Manuscripts in Rmarkdown

https://stirlingcodingclub.github.io/Manuscripts_in_Rmarkdown/Rmarkdown_notes.html

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4. Be able to navigate to the accompanying Rmarkdown notes and make use of them for additional tools

5. Continue asking questions and sharing tips in the Rmarkdown repository issues page on GitHub

Where did Rmarkdown come from?

Microsoft Word (1983)	LaTeX(1980)
- Used in the life sciences	- Used in maths and physics
- What you see is what you get	- Edit files in plain text (code)
- Proprietary software	- Free software
- **Low learning curve**	- **High learning curve**
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Rmarkdown (2012) is free software with a **relatively low learning curve** in which authors write in plain text and can easily integrate R analyses, citations, and tables or figures.

Sample writing in code with Rmarkdown

From the Introduction:

```
Bumpus published a paper and all of the data that he
had collected [@Bumpus1898]. These data are now a
classic  data set in biology, and have been analysed
multiple times [e.g., @Johnston1972].
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Sample writing in code with Rmarkdown

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Bumpus published a paper and all of the data that he had collected (Bumpus 1898). These data are now a classic data set in biology, and have been analysed multiple times (e.g., Johnston, Niles, and Rohwer 1972).

Sample writing in code with Rmarkdown

From the Results:

```
Bumpus' data included 'r sum(dat$surv == "alive")'
sparrows  that lived and 'r sum(dat$surv == "dead")'
sparrows that died. The mean total length of living
sparrows was 'r round(live, digits = 2)' mm, and the
mean total length of dead sparrows was
'r round(dead, digits = 2)' mm.
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Sample writing in code with Rmarkdown

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Bumpus' data included 72 sparrows that lived and 64 sparrows that died. The mean total length of living sparrows was 158.71 mm, and the mean total length of dead sparrows was 160.48 mm.

Complex figures and tables directly in Rmarkdown

sex	surv	totlen	wingext	wgt	head	humer	femur
male	alive	154	241	24.5	31.2	0.687	0.668
male	alive	160	252	26.9	30.8	0.736	0.709
male	alive	155	243	26.9	30.6	0.733	0.704
male	alive	154	245	24.3	31.7	0.741	0.688
male	alive	156	247	24.1	31.5	0.715	0.706
male	alive	161	253	26.5	31.8	0.780	0.743
male	alive	157	251	24.6	31.1	0.741	0.736
male	alive	159	247	24.2	31.4	0.728	0.718
male	alive	158	247	23.6	29.8	0.703	0.673
male	alive	158	252	26.2	32.0	0.749	0.739
male	alive	160	252	26.2	32.0	0.741	0.723
male	alive	162	253	24.8	32.3	0.766	0.752

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6. **Complete integration of data analysis and manuscript** (no copy-pasting when values or figures change)

You do not need to learn everything at once for Rmarkdown to be useful. If you get stuck or cannot figure out how to do something, you can just knit a DOCX and work from there.

Create a new Rmarkdown document

In Rstudio: File $\rightarrow$ New File $\rightarrow$ R Markdown. . .

Create a new Rmarkdown document

In Rstudio: File → New File → R Markdown...

```
---
title: "Untitled"
author: "Brad Duthie"
date: "17 November 2018"
output: html_document
---

## R Markdown

This is an R Markdown document. Markdown is a simple
formatting syntax for authoring HTML, PDF, and MS
Word documents. For more details on using R Markdown
```

Copy and paste an abstract, then knit

```
---
title: "High sparrow body length decreases survival"
author: "Brad Duthie"
date: "17 November 2018"
output: html_document
---

Abstract
========================================

Writing documents in Rmarkdown using Rstudio can
make scientific workflow more efficient, and here
```

Copy and paste an abstract, then knit

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```

Now find the 'Knit' button on the toolbar

Notes and what to do next

Example manuscript available on GitHub, and how to write it to create a manuscript quality PDF, HTML, or DOCX.

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https://stirlingcodingclub.github.io/Manuscripts_in_Rmarkdown/Rmarkdown_notes.html

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See the notes above for a full walkthrough on how to write a manuscript in Rmarkdown.

Literature cited

Bumpus, Hermon C. 1898. "Eleventh lecture. The elimination of the unfit as illustrated by the introduced sparrow, *Passer domesticus*. (A fourth contribution to the study of variation.)." *Biological Lectures: Woods Hole Marine Biological Laboratory*, 209–25.

Johnston, R F, D M Niles, and S A Rohwer. 1972. "Hermon Bumpus and natural selection in the House Sparrow *Passer domesticus*." *Evolution* 26: 20–31.