Stats 300 **Spring 2024**

Lab Assignment #23

This lab is due at 9:35 AM on Monday 4/29 and is worth 6 points. This may be done individually, or in a group of 2 or 3 people.

Write a 1-sentence summary for each problem.

1) What's the difference between p, p_0, and $\hat{p}$? Assume that none of these is a p-value. Write complete sentences.

2) Test the claim that 45% of CRC students have at least 2 siblings. Use the sample data from a survey, and $\alpha = 5\%$.

# of siblings	frequency
0	5
1	11
2	8
3	6
4	3
5	2
6	2

3) A survey of 1,500 likely voters finds that 793 of the 1,500 plan to vote for Phineas Flynn for governor of the tri-state area. Is there evidence at the 1% level that Phineas Flynn will win the election? (As in, get more than 50% of the votes.)

4) In a small survey of CRC students, 20 out of 170 say that they have tried archery in the last year. In order to reject the null hypothesis

H_0: $p = 15\%$

that exactly 15% of all CRC students have tried archery in the last year, and accept

H_a: $p < 15\%$

that less than 15% of all CRC students have tried archery in the last year, at a 1% significance level, how many students would be needed for a larger survey? Assume that the sample proportion stays about the same for the larger sample.

5) a) In a clinical drug trial, 38 out of 290 users of Anclavin experience obsessive-elephant-thought syndrome (OETS) when taking 100 mg of Anclavin per day. Find a 90% confidence interval for the proportion of all potential Anclavin users who would experience OETS when using 100 mg of Anclavin per day.
b) Test the hypothesis that fewer than 25% of Anclavin users would experience OETS when using 100 mg of Anclavin per day. Use $\alpha = 5\%$.
c) Discuss the relationship between your answers to parts (a) and (b).