Data management and plotting for BIOL 1001 and beyond

using RStudio and Github

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2019-10-13

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Chapter 1

Introduction

- Why is this important
- Why have we made the choices we did

Chapter 2

Software requirements

2.1 R

Each section will contain instructions describing how to install these software.

2.2 RStudio

2.3 Github

Below is the example code from the *How to use Markdown* files. Just remains for help on how to use .Rmd code

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 2. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter **??**.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 2.1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 2.1.

```
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
```

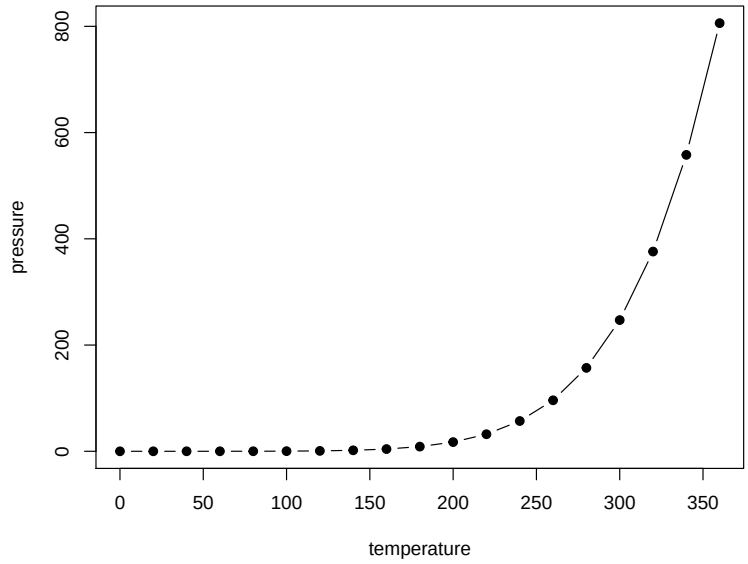

Figure 2.1: Here is a nice figure!

```
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2019) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

Table 2.1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

Chapter 3

Writing your first R script

- This section explains the difference between the R console and window. When would you use each?
- You can open R files in a text editor.
- You can write R files in a text editor and save as .R
- Explains `Run` versus `Source`

Chapter 4

Entering data

Here is a review of existing methods.

4.1 Directly into R

- common errors

4.2 Importing a .csv into R

- Using the file path
- Using 'Import Dataset'.
- common errors

Chapter 5

Plotting

- The plot command
- options for the plot command
- command errors
- saving the figures
- scrolling back through figures in RStudio

Chapter 6

Data submission

- via upload file into github
- direct edit of github

Chapter 7

Getting help

7.1 With R/RStudio

- Internet
- `?plot` and `??plot`
- TAs, instructor, helpcenter, class mates

7.2 With Githbu

Bibliography

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2019). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.13.