

SOC 5050: Problem Set 05

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Directions

Please complete all steps below. Your final do-file, log-file, and mark-down file with answers should be uploaded to your GitHub assignment repository by 4:20pm on Monday, October 3rd, 2016. You can show your work in your do-file using the `display` command.

Use the following scenario: CDC data suggests that the population average cholesterol level is 196. Assume that this distribution has a standard deviation of 20.

Part 1: Sampling Distributions

1. Assume you draw repeated random samples of $n=1250$ students. What is the standard error of these repeated samples?
2. If you were to draw repeated random samples of $n=1250$ students, what proportion of these samples will have sample means greater-than or equal to 225?
3. What sample size would we need to have a sample mean that is within 10 points of the population's?

Part 2: Predictive Intervals

4. Calculate and interpret a 95% predictive interval for x .
5. Calculate and interpret a 99% predictive interval for x .
6. Calculate and interpret a 95% predictive interval for \bar{x} .

Part 3: Confidence Intervals

7. Calculate and interpret a 95% confidence interval assuming we draw a random sample of $n=1000$ students.

8. Calculate and interpret a 99% confidence interval assuming we draw a random sample of $n=1000$ students.
9. Calculate and interpret a 95% confidence interval assuming we draw a random sample of $n=1500$ students.
10. Calculate and interpret a 99% confidence interval assuming we draw a random sample of $n=1500$ students.

Grading Rubric

Part 1 This section is worth six points.

Part 2 This section is worth six points.

Part 3 This section is worth eight points.

Stata Do-File The overall quality of the Stata do-file stack is worth ten points. This grade will be based on the clarity, organization, and layout of your do-files.

Document Details

Document produced by [Christopher Prener, Ph.D.](#) for the Saint Louis University course SOC 5050 - QUANTITATIVE ANALYSIS: APPLIED INFERENTIAL STATISTICS. See the [course wiki](#) and the repository [README.md](#) file for additional details.



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