

A Reproducible Research Compendium

cf. list of contributors at

<https://github.com/rr-mrc-bsu/reproducible-research/graphs/contributors>

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Contents

1	A ‘Living Book’ - aims and scope	5
2	Introduction	7

Chapter 1

A ‘Living Book’ - aims and scope

This book is a little different from your usual statistics foliant - it is written entirely using **Markdown** and rendered to html, pdf, and epub publishing formats using the R package **bookdown**. Its entire Markdown source code is publicly available on GitHub.com at <https://github.com/rr-mrc-bsu/reproducible-research>. A pre-build version is hosted as static html website using **GitHub pages** at <https://rr-mrc-bsu.github.io/reproducible-research/>. This structure allows to easily discuss changes using GitHub issues <https://github.com/rr-mrc-bsu/reproducible-research/issues>, organize further development using milestones and projects, contribute corrections or even entire chapters by creating pull requests, and to manage editions by GitHub releases. It also means that everybody - and yes, that does include you - can become a contributor by creating pull requests in the GitHub repository. Since the contents are thus evolving over time as long as there are active contributors to the project, the book is ‘living’.

The overall purpose of the *Reproducible Research Compendium* is threefold:

1. Provide a platform for discussing aims and objectives as well as best practices for reproducible research with a clear focus on applications in biostatistics.
2. Build-up a lasting compendium for knowledge sharing around various issues and methods for coping with them that may broadly be subsumed under the term ‘reproducible research’.
3. The book project itself acts as a learning-by-doing example for its contributors with the goal of anybody participating becoming knowlegable about organizing collaborative open-source [mostly coding] projects.

The complete documentation for **bookdown** can be found at <https://bookdown.org/yihui/bookdown/>. Note that R is a prerequisite but only for building the book - the contents itself are completely language-agnostic.

Chapter 2

Introduction

[taken from bookdown template!]

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!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2018) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).



Figure 2.1: Here is a nice figure!

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

Bibliography

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

Xie, Y. (2018). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.8.