**Problem Set 6**

This problem set covers material from class on March 17 and March 22 including material from OIS Sections 6.3, 7.3, and 7.4. It makes use similar data to that we discussed in class. Partial credit may be given for answers that are correct in part, but not in full. As a reminder, you are allowed to work with others, but your answer should be your own. What that means is that on problems that require you to write interpretations or responses, you should make sure that you and those you work with do not provide answers that are constructed similarly. This problem set is due at 11:59 pm on March 23, 2021. This is meant to be a shorter problem set so that you have time to prepare for the upcoming take-home exam and so that we can get you feedback more quickly.

**More Blue Dog Data**

In class this week, we are reading sections of Andrew Clarke’s honors thesis on the Blue Dog Caucus. In this section, you will be conducting several analyses that replicate tests he ran a decade ago on earlier Congresses.

1. Are today’s Blue Dogs moderates? In this part of the problem set you will examine that question. (60 pts.)
   1. In class, we looked at DW-Nominate Scores from the 116th Congress (2019-21). Here, we are going to look at DW-Nominate scores from the current Congress (the 117th Congress). In this Congress, the mean DW-Nominate score for the 18 Blue Dogs is -0.22 and the standard deviation is 0.079. In contrast, the mean DW-Nominate score for the 204 non-Blue Dog Democrats in the current Congress is

-0.397 and the standard deviation is 0.112. Please calculate and interpret the 95% confidence interval for the difference in mean DW-Nominate score for Blue Dogs and non-Blue Dogs. Please show your work. (20 pts.)

* 1. Please find the t-score and p-value and discuss whether there is evidence to suggest a difference in mean DW-Nominate score for Blue Dogs and non-Blue Dogs. Please show your work, explain how you found the p-value and interpret the p-value. If you did a one-sided greater-than test, would you have enough evidence to suggest that the average DW-Nominate score for Blue Dogs is ***higher*** than that of non-Blue Dogs (i.e., more conservative; 20 pts.)?
  2. Please compare your results to what Andrew Clarke found when he compared the mean DW-Nominate Score for Blue Dogs to non-Blue Dogs in Table 1-J. What similarities and differences exist here in terms of the ***level*** of DW-Nominate scores and hypothesis test results? (10 pts)
  3. If our test had a statistical power of 85%, what would β were equal? What does β represent? (10 pts.)

1. Clarke used Chi-Square Tests to look at the makeup of “prestige” committees in Congress to see whether Blue Dogs were overrepresented on these committees. (40 pts.)
   1. Below is a table of membership on the Rules Committee in the current Congress. Please conduct a Chi-Square Test to determine if Blue Dogs are overrepresented. Please show your work and interpret your p-value. (30 pts.)

|  |  |  |
| --- | --- | --- |
|  | Non-Member | Member |
| Non-Blue Dog | 195 | 9 |
| Blue Dog | 18 | 0 |

* 1. Should you be cautious in interpreting your results of this test? Why? How many expected cases do you want for each cell? (10 pts.)