Introduction to LaTeX

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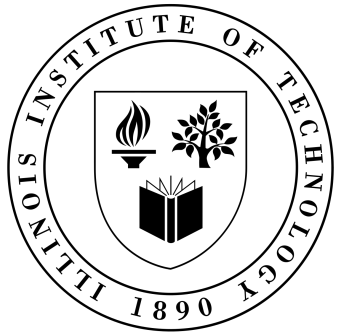

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Outline

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- Does what other document systems (Microsoft Word, Google Docs, etc.) do but **more** and **better**
- Documents written in *plain text* then converted to PDF as opposed to a *what you see is what you get* system
- Primarily used for academic research involving complicated mathematical expressions

How Does it Work?

LaTeX is mostly a mix of "regular" text, special commands, and markup tags (think *HTML*)

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Example

```
1  \documentclass{article}
2  \usepackage[utf8]{inputenc}
3  \usepackage{amsmath}
4  \begin{document}
5  Here's a neat identity by Srinivasa Ramanujan
6  \begin{equation*}
7      \frac{2\sqrt{2}}{9801}\sum_{k=0}^\infty \frac{(4k)!(1103
       + 26390k)}{(k!)^4 396^{4k}} = \frac{1}{\pi}
8  \end{equation*}
9  \end{document}
```

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Preamble

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The preamble includes

- The type of document (*documentclass*)
- The title of the document
- The author of the document
- Included packages
- User-defined commands (*macros*)
- and more...

Environments

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Definition

General environment structure

```
\begin{<environment name>}

...

\end{<environment name>}
```

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Example

This is done inline: $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$

This is done in display mode

$$\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$$

Note that these are specific environments!

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Live Demonstration

We now take you to a live demonstration...

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  - Key new environment: *frame*
  - Has many options for themes

Outline

Next Steps

- More advanced macros
- Better graphics with *TiKz* and others
- Bibliographies and citations with *BibTeX*

Thanks

- Thank you to the IIT SIAM student chapter for organizing this event
- Thanks to Donald Knuth for everything
- Thank you for listening