

\LaTeX Workshop

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September 15th, 2022

A Little Bit About Me

- ▶ LQ Class of 2019
- ▶ UCLA Applied Math with a Specialization in Computing
- ▶ Tennis



What is L^AT_EX?

What is L^AT_EX?

- ▶ Typesetting system that is widely used in academia to create professional-looking documents
- ▶ Examples ([click here](#))

Workshop Outline

1. Creating and Using Overleaf
2. Basic \LaTeX Document Setup
3. Formatting Your Document
4. Math Mode and Text Mode
5. Common Math Symbols and Commands
6. Useful Applications for \LaTeX
7. Utilizing Common Environments
8. Other Resources
9. Questions, Comments, Concerns?

1. Creating and Using Overleaf

What is Overleaf

- ▶ Collaborative and cloud-based (think Google Docs!)
- ▶ Removes the need for you to install \LaTeX on your device

1. Creating and Using Overleaf

Setting up an Overleaf Account

1. Go to www.overleaf.com and click “Register” in the top right corner
2. Enter an email and password
3. Click “Create First Project → Blank Project” and name it!

2. Basic \LaTeX Document Setup

```
\documentclass{article}
\usepackage[utf8]{inputenc}

\title{Example}
\author{theodoretnghuyen}
\date{September 2022}

\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

2. Basic \LaTeX Document Setup

Breakdown

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 - ▶ Type of document

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`\author{theodoretnghuyen}`
`\date{September 2022}`
 - ▶ Title, author, date (preamble)

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6. `\section{Introduction}`
 - ▶ Begins a new section with the name Introduction

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5. `\maketitle`
 - ▶ Shows title, author, date
6. `\section{Introduction}`
 - ▶ Begins a new section with the name Introduction
7. `\end{document}`
 - ▶ Ends the document. Nothing goes after this line.

3. Formatting Your Document

Local Settings Throughout Your Document

Local Font Size

- ▶ Sizing changes can be contained in braces
{}
 - ▶ Example: {\tiny hello} → hello

\tiny
\scriptsize
\footnotesize
\small
\normalsize
\large
\Large
\huge
\Huge

3. Formatting Your Document

Local Settings Throughout Your Document

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- ▶ Sizing changes can be contained in braces
{}
 - ▶ Example: {\tiny hello} → `hello`

Text Styling

- ▶ Italics : \textit{hello} → `hello`
- ▶ Bold : \textbf{hello} → `hello`
- ▶ Underline : \underline{hello} → `hello`

\tiny
\scriptsize
\footnotesize
\small
\normalsize
\large
\Large
\LARGE
\huge
\Huge

Exercise 1

4. Math Mode and Text Mode

- ▶ The text that you have been writing in the document's body is in **text mode**.
- ▶ To go into **math mode**, type your math between a pair of dollar signs.
 - ▶ It is also worthwhile to include `amsmath` and `amsfonts` packages.
- ▶ Example:

```
$E = mc^2$ is cool, but $e^{i \pi} + 1 = 0$  
is cooler.
```

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is cooler.
```

Output:

$E = mc^2$ is cool, but $e^{i\pi} + 1 = 0$ is cooler.

5. Common Math Symbols and Commands

\leq	\leq
\geq	\geq
x^2	x^2
A_1	A_1
\alpha	α
\mu	μ
\sum_{n=1}^{\infty}	$\sum_{n=1}^{\infty}$
\int_a^b	\int_a^b
\frac{a}{b}	$\frac{a}{b}$
\sqrt{x}	\sqrt{x}
\pm	\pm
\sin	\sin

Exercise 2

6. Useful Applications for L^AT_EX

Detexify

<https://detexify.kirelabs.org/classify.html>

See or know a symbol and don't know what its command would be in L^AT_EX?

Draw it on your computer and Detexify will guess for you!

Detexify

[classify](#) [symbols](#)

The screenshot shows a white input area containing a handwritten Greek letter mu (μ). To the right of the input area is a red 'X' button. Below the input area is a section titled 'Want a Mac app?' with a small arrow icon.

Want a Mac app?

Lucky you. The Mac app is finally stable enough. See how it works on [Vimeo](#). Download the latest version [here](#).

Restriction: In addition to the LaTeX command the unlicensed version will copy a reminder to purchase a license to the clipboard when you

μ	Score: 0.12588232430178242 \mu mathmode
\checkmark	Score: 0.1499220720858068 \surd mathmode
\mathcal{N}	Score: 0.1547580857923412 \usepackage{ mathrsfs } \mathscr{N} mathmode
\nearrow	Score: 0.15872079380239196 \nearrow mathmode
μ	Score: 0.1594396647991126 \usepackage{ upgreek } \upmu mathmode

6. Useful Applications for L^AT_EX

Mathpix

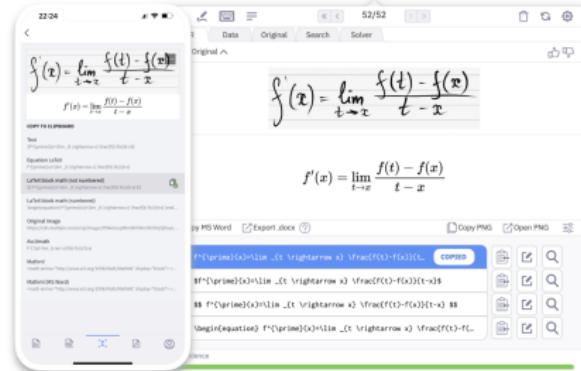
<https://mathpix.com/>

Take a screenshot of a L^AT_EX PDF and this application instantly writes the commands out for you!

Digital science, instantly

Convert images and PDFs to LaTeX, DOCX, Overleaf, Markdown, Excel, ChemDraw and more, with our AI powered document conversion technology.

Get Started



6. Useful Applications for L^AT_EX

Mathb.in

<http://mathb.in/>

If you want to share L^AT_EX with your friends but don't feel like typing up an entire Overleaf document, use this application to share quick excerpts!



Code:

Enter LaTeX, Markdown and HTML code here. Enclose inline math within \$ and \$, or \() and \). Enclose displayed math within \$\$ and \$\$, or \[and \]. The following commands work outside math mode: \ref, \eqref, \begin{, \end and \\$. Put spaces on both sides of less-than sign.

Title:

Name:

7. Utilizing Common Environments

Math Mode Environments: equation

- ▶ **equation:** one line of math
 - ▶ Example:

```
\begin{equation}
    e^{i \pi} + 1 = 0
\end{equation}
```

7. Utilizing Common Environments

Math Mode Environments: `equation`

- ▶ `equation`: one line of math
 - ▶ Example:

```
\begin{equation}
    e^{i \pi} + 1 = 0
\end{equation}
```

Output:

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

Exercise 3

7. Utilizing Common Environments

Math Mode Environments: align

- ▶ align: aligns multiple lines of math using & sign
 - ▶ Example:

```
\begin{align}
    x + 2x + 3x &= 12 \\
    6x &= 12 \\
    x &= 2
\end{align}
```

7. Utilizing Common Environments

Math Mode Environments: align

- ▶ align: aligns multiple lines of math using & sign
 - ▶ Example:

```
\begin{align}
    x + 2x + 3x &= 12 \\
    6x &= 12 \\
    x &= 2
\end{align}
```

Output:

$$x + 2x + 3x = 12 \tag{2}$$

$$6x = 12 \tag{3}$$

$$x = 2 \tag{4}$$

Exercise 4

8. Other Resources

- ▶ Overleaf Documentation
- ▶ Extensive List of Symbols
- ▶ Ms. Krummel
- ▶ Luke Smith

9. Questions, Comments, Concerns?

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