When written it will appear as

$$a^2 + b^2 = c^2$$

But if you want to your equation in a sentence you will write it like this:

```
$a^2 + b^2 = c^2$
```

This will then produce $a^2 + b^2 = c^2$

More Math Syntax

Fractions are written:

`\frac` for example `\frac{2}{7}` would produce:

$$\frac{2}{7}$$

Subscripts are written:

`x_3` which would produce:

$$x_3$$

Square roots are written:

`\sqrt{4}` which would produce

$$\sqrt{4}$$

In Latex you can also write Greek alphabets:

To type Omega you would write `\Omega` which would produce:

$$\Omega$$

How to create a table

```
\begin{tabular}{|c|c|c|} - start and # of columns
\hline - row
MON & TUES & WED \\ - contents
\hline
Jack & Jill & Bill \\
1 & 2 & 3 \\
\hline
\end{tabular} - end
```

MON	TUES	WED
Jack	Jill	Bill
1	2	3

Citation

This is how to make citations in LaTeX:

use BibTeX a tool to help you create citations in LaTeX.

```
\bibitem{Jackson9}
```

Jack Jackson,

```
\emph{A Book}.
```

Old Westbury, New York,

2nd Edition,

2025.

would look like this:

Jack Jackson, *A Book*. Old Westbury, New York, 2nd Edition, 2025.

Change Language

To change the language in Latex you must do the following:

```
\usepackage[spanish]{babel}  
\begin{document}  
¡Hola a todos!  
\end{document}
```

This would create a new document that would change the language using the babel package.



The End