

Slide Presentations in L^AT_EX and Beamer

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What is \LaTeX ?

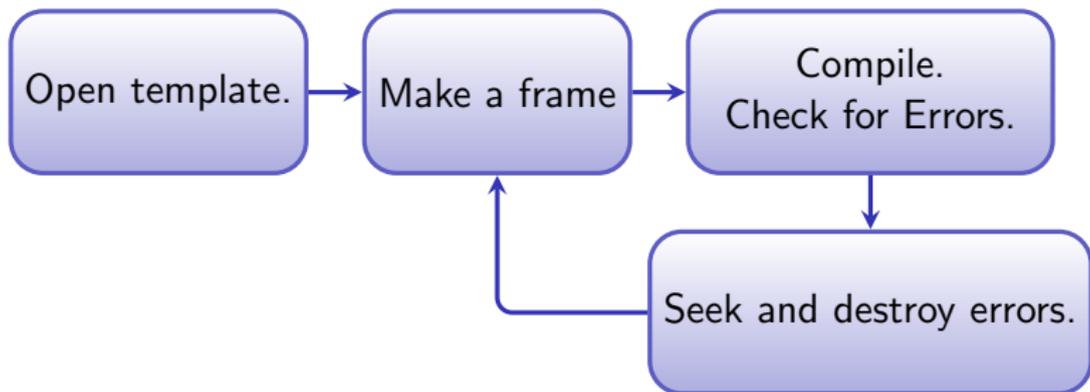
\LaTeX is a document markup language, much like HTML or Markdown. The \LaTeX code can be compiled into many different formats, such as pdf. It is used to make consistent, professional-looking documents.

Why L^AT_EX?

Or, Why Am I Even Here?

- Code is written in plain text.
- Content is separate from format.
- Content is typeset in a professional way.
- Math is easy to type and looks beautiful.
- Documents look the same, no matter what.
- It's free, as in free speech and as in free beer.

Typical \LaTeX Presentation Workflow



Preamble

We the people of the CCT and LA-SiGMA REUs...

The preamble is anything that comes before the main document.
It is used for:

- Defining the type of document.
- Defining data such as the title and author.
- Applying global formatting.
- Including packages to add functionality.

Themes

Complete themes are available with beamer. For previews of all available built-in themes, visit:

<http://www.hartwork.org/beamer-theme-matrix/>

To change it, use `\usetheme{theme}`.

You can change the color of each object in the document. Use `\setbeamercolor` to do so.

Themes

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OR

Themes

Complete themes are available with beamer. For previews of all available built-in themes, visit:

<http://www.hartwork.org/beamer-theme-matrix/>

To change it, use `\usetheme{theme}`.

Use `\usecolortheme` to change all colors to a preset theme. Color themes are in the online matrix at the top.

The Document

The document holds everything that will be visible in the document.

```
\begin{document}
```

```
⋮
```

```
⋮
```

```
⋮
```

```
⋮
```

```
⋮
```

```
\end{document}
```

The Frame

The frame holds everything that will go on one slide of the presentation. You can define a title and subtitle for each frame.

```
\begin{document}
```

```
  \begin{frame}
```

```
    :
```

```
    :
```

```
    :
```

```
  \end{frame}
```

```
\end{document}
```

The Frame

The frame holds everything that will go on one slide of the presentation. You can define a title and subtitle for each frame.

```
\begin{document}
```

```
  \begin{frame}
```

```
    \frametitle{Your Title}
```

```
    \framesubtitle{Your Subtitle}
```

```
    :
```

```
  \end{frame}
```

```
\end{document}
```

Line Breaks

This is text on the slide. This is the first “paragraph” of text. It doesn't care about single line breaks. . .

. . . but it will break the line if there are two . . .

. . . and only breaks once if there are more than two. Format your source however you like.

You can also add newlines with a double backslash `\\` or with `\linebreak` like this.

If you want more space, add a `\vskip` where you want it.

Lists

- I am an item of the list.
 - I am another item of the list.
 - You can nest items under other items.
 - You can go as deep as you like.
 - Even this deep.
 - Bullets and sizes will change to fit your level.
 - I am yet another item of the list.
1. I am the first item of the enumeration.
 - 1.1 You can even nest in enumerations.
 - 1.2 You could have nested an itemize within this enumerate.
 - 1.3 You could have nested an enumerate in the itemize.
 2. I am the second item of the enumerate.
 3. I am the third item of the enumerate.

Columns

This is text in the first column. It is much longer than the second column's text. Both columns are lined up at the first line of the columns.

This is centered text in a second column.

This text comes after and outside of the columns environment entirely.

Tables

```
\begin{tabular}{l l l}
      & Lorem & Ipsum\\
Mass   & 10g   & 8g\\
Length & 2.0m  & 7.3m\\
\end{tabular}
```

	Lorem	Ipsem
Mass	10g	8g
Length	2.0m	7.3m

Tables

```
\begin{tabular}{|l|l|l|l|}  
  \hline  
      & Lorem & & Ipsum\\  
  \hline  
  Mass & 10g & & 8g\\  
  \hline  
  Length & 2.0m & & 7.3m\\  
  \hline  
\end{tabular}
```

	Lorem	Ipsem
Mass	10g	8g
Length	2.0m	7.3m

Equations

$$F = ma$$

Greek letters and other math symbols are really easy to insert and format:

$$\int_0^{\infty} \alpha + \beta = \phi$$

Also note the alignment of this system of equations.

$$\begin{array}{rcccccc} 2x & + & 2y & - & z & = & 0 \\ -100x & - & 30y & + & z & = & 0 \end{array}$$

Math To Know

In No Particular Order

`\infty`: ∞

`\sum`: \sum

`\frac{x}{y}`: $\frac{x}{y}$

`\nabla`: ∇

`\prod`: \prod

`\partial x`: ∂x

`\Psi`: Ψ

`\int`: \int

`\sqrt{x}`: \sqrt{x}

`\forall`: \forall

`x^{2y}`: x^{2y}

`\sqrt[3]{x}`: $\sqrt[3]{x}$

`x \pm y`: $x \pm y$

`x \div y`: $x \div y$

`\overline{x}`: \bar{x}

`\vert a \vert`: $|a|$

`\lim_{a \rightarrow \infty}`: $\lim_{a \rightarrow \infty}$

Pictures

```
\includegraphics{dolphin.png}
```

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```
\includegraphics{dolphin.png}
```



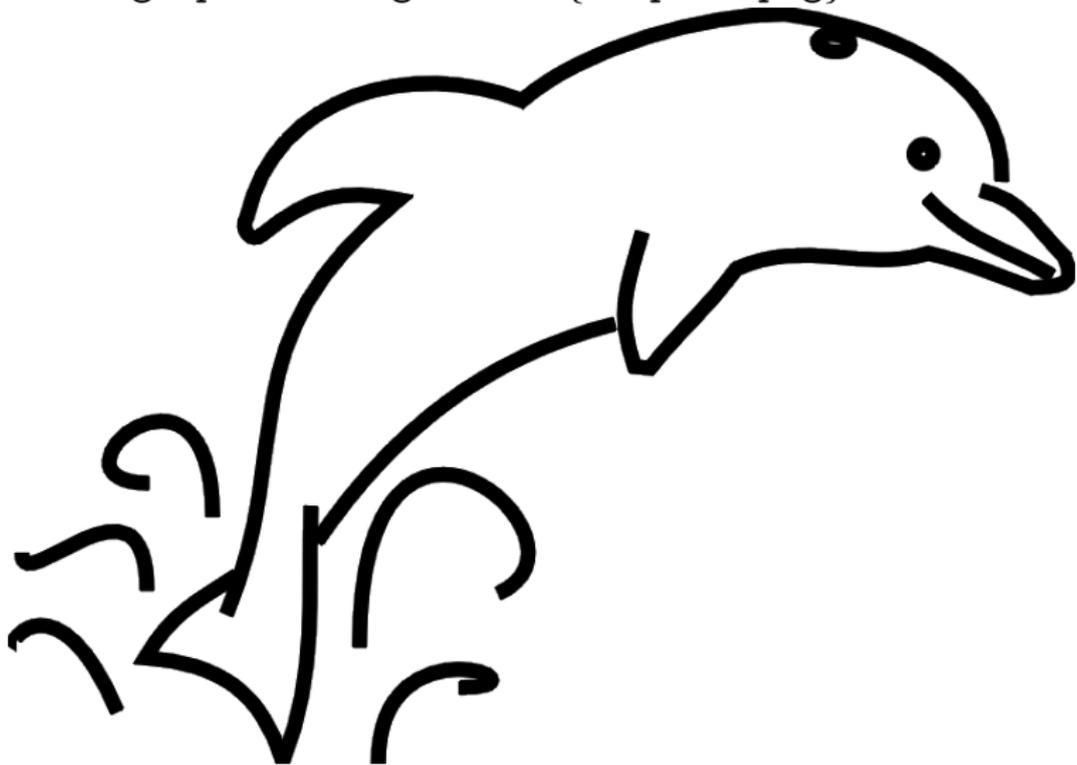
Pictures

```
\includegraphics[width=100pt]{dolphin.png}
```



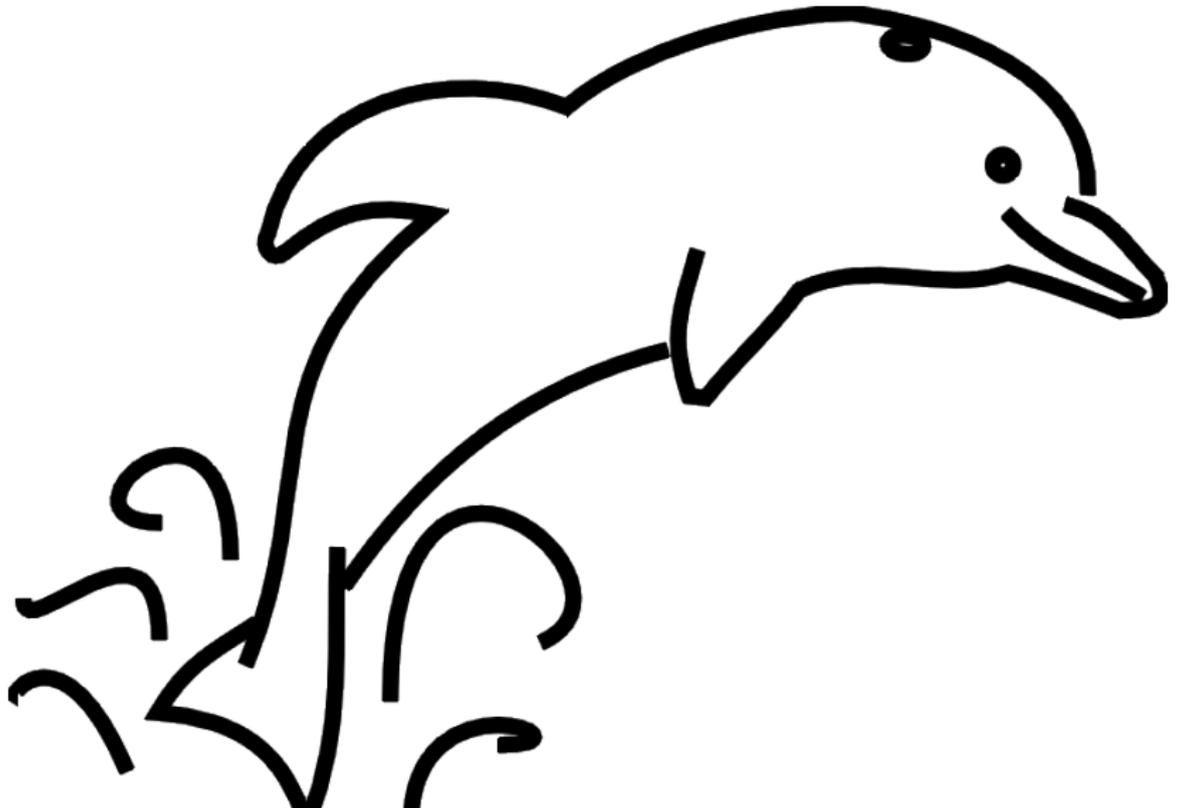
Pictures

```
\includegraphics[height=7cm]{dolphin.png}
```

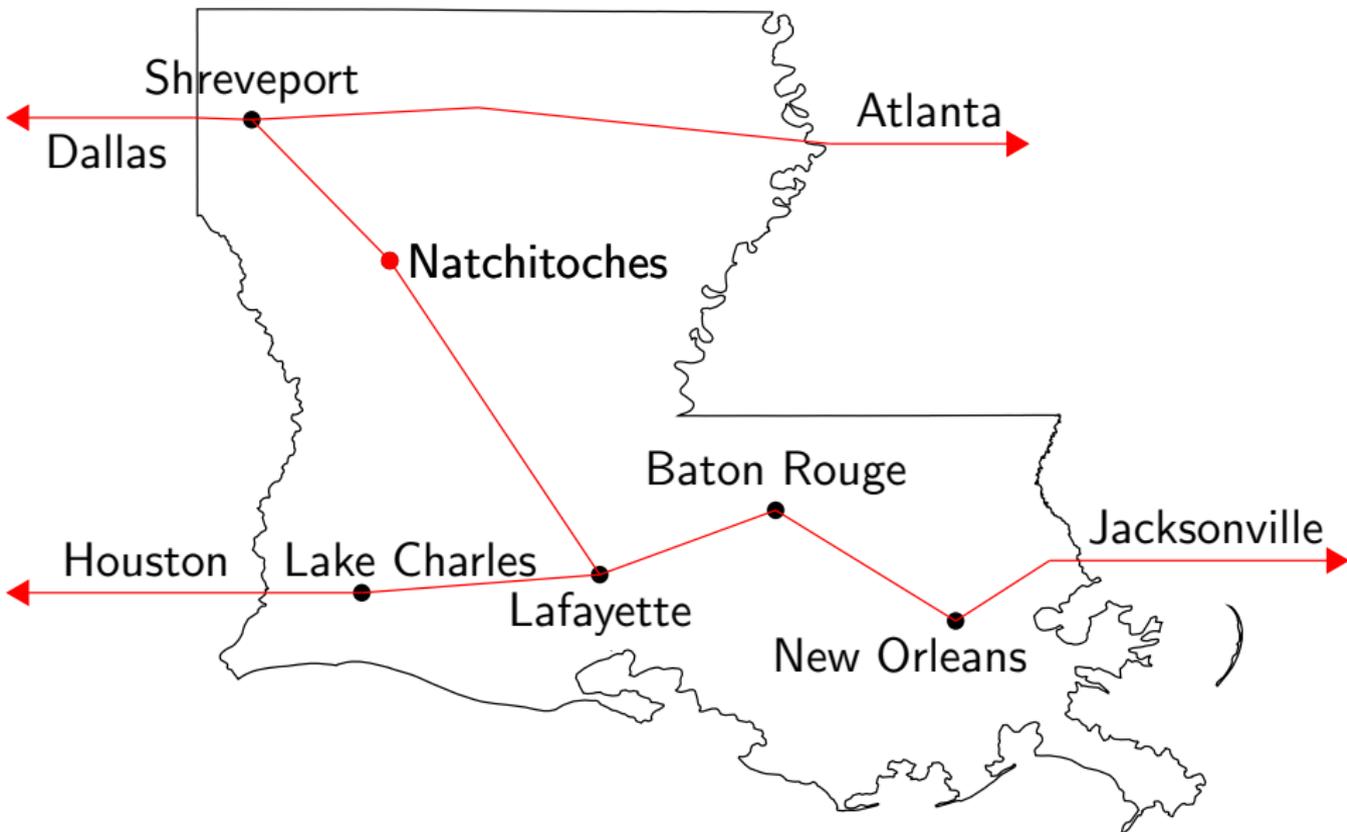


Pictures

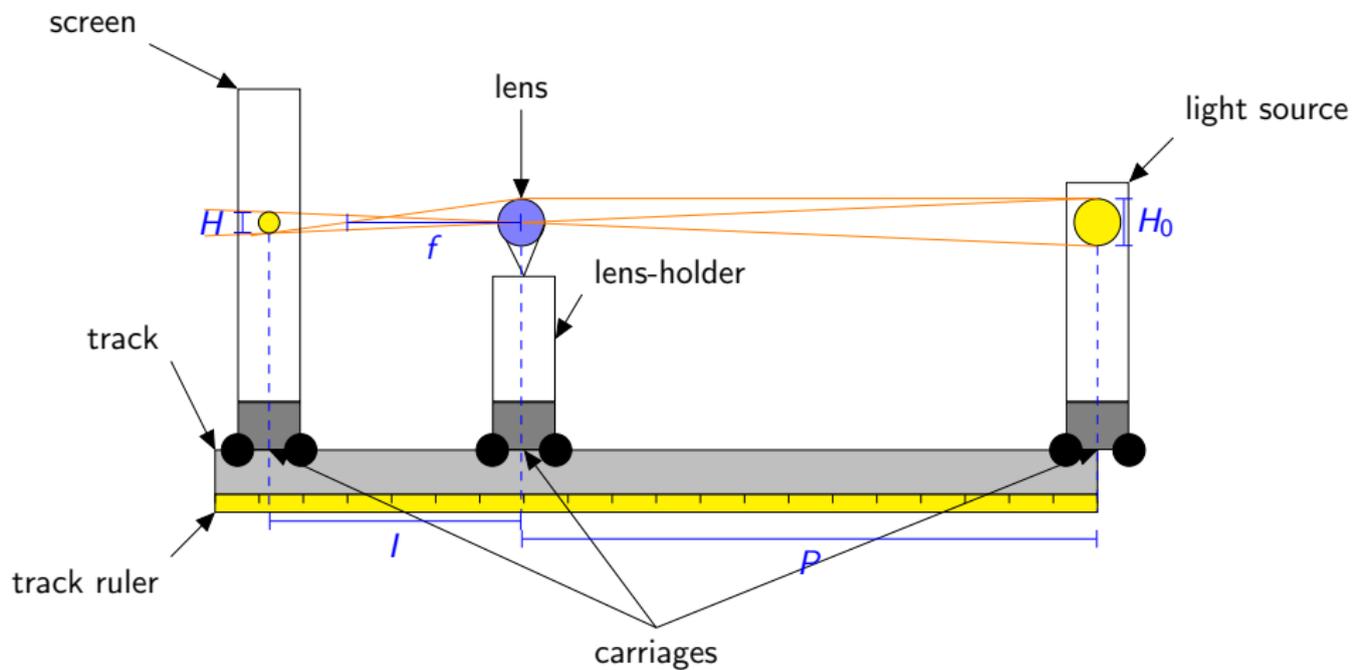
```
\includegraphics[width=\textwidth]{dolphin.png}
```



TikZ



TikZ



Review

- Begin with a preamble for global formatting needs.
- Enclose your entire document with a `document` environment.
- Enclose each slide in a `frame` environment.
- Format frames with line breaks, lists, and columns.
- Include math within an `array` environments or inline between `\(` and `\)`.
- Add images with `\includegraphics`.

Questions?



Thank You

Now make something cool!