

# L<sup>A</sup>T<sub>E</sub>X: Typesetting for fun and profit

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# “Syllabus”

## Week 1

Introductory Stuff, Basic Math

## Week 2

Fancy Math, Graphics, Tables, etc.

## Week 3

References, Bibliographies, Document Classes, etc.

## Week 4

Fancy Stuff! Slides, Diagrams, Fonts, Programming (?), etc.

# Things we're doing today

## Introductory sorts of things

- ▶ What *is*  $\text{\LaTeX}$ , anyway?
- ▶ Why do I care?
- ▶ How do I install it?
- ▶ Show me how to do cool stuff!

What *is* L<sup>A</sup>T<sub>E</sub>X, anyway?

“Typesetting Language”

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

“Typesetting Language”

```
\section{Introduction}
```

```
\subsection{Materials Used}
```

```
\begin{itemize}
```

```
\item One fish
```

```
\item Two fish
```

```
\item Red fish
```

```
\item Blue fish
```

```
\end{itemize}
```

```
\begin{equation}
```

```
\int_a^b f(x)dx = F(b) - F(a)
```

```
\end{equation}
```

```
\documentclass[10pt]{article}
\title{An Example}
\author{Mac Mason}
\begin{document}
\maketitle
\section{Introduction}
Four score and seven years ago, our forefathers
brought forth on this continent a new nation\ldots
\subsection{Materials Used}
To begin, we used the following materials:
\begin{itemize}
\item One fish
\item Two fish
\item Red fish
\item Blue fish
\end{itemize}
Later in the process, we realized we'd also need an equation.
\begin{equation}
\int_a^b f(x)dx = F(b) - F(a)
\end{equation}
\end{document}
```

# An Example

Mac Mason

February 16, 2006

## 1 Introduction

Four score and seven years ago, our forefathers brought forth on this continent a new nation. . .

### 1.1 Materials Used

To begin, we used the following materials:

- One fish
- Two fish
- Red fish
- Blue fish

Later in the process, we realized we'd also need an equation.

$$\int_a^b f(x)dx = F(b) - F(a) \tag{1}$$

## Why do I care?

*"It makes everything look so fancy!"*

*(Patrick Foley)*

*"You have to!"*

*(Prof. Ran)*

*"Submissions should be in  $\LaTeX$ ..."*

*(That conference you're submitting to)*

# Why you care, again

## Structure

- ▶ “Trust the computer, it might know what’s best”

## Presentation

- ▶ Looks good
- ▶ The standard

# Installation

## Windows

- ▶ MiKTeX
- ▶ TeXnicCenter

## Mac OS X

- ▶ TeXShop

## UNIX

- ▶ teTeX
- ▶ Text editor of your choice

# Cool Stuff! (Math!)

## Dollar-sign mode

`$x^2$`  $\rightarrow x^2$

`$x_1, x_2$`  $\rightarrow x_1, x_2.$

# Cool Stuff! (Math!)

## Dollar-sign mode

`$x^2$` →  $x^2$

`$x_1, x_2$` →  $x_1, x_2$ .

`$$\alpha$` →  $\alpha$

`$$\sigma$` →  $\sigma$

`$$\Sigma$` →  $\Sigma$

# Cool Stuff! (Math!)

## Dollar-sign mode

`$x^2$` →  $x^2$

`$x_1, x_2$` →  $x_1, x_2$ .

`$$\alpha$` →  $\alpha$

`$$\sigma$` →  $\sigma$

`$$\Sigma$` →  $\Sigma$

`$$e^{i\pi} + 1 = 0$` →

# Cool Stuff! (Math!)

## Dollar-sign mode

$$\text{\$x^2\$} \rightarrow x^2$$

$$\text{\$x_1, x_2\$} \rightarrow x_1, x_2.$$

$$\text{\$\alpha\$} \rightarrow \alpha$$

$$\text{\$\sigma\$} \rightarrow \sigma$$

$$\text{\$\Sigma\$} \rightarrow \Sigma$$

$$\text{\$e^{i\pi} + 1 = 0\$} \rightarrow e^{i\pi} + 1 = 0$$

# Cool Stuff! (Math!)

## Dollar-sign mode

$$\text{\$x^2\$} \rightarrow x^2$$

$$\text{\$x_1, x_2\$} \rightarrow x_1, x_2.$$

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$$\text{\$\sigma\$} \rightarrow \sigma$$

$$\text{\$\Sigma\$} \rightarrow \Sigma$$

$$\text{\$e^{i\pi} + 1 = 0\$} \rightarrow e^{i\pi} + 1 = 0$$

$$\text{\$e^{\{i\pi\}} + 1 = 0\$} \rightarrow e^{i\pi} + 1 = 0$$

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$$\text{\$e^{i\pi} + 1 = 0\$} \rightarrow e^{i\pi} + 1 = 0$$

$$\text{\$e^{\{i\pi\}} + 1 = 0\$} \rightarrow e^{i\pi} + 1 = 0$$

The sum of the integers from 1 to  $n$  is

$$\text{\$\sum_{i=1}^n i \$}.$$

→

The sum of the integers from 1 to  $n$  is  $\sum_{i=1}^n i$ .

## More math!

### Equations

```
\begin{equation}  
\sum_{i=1}^n i  
\end{equation}
```

$$\sum_{i=1}^n i \quad (1)$$

### Fractions

```
\frac{1}{2}
```

```
\frac{x^2}{x_i}
```

$$\frac{1}{2}$$
$$\frac{x^2}{x_i}$$

# Three more things

## Paragraphs

Two newlines in a row makes a new paragraph:

This is one paragraph

and this is another

## Margins

Bigger than you expect.

## Quotes

- ▶ Left quotes use the backtick: ‘‘
- ▶ Right quotes use the regular apostrophe: ’’

## References

- ▶ <http://www.cs.hmc.edu/qref/latex/qref/>
- ▶ <http://www.cs.hmc.edu/~mac/latexcourse>
- ▶ <http://www.math.hmc.edu/computing/support/tex/>
- ▶ latex-l@hmc.edu
- ▶ *The L<sup>A</sup>T<sub>E</sub>X Companion*