

\LaTeX Intro and Overview

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An Overview of \LaTeX

- ➊ What \LaTeX is and how to get it
- ➋ Making documents
- ➌ Making presentations using Beamer
- ➍ Making posters using Beamerposter
- ➎ Rapid document/presentation prep (Markdown + \LaTeX)

A \LaTeX cheat sheet is available here:

<http://www.stdout.org/~winston/latex/latexsheet.pdf>

L^AT_EX is a typesetting language.

- It lets you seamlessly transition between words and math:

$$\sum_{n=0}^{\infty} \frac{x^n}{n!} = e^x$$

- You can typeset publish-quality articles, books, theses, presentations, and posters
- It automatically handles bibliography, equation, image, and table references
- The easy part is learning how to type math, the hard part is the formatting
 - But luckily, there is a **huge** user-base with lots of examples

\LaTeX can be used at home or online.

- You can download \LaTeX distributions and editors here:
<http://latex-project.org/ftp.html>
- There are also online compilers/editors (especially helpful for collaboration)
 - <http://writelatex.com>
 - <http://sharelatex.com>
 - The basic way to edit is to *latexdiff*.
- There are also ways to write in Markdown that recognize \LaTeX syntax (great for notes, research, quick presentations)
 - <http://stackedit.io>
 - IPython

Hello World.

```
\documentclass[10pt]{article}  
...  
\begin{document}  
  Hello World.  
\end{document}
```

Curly braces are a staple of \LaTeX . They're used for arguments, setting environments, and telling \LaTeX what belongs where. For example, $\sum_{n=0}$ is written `\sum_{n=0}` instead of `\sum_n=0`, which gives $\sum_n = 0$. Square braces are for options (paper size, font size, etc.).

Making documents

- Inserting figures (`graphicx` package)
- Making tables (`tabular` and `table` environment)
- Typesetting math (`$`, `$$`, `equation`, `align`)

Making presentations with Beamer.

The structure goes something like this:

```
\documentclass{beamer}
\mode<presentation>
\usetheme{default}
    ...other theme options (insert watermark, etc.)

\begin{document}

    \begin{frame}
        ...
    \end{frame}

\end{document}
```

You can insert transitions, animations, slow reveals, etc.

Here's a Beamer example.

- Here's my first point



You can also draw figures in \LaTeX using the PSTricks package.

Here's a Beamer example.

- Here's my first point
- And my second



You can also draw figures in \LaTeX using the PSTricks package.

Here's a Beamer example.

- Here's my first point
- And my second
- And my third



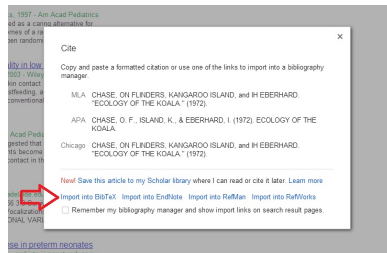
You can also draw figures in \LaTeX using the PSTricks package.

Making a poster using the beamerposter package.

- All commands are essentially the same to the beamer package
- Still working on the style file
- Sections are broken out using the `block` command

BibTeX handles making the references and making the bibliography.

- Just put your references (automatically generated by Google Scholar) in a .bib file that you reference at the end of the document, [von Klitzing(1986)]
- JabRef is also a powerful citation manager: <http://jabref.sourceforge.net/>
- You can also change the citation style: [Number], (Author,Year), etc.



Just include `\bibliographystyle{plain}` in the preamble and `\bibliography{yourrefname.bib}` before the end of the doc.

Quick prep: Markdown + \LaTeX

- You can avoid formatting the documents and just get to the sweet, sweet math
- iPython and `stackedit.io` both have Markdown environments that can render \LaTeX using MathJax, a Javascript tool
- You can make quick presentations (in IPython), notes, handouts, etc.

References slide? (Makes more sense at the end of a paper.)

 K. von Klitzing, G. Dorda, and M. Pepper.

New method for high accuracy determination of fine structure constant based on quantised hall resistance.

Phys. Rev. Lett., 45:494, 1980.

 Klaus von Klitzing.

The quantised hall effect.

Rev. Mod. Phys., 58:519, 1986.