GWTeX^[1] Collective LaTeX Workshop Brandon Waller

Outline

- ► Introduction
- ▶ Goals
- Getting Started
- Math
- Formatting
- ► Images, Tables, and Figures
- Exercises
- Resumes
- Upon Request
 - Inserting Code
 - ▶ Journal Formatting



Introduction

What are the differences between the Word document and the TeX document?





Programming (Java, C)
Markup (HTML, Markdown)
Typesetting (LaTeX)

Introduction

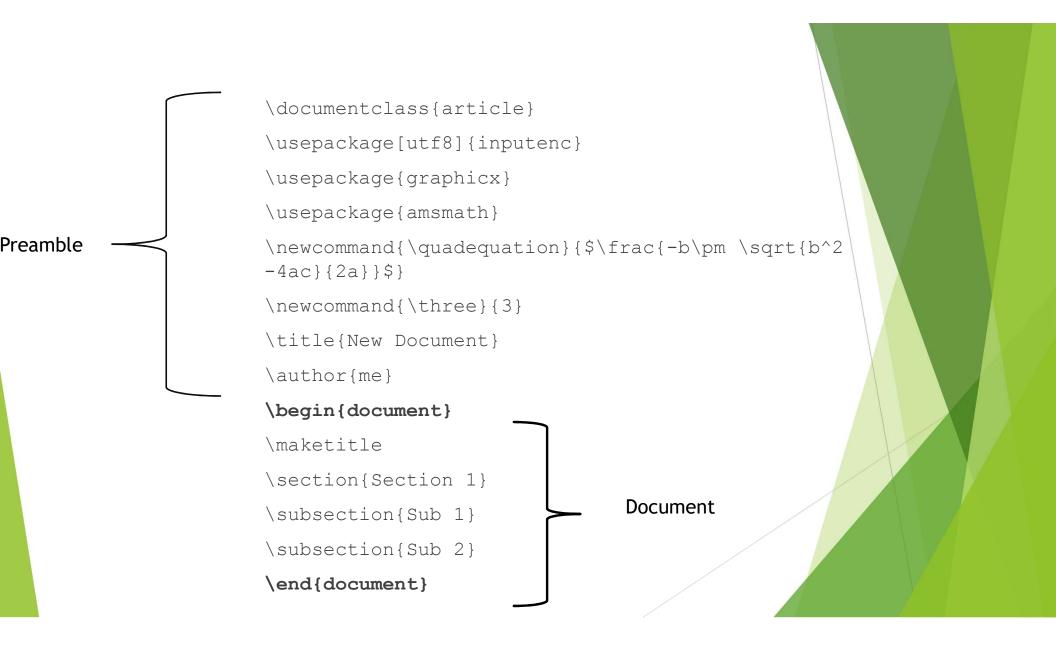
Why use LaTeX?

Separation of formatting and text Templates Easy bibliographies/citation management



Goals

- Understanding the capabilities of LaTeX
- Develop a foundation to be able to learn more independently
- Learn how to use templates, and create a resume in LaTeX



Basic Formatting Title

- Define Title Parameters in Preamble
 - ▶ \title{Document Title}
 - ▶ \author{Document Author}
- After \begin{document}
 - ▶ \maketitle
- Look into titlepage for more advance title options

Basic Formatting Paragraphs Sections

- ► Paragraphs
 - ▶ 1 Line Breaks: Noting
 - ▶ 2 Line Breaks: Line Break
 - + Indent
 - ▶\noindent on next line
 - ►\\: Line Break No Indent
- section
 - **▶** subsection
 - **▶** subsubsection

Basic Formatting Text Modifiers \textbf{bold-face text}

\textit{italicized text}

\underline{underlined text}

\textsc{SMALL CAPITAL TEXT}

\emph{}

\textsubscript{}

\textsuperscript{}

\texttt{type-writer style text}



Basic Modifiers
Text Size

\tiny{tiny text}

\small{small text}

\large{large text}

\Large{larger text}

\huge{huge text}

\Huge{huge-er text}



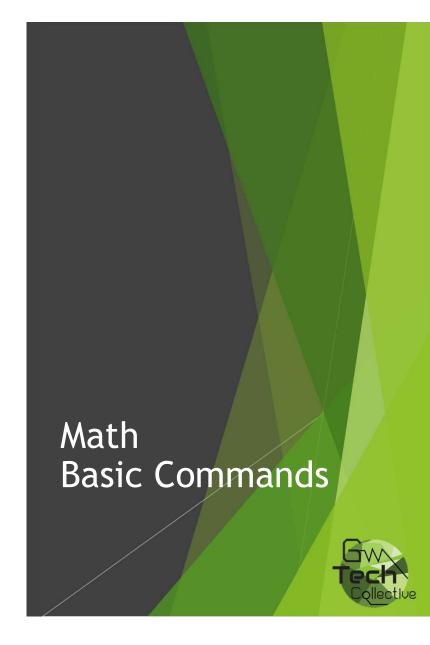
Math Mode

- ► To enter Math Mode:
 - ▶ In line math: \$ Math \$
 - ► New line and Centered: \$\$ Math \$\$
 - Multi-step aligned equations:

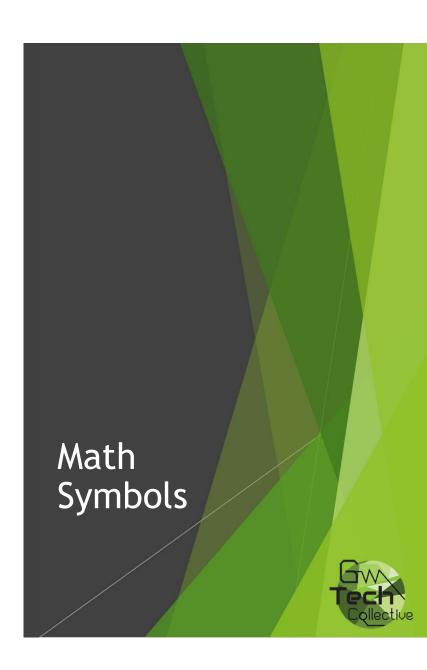
\begin{align*}

- **▶**1 & 2\\
- ► ABC & 3
- ▶\end{align*}

- \text{}
 - ▶ Write normal text in math mode
- \blacktriangleright \int \int
- ▶ \iint ∭
- ▶ \times X
- ightharpoonup \Re e \Im m $\Re e \Im m$
- ▶ \partial ∂
- ► \lim
 - \lim\limits_{x \to \infty}
- ▶ \ adds a blank character



- ightharpoonup \alpha \Alpha A
 - ▶ Same for all Greek letters
- ▶\infty ∞
- ▶\rightarrow \Rightarrow →⇒
 - ▶ Same for other directions
- ▶ \leq ≤
- ▶ \pm ±



Math Modifiers

- ^ next character is a superscript
 - $A^bc A^bc A^bc A^{bc} A^bc A^{bc} A^bc$
 - _ next character is a subscript
- ▶ \hat{text} \(\hat{text} \)
- ▶ \bar{text} \overline{text}
- **Example:**
- $\triangleright \ \Sigma_{k=0}^N k + 2$
 - $\$ \$\sum_{k=0}^N k+2\$

In the previous example, the parameters of the summation appeared to the right of the Σ . To fix that, add \limits

 \blacktriangleright \sum\limits_{k=0}^{N}k+2

$$\sum_{k=0}^{N} k + 2$$

Exercises



Figures

- begin{figure}[float-option]
- ...contents
- \end{figure}
- ► Float-Options
 - ▶ h: Here. Same [approximate] location as text
 - ▶ t: Top. Top of page
 - ▶ b: Bottom. Bottom of Page
 - p: Special page for only figures
 - *!: Ignore other LaTeX auto formatting
 - ▶ H: Exactly at the location specified
 - \usepackage{foat}



- \begin{figure}[h]
 - \centering
 - begin{tabular}{|l|r|c|}
 - ▶ \hline
 - ▶ Header1 & Header2 & Header3\\
 - ▶ \hline
 - ► Content1 & Content2 & Content3\\
 - ▶ \hline
 - ▶ \end{tabular}
 - \caption{This is a \LaTeX table}
- \end{figure}

Header1 Header2 Content2 Content1

Figure 1: This is a LATEXtable

Header3

Content3

Figures Table

Figures Images

- \usepackage{graphicx}
- ▶ \begin{figure}[h]
 - ▶ \centering
 - \includegraphics[paramet
 ers]{file_name}
 - ▶ \caption{caption}
- ▶ \end{figure}

Parameters

- ▶ height = 3in
- \triangleright width = .7\textwidth

Subfigures

- %preamble
- \usepackage{subcaption}
- begin{figure}[h]
- begin{subfigure}[b]{.5\textwidth}
 - \includegraphics[width=\textwidth] {path}
- \end{subfigure}
- begin{subfigure}[b]{.5\textwidth}
 - \includegraphics[width=\textwidth] {path}
- \end{subfigure}
- \end{figure}



Itemize

- ▶ \begin{itemize}
 - ▶ \item First Item
 - ▶ \item Second Item
- ▶ \end{itemize}
- ► First Item
- ► Second Item

Itemize

- begin{itemize}
 - ▶ \item First Item
 - ▶ \subitem Subitem
 - ▶ \subsubitem Subsub item
 - ▶ \item Second Item
- ▶ \end{itemize}
- First Item

Subitem

Subsubitem

Second Item



Itemize

- \begin{itemize}
 - ▶ \item First Item
 - begin{itemize}
 - ▶ \item Subitem
 - \end{itemize}
 - ▶ \item Second Item
- \end{itemize}
- First Item
 - Subitem
- Second Item



More Exercises



LaTeX Resumes

- https://www.overleaf.com/13490924tq xfzwgtgdhy#/52083750/
- https://www.overleaf.com/13490936sv hnhynyxfxk#/52083795/
- https://www.overleaf.com/13490956q yvxsxnbgbzn#/52083864/

Some More Commands

- \textsc{Short capital letters}
- \clearpage fill page
- \hfill fill horizontally



New Command

- Useful for phrases or syntax that will be repeated often
- \newcommand{\command_1}{Repla
 cement Text}
- hewcommand(\command_2)[3]{#3
 #2#1}
- ▶ \command_1 → Replacement Text
- \blacktriangleright \command_2{a}{b}{c} → cab

Questions? Anything Else?