

Introduction to L^AT_EX

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March 11, 2020



Outline

1. Introduction

2. Basics

What is L^AT_EX?

LaTeX (pronounced Lah-tech or Lay-tech) is a document preparation system for high-quality typesetting.

LaTeX has the following features:

- Typesetting journal articles, technical reports, books, and slide presentations.
- Control over large documents containing sectioning, cross-references, tables and figures.
- Typesetting of complex mathematical formulas.
- Advanced typesetting of mathematics with AMS-LaTeX.
- Automatic generation of bibliographies and indexes.
- Multi-lingual typesetting.
- Inclusion of artwork, and process or spot colour.
- Using PostScript or Metafont fonts.

Why L^AT_EX?

Advantages:

- Free and universal.
- High quality typesetting.
- Designed for technical and scientific documentation.
- Easy to cite and reference.

Can be used for:

- Articles
- Journal/conference papers
- Presentations
- CVs or resume

Summary: Basics

- How to get started (editors and engines).
- Document components.
- Equations, Tables, Figures, etc.
- Bibliography

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Getting L^AT_EX

To install the engine on your computer:

- MikTeX for Windows: <https://miktex.org/>
- MacTeX for Mac: <http://www.tug.org/mactex/>
- More information: <https://www.latex-project.org/get/>

Popular LaTeX editors:

- TeXstudio (my favorite) <http://texstudio.sourceforge.net/>
- TeXmaker <http://www.xmlmath.net/texmaker/>
- TeXworks <https://www.tug.org/texworks/>

Don't worry about this now! We will use one of many online versions!

Online Versions

Three popular online versions:

- Overleaf* - <https://www.overleaf.com/>
- ShareLaTeX - <https://www.sharelatex.com/>
- Papeeria - <https://papeeria.com/>

We will be working from Overleaf today. Go ahead and make an account now if you don't have one.

Building your first document

Every document contains four major components:

- Preamble (document class, packages and user commands)
- Author and Title
- Content
- Bibliography

```
\documentclass[keyvals]{class}
```

Important document classes*:

- article - For scientific journals, short reports, homework, etc.
- report - Reports containing chapters, small books, thesis, etc.
- beamer - For writing presentations
- book - For full length books.

Some options for keyval

- Font Size - 10pt, 11pt, 12pt, etc. Default is 10 pt.
- Paper Size - letter, a4, etc. Default is letter.
- twocolumn - typeset the document with two columns
- landscape - change layout to landscape mode

*Note: Journals may provide their own class. (Elsevier, INFORMS, ASME, IEEE, etc.) More classes can be found here
<https://ctan.org/topic/class>

Building a document

- For the rest of the workshop we will build the document from the handout
- Compress the folder “upload-me” into a .zip file
- Go to Overleaf, click new project and select “upload project”
- Select “upload-me.zip”