

Using LaTeX in RStudio

Christine Chai

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1 Intro

There are multiple ways to compile a LaTeX document in RStudio.

1.1 Compile within RStudio IDE

In RStudio, it is possible to use the “Compile PDF” button to compile a `.tex` file. As long as you create or open a `.tex` file in RStudio, this “Compile PDF” button will automatically appear below your file tab. The `.tex` file will also be syntax-highlighted, making the code easier to read and debug.

However, this method generates many unwanted auxiliary files, including `.bbl`, `.log`, and `.synctex.gz`. We have to set these in `.gitignore`, and/or manually remove these intermediate files. Be careful not to remove the final PDF you created.

How to change the RStudio settings to automatically remove these auxiliary files:

1. Tools → Global Options → Sweave
2. Open: LaTeX Editing and Compilation
3. Check the box: Use tinytex when compiling `.tex` files
4. Check the box: Clean auxiliary output after compile

1.2 Compile using R Console

Alternatively, you may also use the R Console to compile a `.tex` file into a PDF. In the R package `tools`, just use the `texi2pdf` (pronounced as `tex-i2-pdf`) command and set `clean=TRUE`. In this way, the auxiliary files are automatically removed. We keep only the `.tex` and PDF in the system.

```
library(tools)
texi2pdf("Test-R-Compile-PDF.tex", clean=TRUE)
```

2 Math Equations

$$\emptyset_{\mathbf{0}} = [0, 1, 0]$$

This is a 2×2 matrix: $\begin{bmatrix} x_{11} & x_{12} \\ x_{21} & x_{22} \end{bmatrix}$

3 Discussion

It is recommended to put the references `.bib` file in the same directory as your `.tex` file. But since RStudio is an IDE, you may also put the references `.bib` file in a separate folder and specify the path to it. It is preferable to specify a relative path from the source directory, rather than an absolute path.

Although RStudio regards `.bib` files as regular text files by default, you may change the typesetting from “Text file” to “TeX” to turn on syntax highlighting. The typesetting button is located at the lower-right of your source code window in RStudio.

Test citation [1]

Second citation [2]

References

- [1] Christine P Chai. Christine P. Chai’s contribution to the discussion of “The first discussion meeting on statistical aspects of climate change”. *Journal of the Royal Statistical Society Series C: Applied Statistics*, 72(4):854–855, 2023. Available from: <https://doi.org/10.1093/jrsssc/qlad049>.
- [2] Leland Wilkinson. *The Grammar of Graphics*. Springer, New York NY, United States, 2nd edition, 2013.