LaTeX for Math and Science Week 5: packages

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Overview

In this presentation, we will cover the following:

What are packages

Packages:

- add functionality and commands
- make existent commands easier to input

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Example packages

A few examples would include:

- geometry is useful for setting page dimensions EG page size, margins etc
- boxedminipage enables you to put line borders around blocks of text
- polynom makes it easy to work out and display long division

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Installing packages

Now the next part

Here is how to install packages

Downloading

Many distributions offer the ability to install packages through a more automated process

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- The miktex distribution under Windows has a package manager. Just call the package in a document, and if it is not found, the compiler it asks you if you would like it to install the package.

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Example

- The miktex distribution under Windows has a package manager. Just call the package in a document, and if it is not found, the compiler it asks you if you would like it to install the package.
- TeXLive under linux has the option to install packages through apt-get and other repositories.

Downloading

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Example

but not all distributions have these options working properly

Downloading

Many distributions offer the ability to install packages through a more automated process

Example

So we will discuss a way that works no matter what the occasion.

Installing packages
Downloading

Downloading is easy!

1. In google type "packagename.sty"... the first result is usually what you want.
2. save the package in the tex directory (see next slide) keeping the extension .sty
3. using a terminal shell, run the "texhash" command over the tex directory

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There is usually a permanent directory that your tex distribution creates upon installation and a "temporary directory" which you can create afterwords (used more in some distros than others).

Installing packages
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Under Mac OS X this is the home directory:

/library/texbf/tex/latex

Installing packages
finding the tex directory

The permanent tex directories according to OS are:
MiKTeX under Windows:

```
C:\Program Files\MiKTeX 2.7\tex\latex
```

TeXLive under Mac OS X:

```
(/usr/local/texlive/2008/
texmf-dist/tex/latex/graphics/graphics.sty
```

TeXLive under Linux:

```
 /opt/texlive/texmf-local
```

If you cannot access any of these directories, you can put the sty file in the same directory with the tex file.

Example Packages

examples

Now let's consider a few example packages.

Geometry

Geometry is a useful package for setting page formatting such as margins.

Example

```
%for one-inch margins:
\usepackage{geometry}
\geometry{rmargin=1in,lmargin=1in,
tmargin=1in,bmargin=1in}
```

polynom

Don't you wish you had polynom when you were in grade school ey?

$$
\begin{array}{r}
 & x - 1 \\
\cline{2-2}
x^2 - x + 3 \big) & x^3 - 2x^2 + 9x - 10 \\
 & \underline{-x^3 + x^2 - 3x} \\
 & -x^2 + 6x - 10 \\
 & \underline{x^2 - x + 3} \\
 & 5x - 7
\end{array}
$$

So what does the code look like?

polynom

Here is the code:

```
\polylongdiv{x^3 - 2x^2 + 9x - 10}{x^2 - x + 3}
```

boxedminipage

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- Have you ever wondered how we got blocks of text in this beamer to appear boxed?

boxedminipage

boxedminipage?

- Have you ever wondered how we got blocks of text in this beamer to appear boxed?
- This is the work of none other than the package, boxedminipage, which we show now.

boxedminipage

The code:

```
%preamble
\usepackage{boxedminipage}
%document
\begin{boxedminipage}{\textwidth}
Text within the box
\end{boxedminipage}
```

The obligatory argument `\textwidth` refers to the width of the box, telling the compiler to make the box width same as the text width.

boxedminipage

With every .sty file, there is a .pdf file, from which one can find out everything there is to know about any given package. Simply googling things like “geometry.pdf”, “boxedminipage.pdf” or “envlab.pdf” will give you a manual for those packages. Try it!