

Practice Assignment: Inference Basics

A survey is administered to undergraduate students at a college in Nebraska about their attitudes on the new learning management system used in all courses. In particular, the students in the survey were asked whether or not they can communicate with the peers in their courses using the messaging tool in the new learning management system. Of the 40,322 students enrolled at the college, a random sample of 2,500 students were surveyed.

- 1) Describe the parameter of interest in this context.
- 2) Describe the statistic in this context.
- 3) A college track coach in Nevada wants to test the effectiveness of a new training program for distance runners in his program. He decides to enroll a random sample of 30 athletes from the college track team into his training program if they are willing to participate.

Part A: What is the population of interest for this study?

Part B: What are potential issues with the study design that might affect the ability of the track coach to generalize the results of the study to all college track athletes?

According to the National Highway Traffic Safety Administration, the percentage of drivers involved in fatal collisions who were speeding is 26%. Use the *DCMP Sampling Distribution of the Sample Proportion* tool to answer the following questions.

https://lumen-learning.shinyapps.io/sampdist_prop

- 4) What is the value of the population proportion of interest?
- 5) Draw 100 samples of sample size $n = 65$. What is the last sample proportion, \hat{p} , for $n = 65$ that was drawn?
- 6) What is the mean of the sampling distribution for the sample proportion for the 100 samples of sample size $n = 65$?

- 7) Draw 1,000 samples of sample size $n = 100$. What is the mean of the sampling distribution for the sample proportion?