

Data Visualization with R

R Markdown tutorial

Ariane Ducellier

University of Washington - Fall 2023

Installing R and RStudio

Install the latest version of R from the CRAN website:
<https://cran.r-project.org/>

Install the latest version of RStudio from
<https://posit.co/download/rstudio-desktop/>

Open RStudio and Go to File > New File > R Markdown

RStudio interface

The screenshot shows the RStudio interface with the following components:

- Editor:** Displays the R Markdown source code. The code includes a title, author, date, and output format, followed by a chunk of R code that sets up the document and knits it to a PDF document.
- Console:** Shows the R version (4.2.3) and copyright information. It also displays the message "R is free software and comes with ABSOLUTELY NO WARRANTY. You are welcome to redistribute it under certain conditions. Type 'license()' or 'licence()' for distribution details."
- Environment:** Lists the variables created by the code, including 'mtcars' and 'read.table'.
- Files:** Shows the file structure, including 'read.csv' and 'R Documentation'.
- Help:** Displays the 'Data Input' section, which describes the 'read.table' function and its usage.

Rmd file structure

YAML header:

```
---  
title: "R Markdown tutorial"  
author: "Ariane Ducellier"  
date: "8/29/2023"  
output: pdf_document  
---
```

R code chunks:

```
```{r cars}  
summary(cars)
```
```

Markdown text:

```
## R Markdown
```

```
This is an R Markdown document.
```

Main options for R chunk options

```
““{r chunk_name, options}  
R code  
““
```

- `include = FALSE` - No code and no results printed in the finished file.
- `echo = FALSE` - No code.
- `message = FALSE` - No messages generated by the code.
- `warning = FALSE` - No warnings generated by the code.
- `fig.cap = "..."` - Caption for graphical results.

Basic Markdown syntax

```
_Italic text_  
**Bold text**  
# Header one  
## Header two  
### Header three  
[R Markdown] (https://rmarkdown.rstudio.com)  
![RStudio interface] (RMarkdown.png)  
> "A quote"  
* List item 1  
* List item 2  
1. Ordered list item 1  
2. Ordered list item 2  
Line 1 followed by two spaces  
Line 2
```

Inline code:

```
Here is the result: 'r result'.
```

Printing tables:

```
```{r ktable, results=asis}  
library(knitr)
kable(mtcars[1:5], caption="A knitr table")
```
```

More yaml options

Table of contents:

```
output:  
  pdf_document  
  toc: true
```

Dashboards:

```
output:  
  flexdashboard::flex_dashboard:  
    orientation: columns
```


More on R Markdown

Markdown tutorial: <https://www.markdowntutorial.com/>

R Markdown tutorial:

<https://rmarkdown.rstudio.com/lesson-1.html>

R Markdown guide: <https://bookdown.org/yihui/rmarkdown/>

In RStudio, go to:

- Help > Markdown Quick Reference
- Help > Cheatsheets