

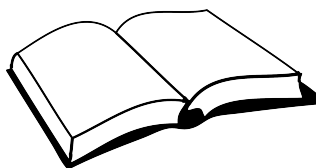
Tutorial - use L^AT_EX to organise your work

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May 10, 2018

A Powerful Organising Tool

L^AT_EX is a high-quality typesetting system, available as free software, which allows to produce scientific and technical documents, including articles, technical reports, books, and slide presentations. It is designed to format the document using settings of different classes, allowing the scientist to focus the report on the scientific part alone. Features included in LaTeX are: document sectioning, tables, figures, cross-referencing, automatic bibliography and index generation, complex mathematical formulas and multi-language typesetting.

Create, compile and add data to a LaTeX Lab Book



Create your own computational Lab Book using L^AT_EX and gain a powerful tool to help you organise your work environment. A Lab Book created and maintained with LaTeX can also help you to easily produce other documents, including reports for collaborators, articles, presentations, your PhD or Master Thesis, among others.

First task: create and compile a LaTeX document

For the first task, you will need a tex template (source file) and an editor to compile your source and produce a pdf file. Alternatively, you can compile your source in the command line using a terminal.

- Explore a bit of the L^AT_EX project
 - <https://www.latex-project.org/>
 - <https://en.wikipedia.org/wiki/LaTeX>
 - <https://www.ctan.org/>
- Find a template you like and save it in a personal folder
 - <https://github.com/waltercostamb/Lab-Book/lab-book.tex>
 - <https://www.latextemplates.com/>
- Compile the *.tex* file using an editor
 - Install a LaTeX editor, for example TeXworks: <https://www.tug.org/texworks/>
 - Open your source file *.tex* with the editor
 - Compile it with the “pdfLaTeX” option (green button in TeXworks) to create a *pdf* file
 - To use references, you will need a separate *.bib* file saved in the same folder. As an example, use the following: <https://github.com/waltercostamb/Lab-Book/ref.bib>
 - After you save a *.bib* file in the same folder, compile your *.tex* source file again with the “BibTeX” option to load the references (green button in TeXworks)
 - Repeat the commands “pdfLaTeX” and “BibTeX” again a couple of times until you get all references in your *pdf*
- Alternatively, compile the *.tex* file using the terminal
 - To use references, you will need a separate *.bib* file saved in the same folder. As an example, use the following: <https://github.com/waltercostamb/Lab-Book/ref.bib>
 - Save a bibliography *.bib* file in the same folder
 - Compile your source *.tex* file with “pdflatex” and load the references with “bibtex” using the following commands:


```
pdflatex lab-book
bibtex lab-book
pdflatex lab-book
pdflatex lab-book
```

- Visualise the *.pdf* with evince using the following command:
evince lab-book.pdf &

Congratulations. You have successfully compiled and created your first LaTeX document. You are now ready to fill it with your own data. Add to your Lab Book information from your scientific project and make an outline. Which methods and tools do you need? What are your next TODOs and what do you need to prepare for it?

Second task: add your own data and personalise your Lab Book

For the second task, familiarize yourself with specific environments in LaTeX.

- Add TODOs in the form of an *itemize* or an *enumerate* environment
- Include one reference to your *bib.tex* file, cite it in your text and compile the change, so it appears in the *.pdf*
 - Go to Google Scholar
 - Activate the option of *citation*
 - Find your reference in *bibTex*
 - Add the reference to your *.ref* file
- Add a figure and cite it in the main text using its alias
 - An example of guideline for that: https://pt.sharelatex.com/learn/Inserting_Images
- Do the same with a table
- Add an equation to your Lab Book using the mathematical mode
 - An example of guideline: https://en.wikibooks.org/wiki/LaTeX/Advanced_Mathematics