

# Welcome to Grad School L<sup>A</sup>T<sub>E</sub>X Workshop

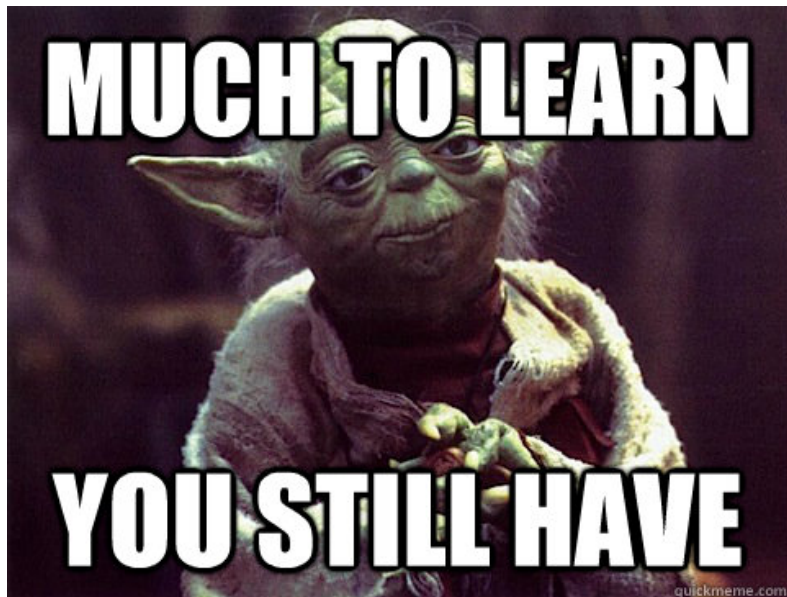
## Texas Tech Grad School Intro 2016

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If you thought we were done...



# Introduction

# Goals

By the end of this session, you should be able to:

- Install and load packages
- Know how to get **help**
- Do a basic  $\text{\LaTeX}$  document
- Find additional materials
- Start playing with  $\text{\LaTeX}$

## What is T<sub>E</sub>X?

- T<sub>E</sub>X is a computer program for typesetting documents.
- It takes a computer file -properly prepared- and converts it to a document.
- This produced document is easily transferable across systems and platforms without changes to the 'look'.
- Open Source: This means free!

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## What is L<sup>A</sup>T<sub>E</sub>X?

- A typesetting environment, one of a number of 'dialects' of T<sub>E</sub>X.
- Particularly suited to the production of long articles and books.
- Better for complex equations than typical word processors

# About L<sup>A</sup>T<sub>E</sub>X

## Why Use L<sup>A</sup>T<sub>E</sub>X?

- An adaptable platform.
- Free!!! Complete with materials.
- Fast becoming language of stats. → SIGNALING!!!

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## Learning L<sup>A</sup>T<sub>E</sub>X

- Steep learning curve (with high returns to investment)!
- Like any language, it requires practice.
- There are many paths to the same results.
- No one knows all of L<sup>A</sup>T<sub>E</sub>X, we just wing it at some level.
- Be prepared for a lot of trial and error and always read L<sup>A</sup>T<sub>E</sub>X documentation as you go.



# LATEX

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



# Installation

# Installation Time

There are many editors for  $\LaTeX$  and I don't think there is an editor that fits everyone. It's a matter of personal taste.

## Installing $\LaTeX$

- Windows:
  - ▶ MiKTeX
  - ▶ T<sub>E</sub>XnicCenter
  - ▶ T<sub>E</sub>Xmaker
- Mac:
  - ▶ MacT<sub>E</sub>X
  - ▶ T<sub>E</sub>Xmaker

Make sure you read the installation notes

# Installation Time

If you are going to be writing papers with  $\text{\LaTeX}$  you should also install  $\text{\BibTeX}$  to help you do your reference list.

$\text{\BibTeX}$  is a reference management software. Also free!

## Installing $\text{\BibTeX}$

- $\text{\BibTeX}$
- $\text{\JabRef}$

Make sure you read the installation notes

# Getting started

# Getting started

- Writing a simple document script file
- Writing a simple presentation script file
- Compiling script

# Document structure

No matter the type of document you are writing, all  $\text{\LaTeX}$  files have two elements

- Preamble
- Main Document

```
1 %%% Preamble
2
3 \begin{document}
4
5 %%% Main Document
6
7 \end{document}
```

# Preamble

The purpose of the preamble is to tell  $\text{\LaTeX}$ :

- what kind of document you will set up.
- what packages you are going to need
- other definitions (i.e. colors, functions, commands, etc)

**Note:** A package is a set of additional functions such as 'listings' for programming language formatting.

```
1 %%% Preamble
2
3 % Document type = 'article'
4 \documentclass{article}
5
6 % Packages
7 \usepackage{hyperref} % Add links to your document
8 \usepackage{listings} % Code formatting and highlighting
9
10 % Path where graphics are located
11 \graphicspath{figures/}
12
13 \begin{document}
```



- In the main document is where you will put the text of the article or of the presentation.
- This part of the document will be different for articles and presentations.
- For articles, the main document basically consist of the text.
- For presentations, the main document consists of 'frames'. Each 'frame' is a slide-ish.

# Document: Article

```
1 \documentclass{article}
2 %%% Preamble
3
4 \begin{document}
5 %%% Main document
6
7 This is my very first Latex file.
8
9 Hello World!
10 \end{document}
```

# Document: Beamer

```
1 \documentclass{beamer}
2 %%% Preamble
3
4 \begin{document}
5 %%% Main document
6
7 \begin{frame}
8 This is my very first Latex file.
9 \end{frame}
10
11 \begin{frame}
12 Hello World!
13 \end{frame}
14 \end{document}
```

Adding content

# Title page

Either for a presentation or an article you want to have a title page.

```
1 \documentclass{article}
2
3 %%% Title Components in preamble
4
5 \title{Welcome to Grad School {\LaTeX} Workshop}
6
7 \subtitle{Texas Tech Grad School Intro 2016}
8
9 \author{Iñaki Sagarzazu}
10
11 \institute{inaki.sagarzazu@ttu.edu \\ Texas Tech University}
12
13 \date{\today}
14
15 \begin{document}
16
17 \titlepage
```

# Structuring text

It is good practice to organize your document into sections and subsections and subsubsections

```
1 \section{Section 1}  
2 \subsection{subsec 1.1}  
3 \subsection{subsec 1.2}  
4 \subsubsection{1.2.1}  
5 \section{Section 2}  
6 \subsection{subsec 2.1}
```

## Adding figures (1)

You need to make sure you are loading the package for adding graphics.

```
1 %%%% Include in preamble these two lines
2 \usepackage{graphicx}
3 \graphicspath{{Figures/}}
```

## Adding figures (2)

Adding a figure with caption

Figure: TTU



```
1 %%% With caption
2 \begin{figure}[ht]
3 \centering
4 \caption{TTU}
5 \includegraphics[width=.5\textwidth]{TTU}
6 \end{figure}
```



# Adding figures

Adding just a figure without caption.



```
1 %%% Without caption
2 \includegraphics[width=.5\textwidth]{TTU}
```

## Adding tables

column 1	column 2	column 3
----------	----------	----------

row 2		
-------	--	--

	row 3	
--	-------	--

```
1 \begin{tabular}{ccc}
2 column 1 & column 2 & column 3 \\ \hline
3 row 2 & & \\
4 & row 3 & \\
5 \end{tabular}
```

To make the table with a caption embed the tabular environment inside a table environment

```
1 \begin{table}
2 \begin{tabular}{ccc}
3 \end{tabular}
4 \end{table}
```

# Adding lists

- 1 item 1
  - 2 item 2
- item 1
  - item 2

```
1 \begin{enumerate}
2 \item item 1
3 \item item 2
4 \end{enumerate}
5 \begin{itemize}
6 \item item 1
7 \item item 2
8 \end{itemize}
```

Note: You can also do nested lists.

# Adding formulas

Just the formula ...  $f(x) = \sum_i (x_i^2)$

An 'equation'

$$f(x) = \sum_i (x_i^2) \quad (1)$$

```
1 Just the formula ...
2 $f(x) = \sum_i (x_i^2)$
3 An 'equation'
4 \begin{equation}
5 f(x) = \sum_i (x_i^2)
6 \end{equation}
```

Huge Large normalsize footnotesize tiny

```
1 \Huge Huge
2 \Large Large
3 \normalsize normalsize
4 \footnotesize footnotesize
5 \tiny tiny
```

## Text formatting - size

**bold** *italic* underline typewriter

```
1 \textbf{bold}
2 \textit{italic}
3 \underline{underline}
4 \texttt{typewriter}
```

# Text formatting - others

purple text  
structure

alert

```
1 \textcolor{purple}{purple text} \\ % New line command
2 \structure{structure} \\ \bigskip
3 \alert{alert}
```

# Further Resources



- The best way to learn  $\text{\LaTeX}$  is through ‘plagiarising’ other people’s templates.
- There are plenty of resources online to guide you, if you are brave enough to go down this crazy path
- Find a template you like and edited to make it yours
- If you don’t practice it and use it you won’t learn it

## Want to learn more?

- <https://en.wikibooks.org/wiki/LaTeX>
- <http://www.maths.tcd.ie/~dwilkins/LaTeXPrimer/>
- <https://www.latex-tutorial.com/tutorials/quick-start/>
- <http://www.andy-roberts.net/writing/latex>
- <https://www.tug.org/twg/mactex/tutorials/ltxprimer-1.0.pdf>

If you have any additional questions about latex, life, or the pursuit of happiness shoot me an email.