

Applied L^AT_EX for Social Science Research

Laboratorio de Investigación para el Desarrollo del Ecuador

Syllabus

Instructor: Daniel Sánchez, M.A.

Module length: 4 hours

Level: Beginner-intermediate

1 Course Description

This short module will introduce the use of the typographic system L^AT_EX, focusing on its applied use for social science research.

2 Contents

2.1 Introduction to L^AT_EX

- Introduction to L^AT_EX, what is it and what is it for?, what will we see in this course?
- Brief history of L^AT_EX
- Preliminary issues
 - Hardware requirements
 - Installation of T_EX distributions
 - Development environments (IDEs: VS Code, T_EXMaker, etc.)
 - Overleaf
 - Identification of keyboard shortcuts and important keycaps

2.2 Creating documents

- Structure
- Simple commands
- Packages
- Document classes
- Basic document formatting
- Text handling

- Alignment
- Lists
- Titles, covers and abstracts
- Indexes
- Headers and footnotes

2.3 Math mode

- Introduction to math mode
- Basic symbols and greek letters
- Equations
- Matrices

2.4 Tables and figures

- Basic tables
- Automated table-making: Excel2LaTeX / Overleaf addins
- Including figures and subfigures
- tikz and pgfplots for plotting

2.5 Bibliography management with L^AT_EX

- BibT_EX and BibL^AT_EX
- Zotero integration
- Brief review of Mendeley, Citavi and other integrations
- Citation and bibliography formatting, styling

2.6 Integration with statistical packages

- RMarkdown/Quarto
 - Basic Markdown syntax
 - R code chunks
 - Output formats
 - Use of L^AT_EX
- Presenting data analysis results with R
 - *stargazer*
 - *kableExtra*

- *modelssummary*
- *gt* and *flextable*
- Stata
 - *estout*
 - *outreg2*

2.7 Advanced topics (if time allows)

- Multi-file projects
- Advanced document formatting with classes
- Cross-referencing
- Presentations with beamer and Quarto
- Version control with Git
- Using L^AT_EX from Word
- Working with Python/Jupyter
- knitr/sweave
- Error debugging
- Codecogs

Bibliography

- Frain, John C. Applied L^AT_EX for Economists, Social Scientists and Others: TEP Working Paper No. 0214.
- Goossens, Michel, and Rahtz, Sebastian, Mittelbach, Frank. *The L^AT_EX Graphics Companion: Illustrating documents with TeX and PostScript*. 1997.
- Goulding, Kevin. usepackageTikz for economists.
- Greenber, Harvey J. A Simplified Introduction to L^AT_EX.
- Griffiths, David F., and Desmond J. Higham. *Learning Latex: Second Edition*. 2nd ed. Philadelphia: Society for Industrial and Applied Mathematics, 2016.
- Kottwitz, Stefan. *L^AT_EX Beginner's Guide*. 1st ed. Birmingham: Pack Publishing, 2011.
- Krummel, Michelle. L^AT_EX Tutorials (featuring Texmaker). <https://www.youtube.com/watch?v=0ivLZh9xK1Q&list=PL1D4EAB31D3EBC449>.
- Overleaf. Tutorials. <https://www.overleaf.com/learn/latex/Tutorials>.
- Yu Ko, Chiu. Tikz Cookbook: Diagrams in Economics. https://play.google.com/books/reader?id=t3ZZDwAAQBAJ&hl=en_GB&pg=GBS.PP1.