Introduction to LaTeX using Collaboration Tools: Basics and Bibliographies

Outline for Today

1. What is LaTeX?
2. Overleaf
3. Structure of a Document
4. Basic Commands
5. Tables, in brief
6. Bibliographies

Introduction

LaTeX is a typesetting system that allows you to focus on your content instead of formatting - formatting is done separately from entry.

You tell LaTeX “what it is” not “how it looks.”

How does it work?

TeX: developed in 1978 as a way for scientists and mathematicians to have better control over their typesetting.

LaTeX emerged in the 1980s and enhances TeX through the use of packages and environments.

Download TeX distribution packages based on computer operating system with an editor (TeXStudio, TeXmaker, or TeXworks).

Overleaf for LaTeX

- Create documents via a cloud-based account
- Source code or rich text format
- Collaborating and sharing documents
- Versioning and track changes
- Templates for a variety of documents and publishers
- Link with other tools in your research workflow
- Pro account with your berkeley.edu address

Basics: Document Structure

\command: a control sequence which performs an action, such as `\newpage`

preamble: block of commands that define the type of document you are writing, the language you are writing in, the packages you would like to use.

Comes before `\begin{document}`

```
\documentclass[12pt, letterpaper]{article}
\usepackage{tabularx}
```

body: the content of document enclosed inside an environment:

```
\begin{document}
\end{document}
```

Basics 2

Package: Packages enable you to do more, like create bibliographies, insert images, and write formulas and figures.

Environment: A block of code with specific behavior depending on its type. Requires
`\begin{}...\end{}`

1. Sections - `\section{section}`
   Example: `\section*{Introduction}`

Visit **overleaf.com** to create an account using your **berkeley.edu** email address.

EXERCISE 1

Objective:

Adapt a template and practice several basic LaTeX commands using the eLife template found at:

`https://www.overleaf.com/latex/templates/elife-latex-template/csqxykvsnyxm`

or

http://ucblib.link/2St

Basic Math

To display math inline with text, place formula or symbol in between $:

$x + y = z$

Degrees can be represented several ways:

$^\circ$ OR \textcelsius\ OR \si{degree}

Subscripts and superscripts are written using the symbols ^ and _

Tables

```
\usepackage{tabularx}
```

Basic Commands:

- l, r, c — column alignment
- s — column alignment for SI units
- & — ampersand separates columns
- \\ — double backslash begins new row
- \hline — horizontal line
- | — vertical line

Basic Two Column Table

```
\usepackage{tabularx}
.....
\begin{table}
\begin{tabular}{lc}
Item & Qty \\ \hline
Widget & 1 \\
Gadget & 2 \\
Cable & 3 \\
\end{tabular}
\end{table}
```

Item	Qty
Widget	1
Gadget	2
Cable	3

EXERCISE 2

Objective:

Learn the basic commands to create and edit tables.

Bibliographies: Step 1

Connect your project to a bibliography in one of three ways:

- Upload a .bib file to the project
- enter a URL
- connect your Mendeley or Zotero account with Overleaf

What does a .bib entry look like?

```
@article{drachen2016sharing,
 title={Sharing data increases citations},
 author={Drachen, Thea and Ellegaard, Ole and Larsen, Asger and Dorch, S{\o}ren},
 journal={Liber Quarterly},
 volume={26},
 number={2},
 year={2016}
}
```

Key: the syntax used in the cite command to call in an in-text citation

Step 2: Add packages to the preamble

```
\usepackage[english]{babel}

\usepackage{natbib}

\bibliographystyle{plainnat}

\addbibresource{examples.bib}

.....

\printbibliography

\nocite{*}
```

Babel package: ensures proper formatting and hyphenation for English (or another language)

Natbib is one package that processes bibliographic information and helps set the style.

Calls in .bib file

Syntax and Output

\cite{robinson_science_2019}	Robinson et al. (2019)
\citep{jon90}	Parenthesis: (Jones et al. 1990)
\citet{jon90}	Textual: ...in Jones et al. (1990)

In-text citations

\cite{} → bare citation command (according to style)

\parencite{} → parenthetical citation

\citeauthor{} → prints author names(s)

\textcite{} → prints authors or editors followed by a citation label enclosed in ()

\nocite {*} → prints publication in bibliography without citation

\citeyear{} → prints only the year field

Exercise 3

Objective:

Learn to sync or upload a .bib file, use basic citation commands, and add a bibliography to an article template.

Find .bib file here:

bit.ly/2Jzxcw9

Questions?

steplitz@berkeley.edu

asackmann@berkeley.edu

Slides: http://ucblib.link/latexepsgrads

Exercises: http://ucblib.link/latex_epsgrads_exercises

Extra slides

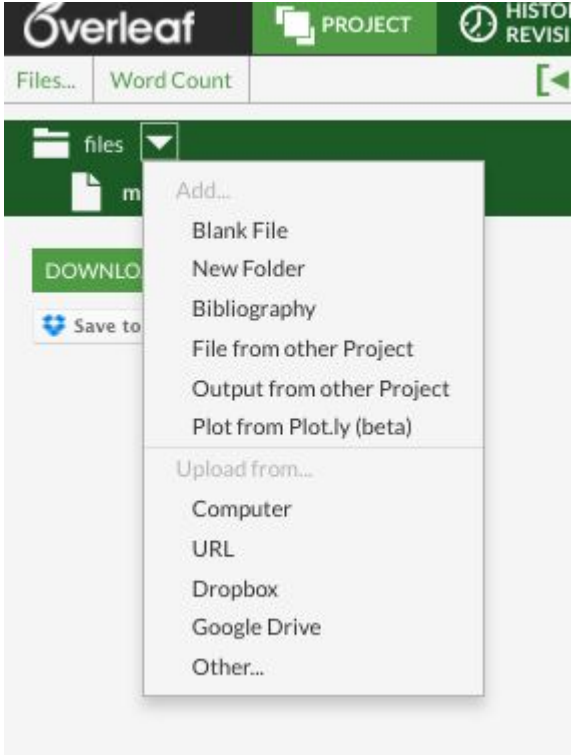
Exercise: Upload figure

Find files at:

https://github.com/samteplitzky/EPS-Latex-Workshop

Open or create file in Overleaf.

Download readingkitten.jpg, and upload file to new Overleaf project



Uploading figures (simplest)

```
\usepackage{graphicx}

...

\includegraphics[width=0.4\textwidth]{readingkitten}
```

Figure Placement

Specifier	Permission
h	Place the float here: approximately, not exactly, at the same point it occurs in the source text.
t	Position at the top of the page.
b	Position at the bottom of the page.
p	Put on a special page for floats only.
!	Override internal parameters LaTeX uses for determining "good" float positions.
H	Places the float at precisely the location in the LaTeX code. Requires the float package. This is somewhat equivalent to h!

Syncing & uploading figures hosted elsewhere

Google Drive:
https://www.overleaf.com/help/247-how-can-i-upload-files-from-google-drive#.W4WtwhPwZE5

GitHub/Dropbox:
https://www.overleaf.com/help/343#.W4WtgxPwZE4

Get your feet wet

For the most part, type normally.

Words are separated by one or more spaces and paragraphs are separated by one or more lines and are naturally indented.

Certain symbols require a backslash to appear, like $, &, #, and %

A % without a backslash allows you to comment directly in the document

Bibliographies

Three options:

1. Upload your own .bib file
2. Link to a URL (.bib)
3. Connect to your citation manager account (e.g. Zotero or Mendeley)