

# Problem Set 1

Due September 25th, 2020

## 1. Moore & Siegel

- 1.8.1 (1-2)
- 2.4.2 (10-14)

## 2. Sleep data

- Install the package “datasets” and load it into R
- Use the command `data(sleep)` to load some data on the effects of two drugs on how much graduate students slept (this will create an object called `sleep` that you can use as you would any other dataset). The dataset includes data from 10 patients for each of two drugs and records how much additional sleep each patient got after taking the drug.
- Using any method of your choice, determine which drug you would prefer to take for grad-school related insomnia. Describe how you might present these results graphically to illustrate why you chose the drug you did.

This data set is a popular one for demonstrating R packages; you'll see it in many help files

## 3. Freedom House Scores

- Using the `tidyverse` and replicable data principles, without making any manual changes or changing the file type, convert the `Country Ratings 1973-2020.xlsx` (Freedom House) data into country-year data.
- How many countries are in the dataset? How many observations are there?
- Which countries experienced declines in their *combined* scores between 2010 and 2020? Make a table presenting the ten largest declines. Make a hypothesis about what led to one of the declines.
- Compute measures of central tendency (location) and variability (spread). Plot the distribution of both variables using a boxplot and a histogram. Then make the same plot by year. Make sure to make your plots as professional as possible. Include a title and label both axes.
- Check out the Freedom House methodology on their website. What problems would you see with using this data in your research?

The data has been downloaded for you, but this is how it really looks!

You may wish to look into the package *kable* to make pretty tables in rmarkdown files. You may also just output the raw data table into your document.

<https://freedomhouse.org/reports/freedom-world/freedom-world-research-methodology>

## 4. Amazon's MTurk

Inspired by Salganik (2018)

- Turning to Amazon's MTurk for behavioral studies is increasingly popular in political science. Sign up to become a worker on Amazon Mechanical Turk. Spend one hour working there.
- What projects did you work on? What was your experience like? How did it influence your thoughts about the design, quality, and ethics of projects that use MTurk?
- Before MTurk, there were undergraduates. Compare and contrast using Turkers and undergraduates as research subjects. Discuss both scientific and ethical issues.