

STA312H5S Lecture

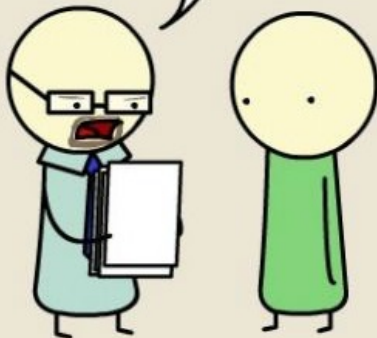
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February 26, 2015

LATEX

YOUR PAPER MAKES NO GODDAMN SENSE,
BUT IT'S THE MOST BEAUTIFUL THING
I HAVE EVER LAID EYES ON.



What We Are Going to Cover

A bit more information about this

Today we are going to cover:

- ▶ The history of \LaTeX
- ▶ Why Use \LaTeX
- ▶ A digression on WYSIWYM versus WYSIWYG
- ▶ How to write a document in \LaTeX

History Of L^AT_EX

Why not cover some history?

- ▶ Precursor T_EX was written by Donald Knuth in 1978
- ▶ He made it to write his book 'The Art of Computer Programming'
- ▶ Main goal was to allow anybody to produce high-quality books quickly
- ▶ L^AT_EX written in 1980s by Leslie Lamport
- ▶ Goal is to provide a high-level language that accesses the power of TeX

Why Use \LaTeX

- ▶ Can make professional looking books, articles, posters and presentation slides quickly and with ease.
- ▶ Automates most aspects of typesetting such as numbering, indexing, referencing, tables, bibliographies, etc...
- ▶ Extensive support for writing mathematical expressions.
- ▶ Lets you focus on the content without worrying about the formatting. (more about this on next slide)

A digression on WYSIWYM versus WYSIWYG

An intro into the philosophy behind \LaTeX

2 Paradigms on how to build a document editor:

1. What You See is What You Get

Displays the document on screen as it will appear in final form. e.g. *Microsoft Word*

2. What You See is What You Mean

You write the contents in a structured way, marking the contents according to their meaning within the document, leaving the program to work out the details. e.g. \LaTeX , *HTML*

A digression on WYSIWYM versus WYSIWYG

lets explore the differences between these two paradigms

Here are two pieces of pseudocode that code for the same document, written with each of the different paradigms in mind:

1. What You See is What You Get

Press enter 10 times and tab 5 times to get to the centre of the screen and write 'Hello World!'.

2. What You See is What You Mean

This document should look like a title screen which has the text 'Hello World!' displayed.

How to Write a Document in \LaTeX

What we are going to cover:

1. \LaTeX installation
2. Beginning a document
3. Your first document in \LaTeX
4. Some more \LaTeX
5. Lets make a more interesting document

How to Write a Document in \LaTeX

\LaTeX installation

- ▶ Install a TeX compiler
- ▶ TeX Live (linux), MiKTeX (windows) or MacTeX (just guess the OS)
- ▶ Install a GUI like TeXstudio or TeXworks
- ▶ Go to <http://miktex.org/download> to get the latest version of MiKTeX, which comes bundled with TeXworks!
- ▶ Go to <http://texstudio.sourceforge.net/> to get TeXstudio if you want.

How to Write a Document in \LaTeX

beginning a document

You always must add a few things before you can begin writing your \LaTeX document

```
\documentclass{article} %Declares the document classes
\usepackage{SOMEPACKAGE} %Analogous to library() in R
\begin{document} %We declare where the document begins

... stuff

\end{document} %Declares when the document ends
```

How to Write a Document in L^AT_EX

beginning a document

What kinds of document classes are there?

- ▶ article - For scientific articles and reports
- ▶ book - In case you want to write an entire book
- ▶ beamer - Makes powerpoint slides (like this one!)
- ▶ many others, all tailored for their intended use...

How to Write a Document in L^AT_EX

beginning a document

You can specify additional options using square brackets...

```
\documentclass[11pt,twoside,a4paper]{article}
```

More information can be found at:

http://en.wikibooks.org/wiki/LaTeX/Document_Structure

How to Write a Document in \LaTeX

beginning a document

Lots of great packages are available which add even more functionality to \LaTeX

- ▶ graphicsx - Includes the `includegraphics` command
- ▶ amsmath - For serious mathematical typesetting
- ▶ hyperref - Fun with hyperlinks (clicking one takes you to a specific figure)
- ▶ many others, check them out online!

How to Write a document in \LaTeX

Your First document in \LaTeX

Okay everyone, lets make a document!

How to Write a document in L^AT_EX

Your First document in L^AT_EX

- ▶ Okay everyone, lets make a document!
- ▶ Notice how you have to compile before you can see what you've done!
- ▶ This takes some getting used to...

How to Write a document in L^AT_EX

some more L^AT_EX

- ▶ An "environment" is a region of your document that LaTeX gives special consideration to.
- ▶ Some commands may only be valid in certain environments, and content may visually change depending on the environment it is in.
- ▶ An environment begins with the begin command, and ends with the end command.
- ▶ Environments can be nested within one another.

How to Write a document in \LaTeX

some more \LaTeX

Here are a few popular \LaTeX environments:

- ▶ figure - for adding figures to the page
- ▶ enumerate, itemize - for making lists
- ▶ math - for making all those yucky math formulas
- ▶ array - for making tables
- ▶ flushleft, center, flushright - moves text left, center and right.
- ▶ verbatim - makes "typewriter" text
- ▶ abstract - makes the abstract for the document.

How to Write a document in \LaTeX

Lets make a more interesting document

We will work with the document class article and make a 'report' out of it.