

L^AT_EX Workshop #1

The Basics

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`\documentclass{*}`

<code>article</code>	for articles in scientific journals, presentations, short reports, program documentation, invitations, ...
<code>proc</code>	a class for proceedings based on the <code>article</code> class.
<code>minimal</code>	is as small as it can get. It only sets a page size and a base font. It is mainly used for debugging purposes.
<code>report</code>	for longer reports containing several chapters, small books, thesis, ...
<code>book</code>	for real books
<code>slides</code>	for slides. The class uses big sans serif letters.
<code>memoir</code>	for changing sensibly the output of the document. It is based on the <code>book</code> class, but you can create any kind of document with it [1] B
<code>letter</code>	for writing letters.
<code>beamer</code>	for writing presentations (see LaTeX/Presentations).

END EVERYTHING YOU BEGIN

```
\begin{document}
...
your stuff here
...
\end{document}
```

Geometry

```
\usepackage[lmargin=1in,rmargin=1in,tmargin=1in,bmargin=1in,
headheight=1in,headsep=0.2in]{geometry}
```

Title, author, and date

In Header:

```
\title{Your Mom}
\author{Her Mom}
\date{\today}
```

OR In Header:

```
%opening
\usepackage{fancyhdr}
```

```

\lhead{}
\chead{}
\rhead{Vaillancourt}
\lfoot{}
\cfoot{\thepage}
\rfoot{}
\title{\bf \LaTeX Workshop \#1}
\author{\Large The Basics}
\date{\small Peter Vaillancourt and Andres Rivas}

```

Bennefits

- Header beginning on second page
- customizable
- page numbering

That annoying #1 on the first page of your 1 page document

```

\begin{document}
\maketitle
\thispagestyle{empty}

```

Comments

```

% This is a comment
$\infty$ %This is also a comment

```

∞

Packages

```

\usepackage{graphicx,float}
\usepackage{amsmath,amssymb,amsfonts,amsthm}
\usepackage{caption,subcaption}
\usepackage{url}
\usepackage{longtable}
\usepackage{color}
\usepackage{enumitem}
\usepackage{enumerate}

```

Math Mode

- \$ math goes here \$ for inline math expressions/equations
- For equations on their own line, use math enviornment. Ex:

```
\begin{equation*}
  y = x^2 + \sqrt[3]{x+2}
\end{equation*}
```

$$y = x^2 + \sqrt[3]{x+2}$$

Some math environments:

- `\begin{equation}` for single, numbered equation
- `\begin{equation*}` for single, not-numbered equation
- `\begin{align}` for a list of aligned equations (each equation is numbered)
- `\begin{align*}` for a list of aligned equations (none are numbered)
- for `align` and `align*` environments:
 - end unnumbered equations with `\notag` (`align` only)
 - end all equations with `\\` to carry over the next line
 - use `&` to indicate alignment (for aligned equations, `&=` will align at the equal sign)
- `\alpha` (α), `\theta` (θ), etc for lowercase greek letters (math environments only)
- `\Gamma` (Γ), `\Delta` (Δ), etc for uppercase greek letters (math environments only)
- special functions: `\sin`, `\cos`, `\ln`
- to define a new special function (like `\arcsec`), add `\DeclareMathOperator{\arcsec}{arcsec}` in the preamble
- Subscripts and Superscripts
 - ex. $x(t) = x_0 + v_0 t + \frac{1}{2}at^2$ (`\left(t\right) = x_0 + v_0 t + \frac{1}{2}at^2`)
 - ex. $\sum_{i=1}^n$ (`\sum\limits_{i=1}^n`)
- Vectors: $\vec{a}$ (`\vec{a}`) and $\mathbf{a}$ (`\mathbf{a}`)
- bars: $\bar{x}$ (`\bar{x}`)
- Fractions $\frac{numerator}{denominator}$
- Matrices

Resources

L^AT_EX Wikibook <http://en.wikibooks.org/wiki/LaTeX/>

Learning L^AT_EX By Doing

Detexify <http://detexify.kirelabs.org/classify.html>