

# Introduction to L<sup>A</sup>T<sub>E</sub>X for Researchers

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## Course Outline and Resources

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

- Windows: <https://miktex.org/>
- Linux: `sudo apt install texlive-latex-extra`

### L<sup>A</sup>T<sub>E</sub>X Editor – Online

- Sharelatex/Overleaf: <https://www.overleaf.com/>
- Latexbae: <https://latexbase.com/d/1648f17f-f52f-4653-8bca-7c9066c9a8de>
- CoCalc: <https://cocalc.com/doc/latex-editor.html>

### L<sup>A</sup>T<sub>E</sub>X Editor – Offline

- TexStudio: <https://www.texstudio.org/>
- Texmaker: <https://www.xmlmath.net/texmaker/>

### Resources

- <https://www.latex-project.org/help/documentation/>
- <https://www.overleaf.com/learn>
- <https://www.latex-tutorial.com/>
- <https://www.latextemplates.com/>
- <https://en.wikibooks.org/wiki/LaTeX/Mathematics>

## Section-1: Introduction

- Overview
- Install L<sup>A</sup>T<sub>E</sub>X
- Create a First L<sup>A</sup>T<sub>E</sub>X Document
- Section Levels and ToC(Table of Contents)

## Section-2: Styling Pages

- Basics
- Paper Size and Margins
- Page Styles (Header and Footer)
- More on Formatting (Footnotes, Orientation, Page Break)
- Multicolumn Document(multicol package)

## Section-3: Formatting Content

- Formatting Text
- Coloring Text
- Aligning Text
- Spacing Text
- Unordered and Ordered List(Bullets and Numbering)

## Section-4: Table and Images

- Creating Tables
- Table Borders
- Merging Rows and Columns
- Saviour for Large Tables
- Table Environment
- Inserting Image
- Image Properties
- Image Borders
- Figures and Sub-Figures

## **Section-5: Math, Statistics and Chemical Equation**

- Math Environment
- Equations
- Theorem
- Matrix
- Statistics
- Chemical Equations

## **Section-6: Referencing and Indexing**

- Creating Title Page
- Hyperlinks
- Cross Referencing
- Creating Index
- Creating Bibliography

## **Section-7: Presentation using Beamer**

- Introduction to Beamer
- Blocks and Columns
- Overlays
- Customize Themes
- Aspect Ratio
- Recapitulate

## **Section-8: Projects**

- Article Writing
- Research Paper
- Report / Assignment
- Thesis