Political Science 202
Introduction to Political Analysis
Fall 2023: Problem Set #4

Due on Blackboard on Friday, October 20 at 6:00 PM. 3 points in total. Late submissions are penalized with 1 point per 24 hours.

MAKE SURE THAT YOU RECEIVE AN UPLOAD CONFIRMATION and SAVE THE CONFIRMATION (submission date and confirmation number). If you have trouble uploading to Blackboard, email as an attachment to your TA before the deadline. If you don't get a reply confirming that you handed it in, send it again.

You can discuss the problem set with others, but you need to submit your own answers. If you discussed the problem set with others, note their names on your submission.

1. The chancellor of Syracuse University wants to learn about how satisfied students are with the university. He decides to conduct a survey of a random sample of 50 students, who are asked about their satisfaction on a scale from 0 to 10, where 10 means very satisfied and 0 means not satisfied at all. The mean of the sample is 6.4, with a standard deviation of 1.8.

   a) What is the standard error of the mean?
   b) What is the 95% confidence interval of the sample mean? Interpret what it tells us.

   A staff member who has a social science degree suggests that a sample of 50 is too small, and instead suggests collecting data from 1000 students. The chancellor is concerned about the cost of collecting 20 times more data, but eventually agrees. The sample of 1000 students has a mean of 6.1 and a standard deviation of 1.8.

   c) Compute the standard error of the mean and the 95% confidence interval. Interpret what the interval tells us.
   d) Compare the standard error you computed in a) and the one you computed in c). How much smaller is it in the latter case, where the sample was 20 times larger? What does this tell you about the relation between sample size and standard error?