Exam 1 Review
(100 points total)

Exam 1: 11/5/20 10-11:30 am
You will have 1 1/2 hours to complete the test (please return by 11:30 via email), but the exam is designed to be less than one hour in length. There are no restrictions on use of notes or books or other sources, but you will not likely have enough time to look up all of the answers. You must complete this exam on your own.

Short Essay (40 points)
There will be 2 short “essay” questions, 20 points each. These are open-ended questions on definitions and concepts learned from the readings and lectures. Answers should be about 1 paragraph—you will want to have prepared your answers before the test. I will pick 2 questions from the following set:

1) The mean and the standard deviation are two key descriptive statistics. What kind of information do these two statistics provide about a batch of numbers? Compare the mean to other statistics of its kind and describe the mean’s strengths and weakness relative these other statistics. Provide a conceptual description of what the standard deviation measures.

2) What is the distinction between dichotomous and continuous variables? Why is this distinction important in inferential statistics? Give an example of a measure that illustrates each of these two types of variables. Then describe an analysis discussed in class thus far that would be appropriate for each type of variable.

3) Define standard error conceptually? Distinguish it from the standard deviation. Why is the standard error important for inferential statistics? Is it better to have a small or a large standard error? Name two factors that affect the standard error and describe how each can increase or decrease the standard error.

4) Describe in conceptual terms the meaning of statistical “significance.” Define power and describe the types of decision errors that can occur in a significance test? What is effect size and how does it related to statistical power and errors of inference?

Multiple Choice (30 points)
There will be 15 multiple choice questions worth 2 points each. These may be on any of the assigned reading or the lecture material (including handouts), up to and including Nov 3. The purpose of these questions is to make sure you have read the material and have learned the concepts from the text and class lecture.

Computations and Printout Interpretation (30 points)
There will be two short computational or printout interpretation problems (15 pts each). Please have a calculator handy and have ready access to any statistical tables you might need.

Computations may include following:
- Standard deviation, variance, and mean
- Independent samples t-test

Be able to interpret printouts for:
- Descriptive statistics (mean, median, standard deviation, variance, skew, kurtosis)
- Graphs (box plot, frequency histogram, stem-and-leaf)
- Independent-samples t-test