Math 291: Lecture 2

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1. *Comments from Lab 1*
2. *The Preamble*
3. *Document Classes and Options*
4. *Packages*
5. *Page Layout*
6. *Fonts and Symbols*

Outline

1. Comments from Lab 1
2. The Preamble
3. Document Classes and Options
4. Packages
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The Preamble

- Since D2L Brightspace adds all kinds of stuff to the file names, including your names, I am only going to require that you include Lab2 (or equivalent) in your file names in future labs.
- The % symbol is the symbol for commenting out the rest of the line in LaTeX. My comments within your .tex file will usually be after that symbol.
- Each lab is worth 20 points, and I will go to 1/4-points when grading.
- You usually don't need to use a flushleft command.
- To get a new line, you do not need to use \\ or \newline. Just leave a blank line between your lines (which is what the original programmers of LaTeX expected people to do).
- Using $...$ creates what is called an in-line equation, while if you use a $$...$$ you will get a displayed equation. An in-line equation is within the sentence and paragraph, while a displayed equation is on a line all by itself and centered. There are also differences in how superscripts and subscripts work and how things are resized (like fractions), mainly to help readability in the final document.

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  `\documentclass[options]{class}`
- The next part of the preamble is (often) the command

  `\usepackage[options]{package, package, ...}`

  Note: This can be one command with a list, as shown, or separate commands for each package, or a combination of those choices.

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  `\usepackage[options]{package, package, ...}`

  Note: This can be one command with a list, as shown, or separate commands for each package, or a combination of those choices.
- Next there is (often) a set of commands that define the page layout.
- Finally, one can use the command

  `\newcommand{\<name>}{<definition>}`

  to create a shorter name for a frequently used command.

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But there are others...

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- one column or two column (sets the number of columns that are typeset per page)
- landscape (set the page layout to landscape rather than the standard page orientation)
- and many others...

Getting Started on an Example

- Open a blank document using TeXnicCenter and type

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- Open a blank document using TeXnicCenter and type

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- Add the options 12pt and letterpaper to your document class. It should read:

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  ```

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- Next, add the begin and end document commands, and "This is my second LaTeX document." as the body of the document.
- Save your document somewhere convenient.
- We are going to compile it using the LaTeX⇒PS⇒PDF build profile, so we need to set up the pdf reader so it works.

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- Save your document somewhere convenient.
- We are going to compile it using the LaTeX⇒PS⇒PDF build profile, so we need to set up the pdf reader so it works.
- Now that we have the pdfs working well, build and open the resulting .pdf file.

Modifying Our Example

- Change the options to 10pt and a5paper. It should read:

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- Recompile and view your document.

Modifying Our Example

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- Recompile and view your document.
- Then change the options back to 12pt and letterpaper and compile and view again.

Modifying Our Example

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- Then add the text: I am continuing to write so that we can see how wide the page is. If I write enough, I will get to the end of the line.
- Recompile and view your document.
- Then change the options back to 12pt and letterpaper and compile and view again.
- Finally, add the two column option. It should read:

  ```
  \documentclass[12pt,letterpaper,twocolumn]{article}
  ```

  Then compile and view it.

- Note that you only see text in the first of the two columns because the left column has not been filled yet.

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- Compile your document. TeXnicCenter should be set up so that it will find and install any missing packages. Let me know if you have trouble compiling. It might take a while for these packages to install... But once a package is loaded once, it stays loaded, so it only takes a while the first time it is built (fortunately).
- These packages give you access to additional fonts, symbols, or other additional commands.

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- Scroll down to your favorite US based repository and select it (probably a US based one).
- To practice adding a package by hand, type "tikZ" as either a name or keyword and click "Filter".
- Click on a package that looks interesting. Then click the "+" button and "OK". The package should then install itself.

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- Close the Package Manager.

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  - `\textwidth`
  - `\topmargin`
  - `\oddsidemargin`
  - `\evensidemargin`
- The standard syntax used is:

  ```
  \setlength{\textwidth}{7.5in}
  ```

  where you provide a measurement in inches, centimeters, millimeters, etc.

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  - `\setlength{\textheight}{221mm}`
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  - `\setlength{\textwidth}{140mm}`
  - `\setlength{\topmargin}{-10mm}`
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- Take some time to play with these numbers and see what impact changing these has on your practice document.

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Fun With Fonts

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- In your practice document, add the following (leave a blank line between the commands to put the output in different paragraphs):
  - `\textsl{MATH} is Cool.`
  - `\textsf{MATH} is Cool.`
  - `$\mathbb{MATH}$ is Cool.`
  - `$\mathcal{MATH}$ is Cool.`
  - `\textcolor{red}{MATH} is Cool.`
  - `\textcolor{red}{M}\textcolor{yellow}{A}\textcolor{green}{T}\textcolor{blue}{H} is Cool.`
- There are many other fonts available.

Fun With Symbols Part 1

- TeXnicCenter has several built in symbol menus. You access them by clicking on the "Math" tab on the topline menu and scrolling down to the submenu that has the symbol that you want. And remember to use them within a Math environment.
- In your practice document, try each of the following:

Fun With Symbols Part 1

- TeXnicCenter has several built in symbol menus. You access them by clicking on the "Math" tab on the topline menu and scrolling down to the submenu that has the symbol that you want. And remember to use them within a Math environment.
- In your practice document, try each of the following:
  - Use the "Greek Letters" menu to help you create the expression: $\alpha \geq \gamma$
  - Use the "Binary Operators" menu to help you create the expression: $A \oplus B = C \times D$
  - Use the "Set" menu to help you create the expression: $(A \cap B) \cup C \subseteq D$
  - Use the "Arrows" menu to help you create the expression: $100\% \Rightarrow \$ \uparrow$ Note: To get the reserved symbols of % and $, precede them with a $\backslash$.
  - Use the "Several Symbols" and "Boundaries" menus to help you create the expression: $|\Re| = \aleph_1$?

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  - Open the "Tools" Menu.
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  - In the window that opens, click on the "Toolbars" tab.
  - Check the boxes of the symbol family that you want to add to the display.
  - As an example, add the "Arrows" tab. Then click on it and drag it to a convenient location in the top menu bar.

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  - As an example, add the "Arrows" tab. Then click on it and drag it to a convenient location in the top menu bar.
- You can find a *fairly* comprehensive list of symbols available in LaTeX by going to the following http://artofproblemsolving.com/wiki/index.php?title=LaTeX:Symbols.
- For a more comprehensive list, see the following http://tug.ctan.org/info/symbols/comprehensive/symbols-a4.pdf.
- Note that to use many of the symbols listed, you will have to call the appropriate package at the beginning of your document.