Introduction to \LaTeX

Updated: Robert Woodward – rwoodwar@cse.unl.edu
Creator: Nobel Khandaker – knobel@cse.unl.edu

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Outline

1. Introduction
2. Basic Typesetting
3. Advanced Typesetting
4. References
What is \LaTeX? 

- \LaTeX is a document preparation system for high-quality typesetting
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- \LaTeX is most often used to produce technical or scientific documents, but it can be used for almost any form of publishing
Why use \LaTeX \? 

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- Platform, version independent (Unix, Windows . . . )
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- Pre-set standard formats (for paper, thesis ...)

presented by Robert Woodward
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- Fast, professional math equations typesetting
- Freely available
What Do You Need to Process a \LaTeX \ Document?

- \LaTeX \ Editor
  - Linux: Kile, Emacs
  - Windows: TeXworks, WinEdt, LyX
  - Mac: TeXworks, LyX, Emacs
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  - Linux: LaTeX, TexLive
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- **LaTeX Output Viewer**
  - PDF: xpdf, Foxit, Adobe Reader
  - PS: Ghostscript, GhostView
  - HTML: Web Browser
Basic LaTeX Work Flow II

- **User Input**: Lyx, WinEdit
- **TeX Compiler**: MikTeX, LaTeX
- **DVI Output**: Yap
  - **Converters**: dvi2pdf, dvi2ps
    - **HTML Browser**
    - **pdf Acrobat**
    - **ps Ghostscript**
Example
\documentclass[12pt,letterpaper]{article}
%include packages here
%\usepackage{package}
\begin{document}
Hello world!
\end{document}
Basic Formatting in \LaTeX

- **Bold Text**: \textbf{Bold Text}
- **Italic Text**: \emph{Italic Text}
- Spacing:
  - Many spaces = one space
  - Use \ for newline
  - Hit return \textit{twice} for a new paragraph
  - \newpage
- Comments: % ... your comments here ...
- **Reserved Symbols**: \# \$ \% ^ & _ \{ \} ~ \`
Mathematical Equations in $\LaTeX$

- Use $\ldots$ or $\begin{math}\ldots\end{math}$ for include mathematical symbols, equations, etc.
- Subscript and superscripts — $x^2$: $x^2$ and $x_2$: $x_2$
- Fractions — $\frac{a}{b}$ or $a \over b$: \frac{a}{b}
- Radical — $\sqrt{x}$: $\sqrt{x}$
- Many more symbols and operators are available
Images and Figures in \LaTeX

- Include .eps (postscript) images in \LaTeX for dvi output
- Include .jpg, .png, and .gif images in \LaTeX for pdf output
- Software: gimp: for converting images, DIA and PowerPoint: for drawing figures
- graphicx package is required: \usepackage{graphicx}

Example

\begin{figure}
\includegraphics[height=50\%,width=50\%]{filename.eps}
\end{figure}
Making Tables in \LaTeX Using Excel

- Download Excel2LaTeX
  - Available for download at http://www.ctan.org/tex-archive/support/excel2latex/
- Extract the files and double click on the Excel Add-In file (Excel2LaTeX.xla)
- Create the table in Excel which you want in your \LaTeX document and highlight the cells
- Click on the Macro, an error might occur, just click "End"
  - Most likely you will want to un-check "Create table environment" and "Booktabs-style formatting"
- Copy the table to your \LaTeX file!
Bibliography information is stored in a *.bib file, in Bibtex format.

To include and reference Bibliography:

1. Set referencing style
   \bibliographystyle{plain}
2. Create reference section by \bibliography{bibfile with no extension}
3. Cite reference inside the text by \cite{bibliography item}
Bibliography in \LaTeX{} II

\begin{itemize}
\item @book{Come95,
  author="D. E. Comer",
  title={Internetworking with TCP/IP: Principles, Protocols and Architecture},
  publisher="Prentice-Hall",
  year=1995,
  volume=1,
  edition="Third"}
\end{itemize}
Bibliography Management: JabRef, Zotero
Other Useful Tools/Topics for LaTeX

- Bibliography Management: JabRef, Zotero
- Very Helpful References for creating: Tables, Equation Arrays, Lists, etc.
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  - LaTeX Wikibook
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