Data_Days_Rmarkdown_session

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What is Rmarkdown?

Rmarkdown is an way to integrate R data cleaning, modelling, analysis, and data visualizations into a well-formatted, easy to read output. Rmarkdown can handle multiple output formats such as pdf, word, and html documents, slideshows, or even web apps with Shiny. We'll go over some of the simple syntax first, and then we'll get into how to embed code into an Rmarkdown document

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Some basic syntax

Starting off, you can easily just type text by. . . well. . . typing text. You can **bold** and *italicize* by surrounding text in double and single asterisks, respectively, or you can use *single underlines* or **double underlines** to italicize and bold. Notice how Rmarkdown colors your italicized text and bolded text the same, so that you can see what is doing what.

Rmarkdown also makes it easy to apply headers by adding pound signs before your designated heading:

Heading 1

Heading 2

Heading 3

Heading 4

Heading 5 The heading you end up with depends on the number of pound signs you include before your text.

Bulleted Lists:

Bulleted lists are also easy to make in Rmarkdown! You can either make bullets by using the + symbol:

- List element 1
- List element 2
    - List subelement 1
        - List sub-sub-element 1
            - List sub-sub-sub-element 1
- List element 3

Numbered lists are also easy:

1. element 1
2. element 2

    - sub-element 1
        - sub-sub-element 1
            - sub-sub-sub-element 1

3. element 3

Tables:

I tend to stay away from manually making tables in markdown, because most of the tables I need are made by inline code, but if you wanted to make a table, the process is easy, if not a bit tedious...

Table Header 1	Table Header 2
Col1 val1	Col2 val2
Col1 val2	Col2 val2

Sectioning of your document

You can also add endashes `--` or emdashes `---` to you document to break up sections. I've included some emdashes above, so I'll break off this session with an endash. However endashes are kind of underwhelming if your goal is to section off your code

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Inline equations with LateX

I often have problems with word's equation writing functionality. Markdown is not that much easier, and it requires you to understand LateX syntax, which is a whole beast in and of itself. But, to make inline equations, you simply surround your equation by two `$` signs. If you want scientific journal equation styles, you surround your text by two `$` signs on each side.

$Area = \pi * r^2$

$$Area = \pi * r^2$$

I find this extremely helpful, because to get greek letters, all you have to do is type the phonetic spelling of the letter, surrounded in dollar signs, preceded by a backslash as follows (in lowercase): μ β α

You can type out superscripts with the carat symbol ^ x^2

If your exponent is more than one character long, surround the exponent in curly braces

x^{-1}

And *subscripts* are done simply by preceding the subscript with an underscore

β_0

All of this is extremely helpful if you need to include equations in your document. Like a regression equation (RMD also gives you helpful previews of your equations while you write)

$$logit(y) = \alpha + \beta_0 * x_1 + \beta_1 * x_2 + \beta_2 * x_3 + \beta_3 * x_3^2$$

you can even include summands and integrals!

$\sum_{i=1}^{n}$ $\int_{i=a}^{b}$

check out this link on overleaf for more on writing LaTeX equations: LaTeX help on overleaf.com