Beginner's LaTeX Tutorial

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lots borrowed from Marius

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Outline

caveat

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- Pretend to be a theory student

The Good, The Bad, . . .

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	compile, debug, view, edit

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☺ Hopefully this talk will help ☺

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Latex Commands

Two basic forms:

1. `\SomeCommand{`**AnArgument**`}`
2. `\begin{`**SomeEnvironment**`}`

   ...

   `\end{`**SomeEnvironment**`}`

\documentclass **[arguments]** {**type of document**}
package imports
global definitions
other settings
\begin{**document**}
document contents: text, LATEX commands
\end{**document**}

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Tools exist for most platforms to make working with latex easier:

- makefile
- mode for emacs
- IDEs for every platform

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More options listed in Resources at the end

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Math Mode

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- Use `\ [` ... `\ ]` to insert a block of math
- Use `\begin{`**align**`}` ... `\end{`**align**`}` to have aligned equations

Lists

```
\begin{itemize}
   item     ...
   item     ...
\end{itemize}
```

can use `enumerate` instead of `itemize`

Tables

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```
\begin{table}
\centering

\end{table}
```

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```
\begin{table}
\centering
    \begin{tabular}{    }




    \end{tabular}


\end{table}
```

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```
\begin{table}
\centering
    \begin{tabular}{|c|r}




    \end{tabular}


\end{table}
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    \begin{tabular}{|c|r}
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\begin{table}
\centering
    \begin{tabular}{|c|r}
        Height      &      Weight \\
        \hline
        5.4      &      160 \\

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Table: Some text that is a caption for the table

Adding figures to your documents

Use the `graphicx` package

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    \caption{the caption text}
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\end{figure}
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- With latex → ps → PDF, can only use postscript graphics
- With latex → pdf, can use anything but postscript (pdf, jpgs, png, tiff)

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Example: Here is a reference to Table 1.

See BibTeX

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Latex Packages

- LOTS of great functionality in packages (for example, including graphics)
- MikTeX has a built in package manager — very useful.
- see here (http://www.math.uiuc.edu/ hildebr/tex/customstyles.html) for doing it manually. (sorry this isn't a very good answer ... if you really need to do this, I'd suggest first trying to find somebody that does this themselves, I always use a package manager.)

Outline

Using Make (from Marius)

```
SOURCES=$(wildcard *.tex)
all: pdf
pdf: $(SOURCES:.tex=.pdf)
ps: $(SOURCES:.tex=.ps)
dvi: $(SOURCES:.tex=.dvi)
%.dvi: %.tex
   latex $<; latex $<
%.ps: %.dvi
   dvips $< -o $@
%.pdf: %.ps
   ps2pdf $<
```

Building PDFs becomes a matter of

```
$ make hello.pdf
```

assuming that hello.tex exists.

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6. Use the other grad students

Useful Packages

- **amsmath** — gives the `align` command plus other useful stuff
- **amsthm** — lemma, etc.
- **algpseudocode, algorithm** — code formatting
- **graphicx** — inserting figures (eps, jpg, png, etc.) into your latex documents
- **subfig** — organizing subfigures
- **hyperref** — putting links into your pdfs
- **beamer** — slides.
- **prosper** — more slides (provides transitions, but I think beamer is easier). here (http://prosper.sourceforge.net/). Nice collection of documentation (http://amath.colorado.edu/documentation/LaTeX/prosper/).
- **multirow** — spanning rows and columns in tables
- **wasysym** — some extra symbols (smileys)

Useful Resources

- **cheat sheet** — (http://www.stdout.org/ winston/latex/)
- **Latex primer** — http://www.maths.tcd.ie/%7Edwilkins/LaTeXPrimer/
- (http://www.math.uiuc.edu/ hildebr/tex/) bunch of tips, mostly focused on theorems, etc.
- **help page #1** — (http://web.image.ufl.edu/help/latex/) good as a beginners reference
- **help page #2** — (http://www-h.eng.cam.ac.uk/help/tpl/textprocessing/teTeX/latex/latex2e-html/ltx-2.html) good if you know the command name
- **Bibtex reference** — (http://amath.colorado.edu/documentation/LaTeX/reference/faq/bibstyles.html)
- Random blog (http://andrewjpage.com/index.php?/categories/2-Latex) with some handy tips
- **Google** —

Useful Tools

- **MikTeX** — (http://miktex.org/) latex distribution + package manager
- **TeXnicCenter** — (http://texniccenter.sourceforge.net/front_content.php) IDE for windows
- **AucTex** — (http://www.gnu.org/software/auctex/) mode for latex authoring in emacs (from Marius)
- **TeXShop** — (http://www.uoregon.edu/ koch/texshop/) IDE for latex on Mac (from Krzysztof et. al)
- **Kile** — (http://kile.sourceforge.net/) IDE for linux
- **JabRef** — (http://jabref.sourceforge.net/) for managing your bibliographies (from Julie)
- Many others out there ... consult your local tex guru