

# Geoestatística com R

## Disciplina do PPGME/UFPA

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# Contents

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>About</b>                           | <b>5</b>  |
| 1.1      | Usage . . . . .                        | 5         |
| 1.2      | Render book . . . . .                  | 5         |
| 1.3      | Preview book . . . . .                 | 6         |
| <b>2</b> | <b>Hello bookdown</b>                  | <b>7</b>  |
| 2.1      | A section . . . . .                    | 7         |
| <b>3</b> | <b>Cross-references</b>                | <b>9</b>  |
| 3.1      | Chapters and sub-chapters . . . . .    | 9         |
| 3.2      | Captioned figures and tables . . . . . | 9         |
| <b>4</b> | <b>Parts</b>                           | <b>13</b> |
| <b>5</b> | <b>Footnotes and citations</b>         | <b>15</b> |
| 5.1      | Footnotes . . . . .                    | 15        |
| 5.2      | Citations . . . . .                    | 15        |
| <b>6</b> | <b>Blocks</b>                          | <b>17</b> |
| 6.1      | Equations . . . . .                    | 17        |
| 6.2      | Theorems and proofs . . . . .          | 17        |
| 6.3      | Callout blocks . . . . .               | 17        |

|          |                                |           |
|----------|--------------------------------|-----------|
| <b>7</b> | <b>Sharing your book</b>       | <b>19</b> |
| 7.1      | Publishing . . . . .           | 19        |
| 7.2      | 404 pages . . . . .            | 19        |
| 7.3      | Metadata for sharing . . . . . | 19        |

# Chapter 1

## About

This is a *sample* book written in **Markdown**. You can use anything that Pandoc’s Markdown supports; for example, a math equation  $a^2 + b^2 = c^2$ .

### 1.1 Usage

Each **bookdown** chapter is an .Rmd file, and each .Rmd file can contain one (and only one) chapter. A chapter *must* start with a first-level heading: **# A good chapter**, and can contain one (and only one) first-level heading.

Use second-level and higher headings within chapters like: **## A short section** or **### An even shorter section**.

The `index.Rmd` file is required, and is also your first book chapter. It will be the homepage when you render the book.

### 1.2 Render book

You can render the HTML version of this example book without changing anything:

1. Find the **Build** pane in the RStudio IDE, and
2. Click on **Build Book**, then select your output format, or select “All formats” if you’d like to use multiple formats from the same book source files.

Or build the book from the R console:

```
bookdown::render_book()
```

To render this example to PDF as a `bookdown::pdf_book`, you'll need to install XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): <https://yihui.org/tinytex/>.

## 1.3 Preview book

As you work, you may start a local server to live preview this HTML book. This preview will update as you edit the book when you save individual .Rmd files. You can start the server in a work session by using the RStudio add-in “Preview book”, or from the R console:

```
bookdown::serve_book()
```

## Chapter 2

# Hello bookdown

All chapters start with a first-level heading followed by your chapter title, like the line above. There should be only one first-level heading (#) per .Rmd file.

### 2.1 A section

All chapter sections start with a second-level (##) or higher heading followed by your section title, like the sections above and below here. You can have as many as you want within a chapter.

#### An unnumbered section

Chapters and sections are numbered by default. To un-number a heading, add a {.unnumbered} or the shorter {-} at the end of the heading, like in this section.





## Chapter 3

# Cross-references

Cross-references make it easier for your readers to find and link to elements in your book.

### 3.1 Chapters and sub-chapters

There are two steps to cross-reference any heading:

1. Label the heading: `# Hello world {#nice-label}`.
  - Leave the label off if you like the automated heading generated based on your heading title: for example, `# Hello world = # Hello world {#hello-world}`.
  - To label an un-numbered heading, use: `# Hello world {-#nice-label}` or `{# Hello world .unnumbered}`.
2. Next, reference the labeled heading anywhere in the text using `\@ref(nice-label)`; for example, please see Chapter 3.
  - If you prefer text as the link instead of a numbered reference use: any text you want can go here.

### 3.2 Captioned figures and tables

Figures and tables *with captions* can also be cross-referenced from elsewhere in your book using `\@ref(fig:chunk-label)` and `\@ref(tab:chunk-label)`, respectively.

See Figure 3.1.

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



Figure 3.1: Here is a nice figure!

Don't miss Table 3.1.

```
knitr::kable(  
  head(pressure, 10), caption = 'Here is a nice table!',  
  booktabs = TRUE  
)
```

Table 3.1: Here is a nice table!

| temperature | pressure |
|-------------|----------|
| 0           | 0.0002   |
| 20          | 0.0012   |
| 40          | 0.0060   |
| 60          | 0.0300   |
| 80          | 0.0900   |
| 100         | 0.2700   |
| 120         | 0.7500   |
| 140         | 1.8500   |
| 160         | 4.2000   |
| 180         | 8.8000   |



## Chapter 4

# Parts

You can add parts to organize one or more book chapters together. Parts can be inserted at the top of an .Rmd file, before the first-level chapter heading in that same file.

Add a numbered part: `# (PART) Act one {-}` (followed by `# A chapter`)

Add an unnumbered part: `# (PART\*) Act one {-}` (followed by `# A chapter`)

Add an appendix as a special kind of un-numbered part: `# (APPENDIX) Other stuff {-}` (followed by `# A chapter`). Chapters in an appendix are prepended with letters instead of numbers.



## Chapter 5

# Footnotes and citations

### 5.1 Footnotes

Footnotes are put inside the square brackets after a caret `^[]`. Like this one <sup>1</sup>.

### 5.2 Citations

Reference items in your bibliography file(s) using `@key`.

For example, we are using the **bookdown** package [Xie, 2022] (check out the last code chunk in `index.Rmd` to see how this citation key was added) in this sample book, which was built on top of R Markdown and **knitr** [Xie, 2015] (this citation was added manually in an external file `book.bib`). Note that the `.bib` files need to be listed in the `index.Rmd` with the YAML `bibliography` key.

The RStudio Visual Markdown Editor can also make it easier to insert citations: <https://rstudio.github.io/visual-markdown-editing/#/citations>

---

<sup>1</sup>This is a footnote.





## Chapter 6

# Blocks

### 6.1 Equations

Here is an equation.

$$f(k) = \binom{n}{k} p^k (1-p)^{n-k} \quad (6.1)$$

You may refer to using `\@ref{eq:binom}`, like see Equation (6.1).

### 6.2 Theorems and proofs

Labeled theorems can be referenced in text using `\@ref{thm:tri}`, for example, check out this smart theorem 6.1.

**Theorem 6.1.** *For a right triangle, if  $c$  denotes the length of the hypotenuse and  $a$  and  $b$  denote the lengths of the **other** two sides, we have*

$$a^2 + b^2 = c^2$$

Read more here <https://bookdown.org/yihui/bookdown/markdown-extensions-by-bookdown.html>.

### 6.3 Callout blocks

The R Markdown Cookbook provides more help on how to use custom blocks to design your own callouts: <https://bookdown.org/yihui/rmarkdown-cookbook/custom-blocks.html>



## Chapter 7

# Sharing your book

### 7.1 Publishing

HTML books can be published online, see: <https://bookdown.org/yihui/bookdown/publishing.html>

### 7.2 404 pages

By default, users will be directed to a 404 page if they try to access a webpage that cannot be found. If you'd like to customize your 404 page instead of using the default, you may add either a `_404.Rmd` or `_404.md` file to your project root and use code and/or Markdown syntax.

### 7.3 Metadata for sharing

Bookdown HTML books will provide HTML metadata for social sharing on platforms like Twitter, Facebook, and LinkedIn, using information you provide in the `index.Rmd` YAML. To setup, set the `url` for your book and the path to your `cover-image` file. Your book's `title` and `description` are also used.

This `gitbook` uses the same social sharing data across all chapters in your book—all links shared will look the same.

Specify your book's source repository on GitHub using the `edit` key under the configuration options in the `_output.yml` file, which allows users to suggest an edit by linking to a chapter's source file.

Read more about the features of this output format here:

<https://pkgs.rstudio.com/bookdown/reference/gitbook.html>

Or use:

```
?bookdown::gitbook
```

# Bibliography

Yihui Xie. *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition, 2015. URL <http://yihui.org/knitr/>. ISBN 978-1498716963.

Yihui Xie. *bookdown: Authoring Books and Technical Documents with R Markdown*, 2022. URL <https://CRAN.R-project.org/package=bookdown>. R package version 0.26.