**LaTeX Notes**

**Commands start with a name [optional arguments] {required arguments}**

\documentclass[a4paper,12pt,landscape,twocolumn]{book}

**Create custom commands**:

\newcommand{\ABC}{Now I know my ABCs} //everytime \ABC is typed, it will be replaced

with Now I know my ABCs

**Start document**:

\begin{document}

\title{\textsize}{\texttype{Actual Title}}}

\author{Your Name}

\date{Date}

\maketitle //creates title page

\blindtext[number] //creates blind text

\end{document}

**To create the document, click typeset**

**Math Formulas**

-make sure **\usepackage{amsmath}** is included

\begin{flalign\*} //aligns formula to the left side, otherwise it will be centered

& ax^2 + bx + c = 0 &\\ //type in the formula with & at the beginning and end

\end{flalign\*}

*Insert formula inside of text*

This \( ax^2 + bx + c = 0\) is the quadratic equation \\

*Shortcut*

$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a}$ \\

*Greek letters*

$\Sigma$

$\sigma$

*Subscript*

$t\_0$

*Superscript*

$x^2$

*Operators*

$\sin$

*Vectors*

*$\vec{a}\cdot\hat{x} = a\_x$*

*Matrix*

$\begin{pmatrix}

1 & 2 \\

3 & 3

\end{pmatrix}$

*Integrals*

$\Delta x= \int\_{t\_0}^{t\_1} v(t)dt$\\

*Limits*

$\lim\_{x\to0} \frac 1 x = \infty$ \\

*Summations*

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

**To change fonts**: \renewcommand{\familydefault}{\sfdefault}

-{\sfdefault} makes it sans serif

Babel package (defines hyphenation): \usepackage[english]{babel}

-can change languages

-find information about packages by opening Command Prompt and entering: texdoc packagename

Import filler text: \usepackage{blindtext}

*Optional arguments*

**twocolumn**: 2 column pages

**titlepage**: \maketitle generates a title page

**legno**: puts equations on the left side

**flegn**: left align equations versus center

**twoside**: print on both sides of paper

**openright**: if twoside is used chapters begin on right hand page

**landscape**: if listed it displays in landscape

*Paper types*

**letterpaper** (11 x 8.5 in)

**a4paper** (29.7 x 21 cm)

**legalpaper** (14 x 8.5 in)

**a5paper** (21 x 14.8 cm)

**executivepaper** (10.5 x 7.25 in)

**b5paper** (25 x 17.6 cm)

*Document types*

**article**: for articles in scientific journals, presentations, short reports, program documentation, invitations, etc.

**proc**: a class for proceedings based on the article class

**report**: for longer reports containing several chapters, small books, thesis, etc.

**book**: for real books

**slides**: for slides, uses big sans serif letters

**minimal**: is as small as it can get, only sets a page size and base font; mostly used for debugging

**memoir**: for changing sensibly the output of the document, based on the book class, but can create any kind of document with it

**letter**: for writing letters

**beamer**: for writing presentations

*Setting margins*

\usepackage[a4paper, inner=1.7cm, outer=2.7cm, top=2cm, bottom=2cm, bindingoffset=1.2cm]{geometry}

*Custom fonts*

\usepackage[scaled=.92]{helvet} //scales to 92%, uses helvetica

**mathpazo** (Palatino)

**mathptmx** (Times)

**avant** (Avant Garde)

**courier** (Courier)

**chancery** (Zapf Chancery)

**bookman** (Bookman, Avant Garde, Courier)

**newcent** (New Century, Avant Garde, Courier)

**charter** (Charter)

*Useful Packages*

\usepackage{packagename}

**microtype**: improves justification

**blindtext**: includes random blind text

**graphicx**: allows you to add pictures

**wrapfig**: wrap text around pictures

**enumitem**: make lists look nicer

**fancyhdr**: fancy headers

**amsmath**: let you use math formulas

**index**: allows indexes to be automatically generated

*Useful additions*

**\makeindex** //creates index

**\tableofcontents** //creates table of contents

**\pagenumbering**{roman} //creates page numbers with roman numerals

**\setcounter{page}**{number} //starts page number counter at this page

*Add pictures*

**\begin{figure}[ht]** //h means here, t means top; could also use hb

**\centering** //centers the picture

**\includegraphics**[width=8cm]{pic.png}

\**caption{**Caption**}/label{fig:**figurename**}**

**\end{figure}**

*Clear headers and footers*

\fancyhf{}

*Fancy headers and footers*

\renewcommand{\headrulewidth}{2pt} //adds a fancy header, any number for pt

\renewcommand{\footrulewidth}{1pt} //adds a fancy footer, any number for pt

\fancyhead[LE]{\leftmark} //adds a fancy header for even number pages LE

//puts it on the left side leftmark

\fancyhead[RO]{\rightmark} //adds a fancy header for odd numbers RO

//puts it on the right side rightmark

\fancyfoot[LE,RO]{\thepage} //adds a footer for even and odd numbers

//just shows page numbers thepage

*Add chapter and sections*

\chapter{Chapter Name}

\section{C Section}

*Add blind math formulas*

\blindmathtrue

*Squeeze text to fit onto a page*

\enlargethispage{\baselineskip} //include this right before blindtext

*Blind additions*

\blindtext[number] //adds blind text

\blinditemize //adds blind list

\blindenumerate //adds blind numbered list

\blinddescription //adds blind description of list

*Page break*

\pagebreak //if you want a gap

\newpage

*Create bulleted list*

\begin{itemize}

\item First item

\item Second item

\item Third item

\begin{itemize} //creates a list within the list

\item Third item A

\item Third item b

\end{itemize}

\item Fourth item

\end{itemize}

*Create numbered list*

\begin{enumerate}

\item First item

\begin{itemize}

\item First item A

\end{itemize}

\item Second item

\item Third item

\end{enumerate}

*Create table*

\begin{table}

\begin{tabular}{c|c|c}

\textbf{Column1} & \textbf{Column2} & \textbf{Column3} \\

\hline

Content1 & Content 2 & Content3 \\

BContent1 & BContent2 & BContent3 \\

\end{tabular}

\caption{Caption name}

\end{table}

*Alter text format*

**\itshape //**italic

**\slshape** //slanted

**\scshape** //small caps

**\upshape** //upright

**\normalfont** //back to normal

\**textbf** //bold font

\itshape this font is to be in italic \normalfont but now it is back to normal\\