

Learning LaTeX

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- 1 What is LaTeX?
- 2 How to get started
- 3 Why use LaTeX?

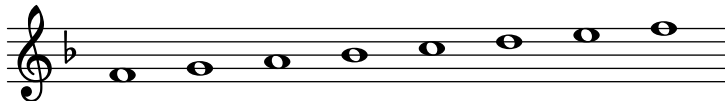
LaTeX is a text mark-up language for writing mathematical and scientific work clearly and correctly. This talk will suggest ways to learn and reasonable starting points for using LaTeX as a teacher as well as how one might want to use it in the classroom.

- written for typesetting mathematics beautifully
- mark-up language
- very powerful
- control of everything (for a price)

```
\begin{frame}{\textit{Big Picture}}  
  \begin{itemize}  
    \item written for typesetting mathematics beautifully  
    \item mark-up language  
    \item very powerful  
    \item control of everything (for a price)  
  \end{itemize}  
\end{frame}
```

Example

F major = F G A B \flat C D E F



$$\int_{-\sqrt{r^2-x^2}}^{\sqrt{r^2-x^2}} 1 \, dy = y \Big|_{-\sqrt{r^2-x^2}}^{\sqrt{r^2-x^2}} \quad (1)$$

$$= \sqrt{r^2-x^2} - \left(-\sqrt{r^2-x^2}\right) \quad (2)$$

Downloaded

LaTeX

- Mac - MacTex (which is TeXLive plus an editor)
<http://tug.org/mactex/>
- Windows - MikTeX <http://miktex.org>
- cross - platform <https://www.tug.org/texlive/>

Editing options

- a text editor you like
- LyX (freeware) or Scientific Word (commercial)

Other bits

- templates
 - <http://www.latextemplates.com>
 - <https://www.sharelatex.com/templates/>
 - see my annotated template uploaded with this talk
- pasting bits of code

(for example) <https://www.writelatex.com>

- in the cloud
- tablet friendly (supposedly)
- comes with a reasonable preamble

- you draw; it shows possible matches will be shown
<http://detexify.kirelabs.org/classify.html>
- google “LaTeX symbol”
- google “LaTeX ” followed by what you want to know how to do
- <http://en.wikibooks.org/wiki/LaTeX/Mathematics>
- <http://omega.albany.edu:8008/Symbols.html>

- `\int_0^{5x} t \, dt` for in-line math $\int_0^{5x} t \, dt$
- `\begin{align} x&=3 \\ y&=7 \end{align}` for displayed, multi-line equations (see below)

$$x = 3 \tag{3}$$

$$y = 7 \tag{4}$$

List Environments

- `\begin{itemize} \item \end{itemize}` for unnumbered list
- `\begin{enumerate} \item \end{enumerate}` for numbered lists
- either can be nested within another
- paragraphs can be in lists

Other Useful Bits

- paragraphs separated by empty line in a text file
- bold: `\textbf{}`
- italic: `\textit{}`
- color: `\textcolor{red}{redword}` redword $\frac{3}{4}$

- blank tests \Leftrightarrow solutions
- music (via lilypond but requires an extra compilation step), math, drawings (tikz) in the document
- durability - can still open and use files from 90's
- easy to re-use material
- easy to edit (change all even inside equations)
- slide presentations (via Beamer) and more compact notes
version for printing from same file (but may have distinct content)

- introduce them to something they may eventually be required to use to turn in HW
- some subset will find the fact that this can be done fascinating and fun
- syntax will differ but gets students thinking about how to write math in words
- part of general typing-math in-class exploration at end of MVC class