CPBS Journal Club
LaTeX + Overleaf Workshop

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Overview

1. Brief introduction to LaTeX
2. Hints and Tips
3. Resources
4. Hands-on
   a. Comprehensive exam document (R03 template)
   b. Thesis document (modified from previous students)

What is LaTeX and how does it work?

- What?
  - LaTeX is a typesetting language (text and mathematical formulae)

- How?
  - It is a package language (augmented by packages)
  - Set the parameters that define both the content and the style via commands
  - Commands access packages to determine what you want done

Some pros and cons

Advantages

- Plenty of templates exist
- Typesetting of mathematical formulae is easily supported
- Structures such as footnotes, references, table of contents, and bibliographies, can be generated easily
- Tons of free add-on packages are available

Disadvantages

- Designing a whole new layout template is difficult and takes a lot of time
- It makes it hard to write unstructured and disorganised documents

LaTex Basics

- Special Characters

  `\# \$ \% \^{} \& \_ \{ \} \~{}`

  `\textbackslash{}`

- Comments

  `% comments about a section here`

- LaTeX Commands

  `\emph`, `\begin`, `\textbf`

- Input File Structure

  `\documentclass{⟨class⟩}`

  `\usepackage{⟨package⟩}`

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

```
# $ % ^ & _ {} ~ \
```

| Class	Description
article	for articles in scientific journals, short reports, and any other short document.
proc	a class for proceedings based on the article class.
report	for longer reports. containing several chapters, small books, PhD theses,...
book	for real books
beamer	for presentations

The Not So Short Introduction to LaTeX

\usepackage{⟨package⟩}

- Changing to **bold** or *italics* <u>doesn't</u> require adding a special package

- Typing in color requires adding the color package

Some packages are automatically available and some are not, those non-standard

ones need to be explicitly loaded by the user via a command

A .tex document
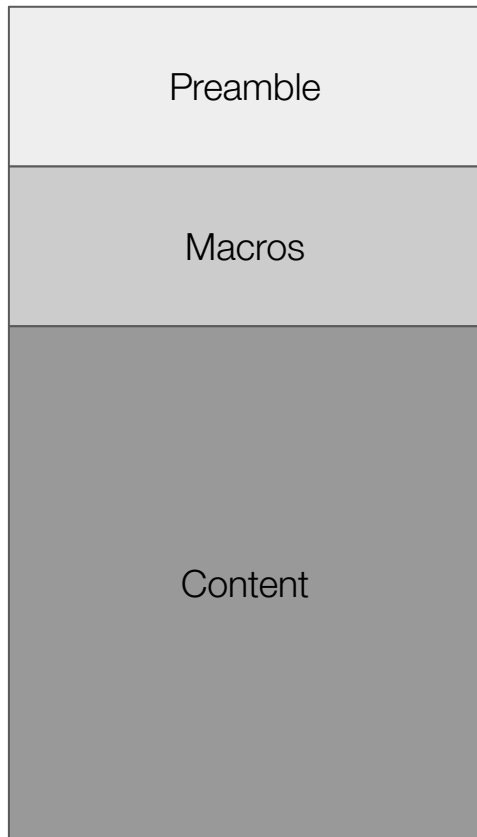
```
\documentclass{...}
```
define the document class and include packages.

```
\newcommand{...}
```
define custom code snippets to save time.

```
\begin{document}
% your paper here
\end{document}
```

Preamble
Macros
Content

A .tex document

```latex
\documentclass{article}

% Language setting : replace `english' with e.g. `spanish' to change the document language
\usepackage[english]{babel}

% Set page size and margins
% Replace `letterpaper' with `a4paper' for UK/EU standard size
\usepackage[letterpaper,top=2cm,bottom=2cm,left=3cm,right=3cm,marginparwidth=1.75cm]{geometry}

% Useful packages
\usepackage{amsmath} %improving the information structure for mathematical formulas
\usepackage{graphicx} %for including images/graphics
\usepackage[colorlinks=true, allcolors=blue]{hyperref} %handle cross-referencing commands in LaTeX

\title{Your Paper}
\author{You}
\begin{document}

\begin{abstract}
Your abstract.
\end{abstract}

\section{Introduction}
Some introduction

\end{document}
```

Hints and Tips

- Use a reference manager (Zotero, Mendeley, EndNote)

- Do not make tables by hand (Pandas - DataFrame to LaTeX, R - xtable)

- Break up large documents into sections

- Merge and clean-up bibliographies with tools like [bibtex-tidy](#)

Resources

1. [The Not So Short Introduction to LaTeX](#)
2. Overleaf [learn site](#)
3. Overleaf [templates](#)
4. Dan Larremore's [LaTeX Workshop](#)
5. Another [NIH grant template](#)

Workshop: NIH Grant Template

Import this template to Overleaf

1. Overleaf
2. Templates
3. Search for "*NIH*"
4. Select the "*NIH Grant Template (2010)*"

Edit!

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Templates

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NIH   **Search**

NIH Biosketch Template

A LaTeX class implementing the new (as of 2015) **NIH** Biographical Sketch Format. The original template can be found at the author's GitHub page. This LaTeX document class tries to adhere to the Biographical Sketch formatting requirements outlined in **NIH** Notice NOT-OD-15-032. This new format is required for applications submitted for due dates on or after May 25, 2015. I tried to mimic the example documents provided on the SF 424 (R&R) Forms and Applications ...

Grant Application   National Institutes of Health (NIH)

NIH Grant Template from Marie Davidian

NIH Grant Template by Marie Davidian, downloaded from the Vanderbilt Biostatistics Wiki curated by John Bock. Note that the template has been modified to work on Overleaf. This template may be outdated — see this and this for more recent alternatives. As a bonus — here's a guide to grant writing and grant review process by the same author for a 2008 workshop.

Grant Application   National Institutes of Health (NIH)

NIH Grant Template (2010)

NIH Grant Template downloaded from the Vanderbilt Biostatistics Wiki curated by John Bock.

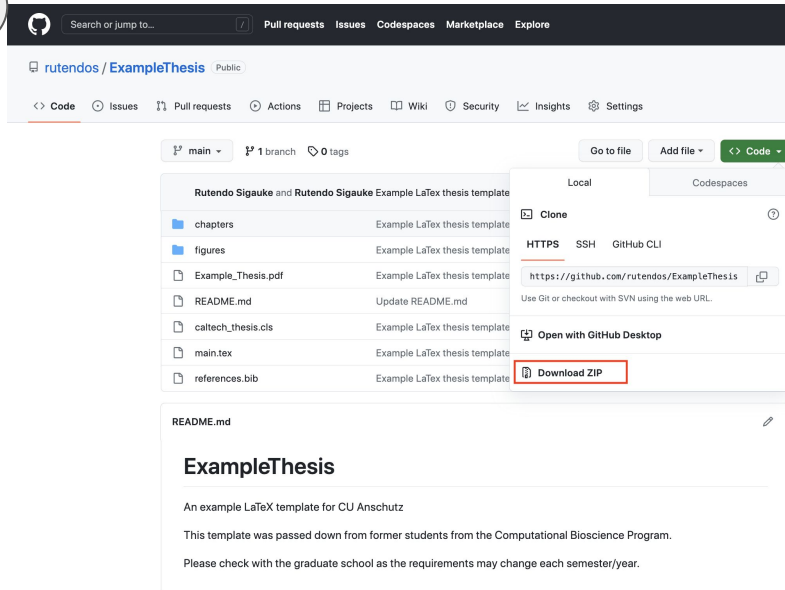Grant Application   Vanderbilt Biostatistics   National Institutes of Health (NIH)

Workshop: Thesis Template

1. Download zipped `rutendos/ExampleThesis` from GitHub
2. Load the zipped file to Overleaf

   Edit!