

R Markdown

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Introduction to R Markdown (.Rmd)

This is an R Markdown presentation.

Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents.

For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

What is it?

Rmd is a convenient way to present your R scripts that allows you to:

- Embed R code
- Run R code chunks
- Display R graphics output
- Annotate and explain your code
- Display mathematical equations (LaTeX)

You will be handing in all of your homework as R markdown documents.

How to do it

From within RStudio, you need to do four things:

1. Create an rmd document
2. Write some text
3. Write some code
4. Render the document

Step 1: Create an .Rmd document

In the RStudio menu, select **File => New File => R Markdown ...**

- Give your document a title.
- Add your name.
- Add the date.
- Select **HTML** or **PDF** (you can change this later).

R markdown document sections

YAML header

- “YAML ain’t markup!”
- Encodes some metadata about the document

Text

- R markdown formatted text

- LaTeX-formatted text (mainly for equations)

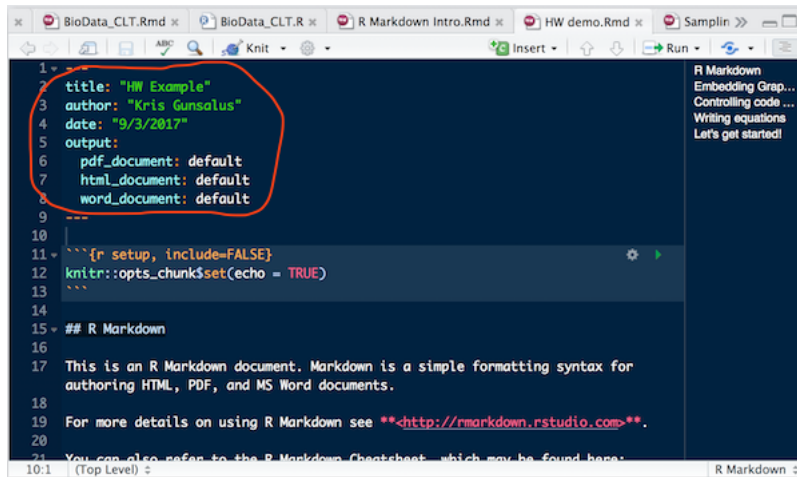
Embedded chunks of R code

- Code blocks
- Code output (text or graphics)

Step 2: Write something!

YAML header

- Always include a title, your name, and the date
- Output format: HTML and/or PDF



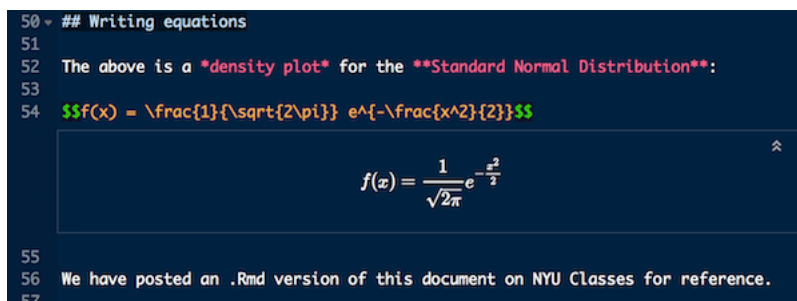
```

1 title: "HW Example"
2 author: "Kris Gonsalus"
3 date: "9/3/2017"
4 output:
5   pdf_document: default
6   html_document: default
7   word_document: default
8 ---
9
10
11 {r setup, include=FALSE}
12 knitr::opts_chunk$set(echo = TRUE)
13
14
15 ## R Markdown
16
17 This is an R Markdown document. Markdown is a simple formatting syntax for
18 authoring HTML, PDF, and MS Word documents.
19
20 For more details on using R Markdown see http://rmarkdown.rstudio.com.
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22 You can also refer to the R Markdown Cheatsheet, which may be found here:
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```

Step 2: Document text

- Use R Markdown tags to format the document (it's simple!)
- Headers, paragraphs, lists, etc. each use special symbols
- Use hash tags for section headers (# for H1, ## for H2, etc.)
- Enclose text with * for *italics* and ** for **bold**
- Use \$ and escape char \ for special symbols like Greek letters



```

50 ## Writing equations
51
52 The above is a density plot for the Standard Normal Distribution:
53
54 
$$f(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$$

55
56 We have posted an .Rmd version of this document on NYU Classes for reference.
57

```

Step 3: Embed some R code

- Insert blocks of code using the RStudio menu: Insert => R
- Code blocks will be highlighted
- Code blocks always start with “{r}” and end with “”

```

24
25 ```{r test}
26 # This is a block of code.
27 hiya <- paste("Hello", "world!", sep = " ")
28 hiya
29 ```
[1] "Hello world!"

```

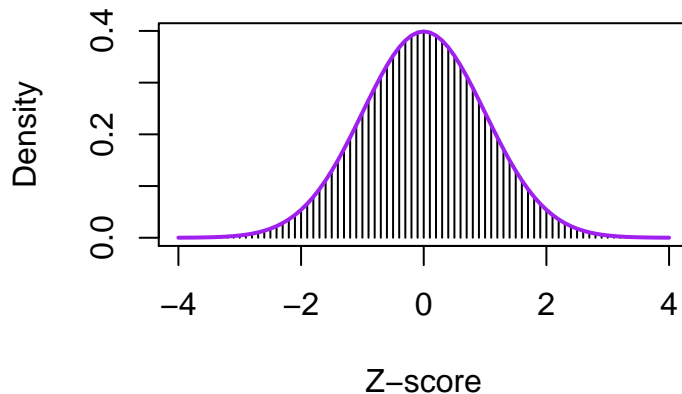
- Code blocks can be named.
- By default, both code chunks and output are rendered.
- Special directives can hide code blocks or skip running them.

Step 3: Including graphics

```

```{r normal_plot, echo=TRUE, eval=TRUE, fig.width=4, fig.height=3,
fig.align="left" }
x<-seq(-4,4,0.1)
y <- dnorm(x)
plot(x,y,type="h", xlab="Z-score", ylab="Density")
lines(x,y,col="purple", lwd=2)
```

```



Step 4: Render your document

Convert your document to **HTML** or **PDF** using the **Knit** button. You can also render as a **Word** document.

```

1 <---
2 title: "R Markdown"
3 author: Kris Gonsalus
4 date: "9/6/2017"
5 output: ioslides-presentation
6 <---
7
8 ```{r setup, include=FALSE}
9 knitr::opts_chunk$set(echo = FALSE)
10 ```
11
12 ## Introduction to R Markdown (.Rmd)
13
14 This is an R Markdown presentation.
15

```

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document.

Let's get started!