

Xintong Li
xintong.li1@uwaterloo.ca



Dept. Statistics and Actuarial Science
University of Waterloo

Tutorial on R Markdown

ActSc 632

June 2023

Introduction

R Markdown is an R package that can

- ❖ create documents that combine R code, results, and text;
- ❖ include plots, tables, and equations;
- ❖ output documents in different formats, e.g. HTML, PDF, Word, etc.

Installing and Using R Markdown in RStudio

```
install.packages("rmarkdown")  
library(rmarkdown)
```

Thanks John (2016) for creating and sharing this tutorial.

Using R Markdown in RStudio

To create a new RMarkdown file (.Rmd) in RStudio,

1. select File → New File → R Markdown;
2. choose the file type you want to create.

For now we will focus on a .html document, which can be easily converted to other file types later.

- ❖ .pdf documents can also be generated, but it may require additional software to be installed on your computer.

Installing .pdf Support

```
install.packages("tinytex")  
tinytex::install_tinytex()
```

Title and Initial Knit

Sample Title

```
---  
title: "R Markdown Tutorial"  
author: Xintong Li  
date: 2/June/2023  
output: html_document  
---
```



Formatting Text and Equations

We can use regular Markdown syntax in R Markdown to format text.

- ❖ `*italics*`
- ❖ `**bold**`
- ❖ `#Header 1`
- ❖ `##Header 2`
- ❖ `* Unordered list item`
- ❖ `1. Ordered list item`

We can also write equations using LaTeX syntax.

Sample Equation

Code `$A = \pi \times r^{\{2\}}` results in:

$$A = \pi \times r^2$$

Including R Code Chunks

Sample Code Chunk

```
```{r, eval = FALSE, warning = FALSE}  
library(dplyr)
A <- c("a", "a", "b", "b")
B <- c(5, 10, 15, 20)
dataframe <- data.frame(A, B)
print(dataframe)
```
```

- ❖ `eval = FALSE` will not run the code, but will still display the code.
- ❖ `warning = FALSE` will suppress warnings when loading packages, etc.

Including Plots and Tables

A Sample Plot

```

“{r, fig.width = 4, fig.height = 3}
A <- c("a", "a", "b", "b")
B <- c(5, 10, 15, 20)
dataframe <- data.frame(A, B)
print(dataframe)
boxplot(B ~ A, data=dataframe)
“

```

A Sample Table

| Plant | Temp. | Growth |
|-------|-------|--------|
| A | 20 | 0.65 |
| B | 20 | 0.95 |
| C | 20 | 0.15 |

Run Codes and Preview before Knitting

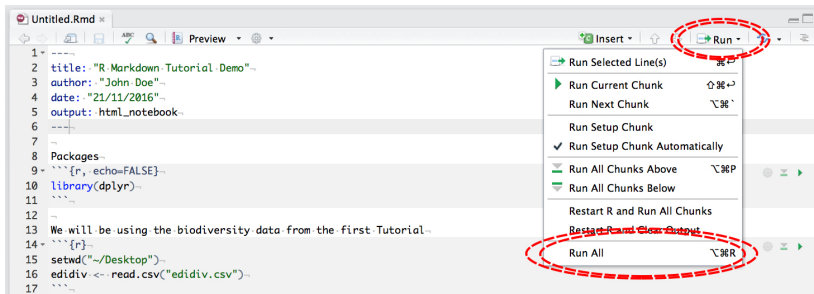


Figure: Run Codes before Knitting

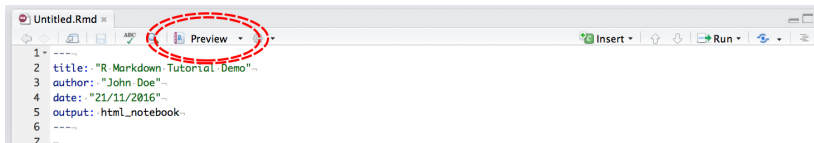


Figure: Generate a Preview

References I

John (2016). Getting Started with R Markdown — [ourcodingclub.github.io](https://ourcodingclub.github.io/tutorials/rmarkdown/).
<https://ourcodingclub.github.io/tutorials/rmarkdown/>. [Accessed 25-May-2023].