STATISTICAL RETHINKING WINTER 2024
HOMEWORK, WEEK 1

What is homework? Your completed answers to the prompts below should contain all the code necessary to repeat your calculations.

When is homework due? Homework is due each FRIDAY before the relevant discussion of the solutions. So for this first homework assignment, it'll be due on January 12 2024. You are welcome to work in groups. Just please turn in your individual answers. If ever you are late with homework, it's okay. Life is complicated. Turn it in when you finish it. The learning comes from doing it. I want you to do it. But keeping to deadlines is also good for your pace of learning, which is why I suggest keeping up when possible.

Where is homework due? Upload your homework at the link provided to enrolled students. Please name the file with your name and the course week. The preferred file format is PDF or a plain text file (.Rmd or .R or .py or .jl). Please do not turn in a Microsoft Word document.

WEEK 1 PROBLEMS. For your own good, it would be helpful to review the EASY problems at the end of Chapters 1, 2 and 3 (2nd edition). The answers are in the solutions guide.

1. Suppose the globe tossing data (Lecture 2, Chapter 2) had turned out to be 3 water and 11 land. Construct the posterior distribution.

2. Using the posterior distribution from **1**, compute the posterior predictive distribution for the next 5 tosses of the same globe. I recommend you use the sampling method.

3-OPTIONAL. This problem is an optional challenge for people who are taking the course for a second or third time. Suppose you observe $W = 7$ water points, but you forgot to write down how many times the globe was tossed, so you don't know the number of land points L. Assume that $p = 0.7$ and compute the posterior distribution of the number of tosses N. Hint: Use the binomial distribution.