Pre-class preparation

Please read the following textbook sections from Blitzstein and Hwang's *Introduction to Probability* (second edition) and watch the optional video:

- Section 1.8
- If you've never used R or RStudio (or would like a refresher) please watch the following video: Introduction to RStudio and RMarkdown

Objectives

By the end of the day's class, students should be able to do the following:

- Explain the difference between R and RStudio, and identify the four components of the RStudio interface.
- Create and use vectors, draw random samples, and perform simple simulations using R in RStudio.

Reflection Questions

Please submit your answers to the following questions to the corresponding Canvas assignment by 7:45AM:

1. Download R and RStudio by following the instructions on the course website.
2. On your Desktop, create a new folder called 'STAT 310' or 'MATH 310', whichever you prefer.
3. On the course website, click the gray button associated with this Daily Assignment. This will download a file (most likely to your Downloads folder) called 'DA_04.Rmd'. Please drag this file to your new folder that you just created. Then double click on the file to open it. It should automatically open in RStudio.
4. In the YAML header at the top, change the author name to be your name. Keep the quotation marks!
5. In the code chunk provided for you, type and run the code shown below. Then describe in words what the last line of code is doing.:

```
x <- c(1,3,5,7)
y <- 1:4
x
y
x + y
```

6. In the code chunk provided for you, type and run the code shown below. Then answer the corresponding question: what are the differences between the two lines of code that both use the `sample()` function?

```
n <- 4
sample(x, n)
sample(x, n, replace = T)
```

7. In the code chunk provided for you, type and run the code shown below. Then answer the corresponding question: what is this line of code is doing?

```
replicate(10, sample(x, n, replace = T))
```

8. In the code chunk provided for you, type and run the code shown below. Then answer the corresponding question: what is this line of code is doing?

```
x[n]
```

9. (Optional) Is there anything from the pre-class preparation that you have questions about? What topics would you like would you like some more clarification on?

Submit the knitted HTML (or PDF) file to Canvas (not the .Rmd file)!