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Getting started with L^AT_EX

L^AT_EX Basics



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Document structure

```
% This is a comment
% This is another comment

%This is the document preamble
\documentclass[11pt,oneside,a4paper]{article}

\usepackage[english]{babel}
\usepackage{amsmath}

%This is the document body
\begin{document}
  \title{This is my title}
  \author{My name}
  \maketitle      %this is the command to actually draw the title

  \section{Introduction}
  ...
  \begin{equation}
    \mathnormal{E = mc^2}
  \end{equation}
\end{document}
```

- ↪ Document Class: general structure of the document.
- ↪ Package: additional code to extend core L^AT_EX functionalities.
- ↪ Command: an instruction used for producing something new or to change the form of an existing item, e.g., producing the symbol α or printing italic as *italic*.
- ↪ Environment: a logical structure established by a pair of commands `\begin{}`...`\end{}` to perform a particular task or render the output in a particular way.

Syntax

Commands

```
\command[options]{argument}
```

`\documentclass` command
$$\text{\documentclass}[\text{options}]\{\text{argument}\}$$

| Argument | | Options | |
|----------------------|---|----------------------------------|----------------------------|
| <code>book</code> | Default is two-sided. | <code>10pt/11pt/12pt</code> | Font size. |
| <code>report</code> | No <code>\part</code> divisions. | <code>letterpaper/a4paper</code> | Paper size. |
| <code>article</code> | No <code>\part</code> or <code>\chapter</code> divisions. | <code>twocolumn</code> | Use two columns. |
| <code>letter</code> | Letter. | <code>twoside</code> | Set margins for two-sided. |
| <code>slides</code> | Large sans-serif font. | <code>landscape</code> | Landscape orientation. |
| <code>beamer</code> | Presentations. | <code>draft</code> | Figures not loaded. |

Syntax

`\usepackage command`

`\usepackage [options] {package_name}`

| Package | Use | Options |
|----------------|----------------------|--------------------------------------|
| babel | Internationalization | english, german |
| amsmath | Math writing | sumlimits, nosumlimits, leqno, reqno |
| hyperref | Hypertext links | draft, final, debug |
| graphicx | Graphics inclusion | draft, final, hiderotate |

<https://www.ctan.org>

Syntax

Sectioning

```
\begin{document}
  \title{Title}
  \author{Author's name}
  \maketitle      %this is the command to actually draw the title

  \begin{abstract}
    Your abstract goes here...
    ...
  \end{abstract}

  \part{title}
  \chapter{title}
  \section{title}
  \subsection{title}
  \subsubsection{title}
  \paragraph{title}
  \subparagraph{title}

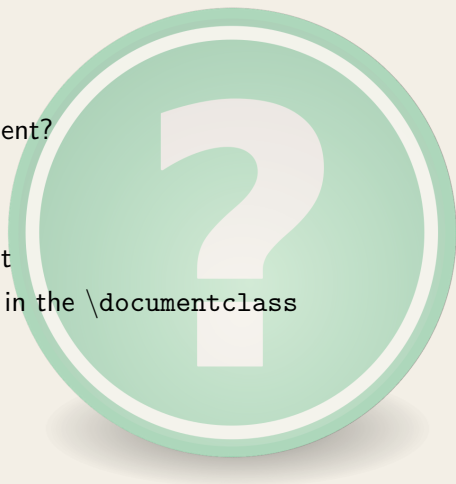
  \bibliographystyle{style}
  \bibliography{source}
\tableofcontents
\end{document}
```


| | |
|----------------------------------|--|
| <code>\begin{enumerate}</code> | Numbered list. |
| <code>\begin{itemize}</code> | Bulleted list. |
| <code>\begin{description}</code> | Description list. |
| <code>\item text</code> | Add an item. |
| <code>\item[x] text</code> | Use x instead of normal bullet or number. Required for descriptions. |

```
\begin{itemize}
  \item item 1
  \item item 2
\end{itemize}
```

How to set a two columns document?

1. Using the proper command
2. Using the proper environment
3. Specifying the proper option in the `\documentclass` command



Reserved and special characters

| | | | | | | | |
|--------------------|---------------------|----------------|---------------------|------------------|-----------------------|----------------|-----------------------------|
| <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> |

| | | | | | | | | | |
|----------------|-------------------|----------------|-------------------|----------------|-------------------|----------------|--------------------|----------------|-------------------|
| <code>ò</code> | <code>\'o</code> | <code>ó</code> | <code>\'o</code> | <code>ô</code> | <code>\^o</code> | <code>õ</code> | <code>\~o</code> | <code>ō</code> | <code>\=o</code> |
| <code>ó</code> | <code>\.o</code> | <code>ö</code> | <code>\"o</code> | <code>ø</code> | <code>\c o</code> | <code>ő</code> | <code>\v o</code> | <code>ő</code> | <code>\H o</code> |
| <code>ç</code> | <code>\c c</code> | <code>ø</code> | <code>\d o</code> | <code>ø</code> | <code>\b o</code> | <code>ö</code> | <code>\t oo</code> | <code>œ</code> | <code>\oe</code> |
| <code>Œ</code> | <code>\OE</code> | <code>æ</code> | <code>\ae</code> | <code>Æ</code> | <code>\AE</code> | <code>å</code> | <code>\aa</code> | <code>Å</code> | <code>\AA</code> |
| <code>ø</code> | <code>\o</code> | <code>Ø</code> | <code>\O</code> | <code>†</code> | <code>\l</code> | <code>‡</code> | <code>\L</code> | <code>ı</code> | <code>\i</code> |
| <code>J</code> | <code>\j</code> | <code>i</code> | <code>~'</code> | <code>ı</code> | <code>?'</code> | | | | |

| | | | | | | | | | | | |
|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|----------------|-------------------|---------------------------|
| <code>'</code> | <code>'</code> | <code>"</code> | <code>"</code> | <code>{</code> | <code>\{</code> | <code>[</code> | <code>[</code> | <code>(</code> | <code>(</code> | <code><</code> | <code>\textless</code> |
| <code>,</code> | <code>,</code> | <code>"</code> | <code>"</code> | <code>}</code> | <code>\}</code> | <code>]</code> | <code>]</code> | <code>)</code> | <code>)</code> | <code>></code> | <code>\textgreater</code> |

| | | | | |
|---------|--|-----|--|------------|
| hyphen | | - | | X-ray |
| en-dash | | -- | | 1-5 |
| em-dash | | --- | | Yes—or no? |

| | | |
|------------|--|---------------------------------------|
| \\ | | Begin new line without new paragraph. |
| \pagebreak | | Start new page. |

\today | 26th April 2022.

Syntax

Font size

| | | | |
|----------------------------|--------------|--------------------------|------------|
| <code>\tiny</code> | tiny | <code>\scriptsize</code> | scriptsize |
| <code>\footnotesize</code> | footnotesize | <code>\small</code> | small |
| <code>\normalsize</code> | normalsize | <code>\large</code> | large |
| <code>\Large</code> | large | <code>\LARGE</code> | large |
| <code>\huge</code> | huge | <code>\Huge</code> | huge |

Paragraph alignment

| Alignment | Environment | Switch |
|-----------------|-------------------------|---------------------------|
| Left justified | <code>flushleft</code> | <code>\raggedright</code> |
| Right justified | <code>flushright</code> | <code>\raggedleft</code> |
| Center | <code>center</code> | <code>\centering</code> |

Syntax

Font face

| <i>Command</i> | <i>Switch</i> | <i>Effect</i> |
|--------------------------------|---------------------------------|----------------------|
| <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> |

```
\usepackage[language1, language2]{babel}
```

Place it soon after `\documentclass`

```
\selectlanguage{language1}
```

```
\foreignlanguage{language1}{Text in another language.}
```

No spell checking!


```
\usepackage[utf8]{inputenc}
```

Footnotes

```
\footnote{text}
```

```
Creating a footnote is easy.\footnote{An example footnote.}
```

```
Creating a footnote is easy.1
```

¹An example footnote.

Author's affiliation

```
\usepackage[options]{authblk}
```

```
\documentclass{article}
\usepackage{authblk}

\title{Multiple Affiliation for Multiple Author}
\date{\today}

\author[1, 2]{Author1}
\author[3, 5]{Author2}
\author[1, 2, 4]{Author3}
\author[1, 2, 4]{Author4}

\affil[1]{Affiliation1}
\affil[2]{Affiliation2}
\affil[3]{Affiliation3}
\affil[4]{Affiliation4}
\affil[5]{Affiliation5}

\begin{document}
\maketitle
\end{document}
```

Common file extensions

- `.tex` L^AT_EX or T_EX input file
- `.aux` Transport info from one compilation run to another (cross-references)
- `.log` Compilation run log
- `.toc` Stores section headers. Used to generate the table of contents
- `.lof` As `.toc` for the list of figures
- `.lot` As `.toc` for the list of tables
- `.bib` Bibliography database file
- `.bbl` Generated by BiB_TE_X to be used by L^AT_EX
- `.blg` BiB_TE_X log file
- `.bst` BiB_TE_X style file
- `.cls` Document class definition
- `.sty` Macro package
- `.pdf` The output document