Midterm 1

STAT 630: Fall 2023
Date: Tuesday, October 3rd, during class on Canvas

TOPICS

- Understand the difference between probability and statistics as well as parameter and statistic
- Be able to identify if a variable is:
    - Categorical (determine nominal or ordinal)
    - Quantitative (determine continuous or discrete)
- Explain what makes a study observational or experimental
- Sampling
    - Identify and describe appropriate methods of data collection (SRS, stratified, cluster, etc.)
    - Evaluate potential bias in sampling methods
- Discern the population a study can be generalized to
- Displaying and summarizing data
    - Choose a graphical and/or numerical summary which is appropriate to illustrate information from a dataset
    - Be able to interpret graphical and numerical summaries
        - Bar plots, histograms (shape, center, spread), boxplots
- Normal distribution
    - Calculate normal probabilities using:
        - The empirical rule
        - The `pnorm()` function in R
    - Use the `qnorm()` function to calculate quantiles based on probabilities
- Sampling distributions (for $\hat{p}$ only)
    - Population vs. sample vs. sampling distributions
    - The mean of the sampling distribution is the true population mean
    - As n increases, the variability of the sampling distribution gets smaller

BOOK CHAPTERS

OpenIntro Chapters 1 - 5.1 (skipping Ch 2)

- See the entire semester schedule on Canvas for exact chapters

EXAM FORMAT

1. Available on posit.cloud in our course space
2. Timed "quiz" on Canvas (extra time allowed for those who need accommodations)
3. At the end of the exam, you will assess your performance using the E, M, R, N rubric.

MATERIALS NEEDED/ALLOWED

1. Laptop/tablet/phone (not recommended)
2. Internet access (let me know if this might be an issue, and we will figure out alternatives)
3. Open book/ open notes
4. R/RStudio/posit.cloud

NOTES

- For those that need accommodations, please email me/Accessibility Services ASAP
- You may not communicate with another student during the exam. The turnitin feature on Canvas will be enabled

REVISIONS

I will return your exams to you on Thursday, October 5th during class. You will receive either a complete or incomplete on the exam. If you receive an incomplete or receive a complete but want to learn from your mistakes, **you will have until the next class Tuesday, October 10th to submit corrections based on my feedback**. Instructions on how to submit exam corrections will be provided on Thursday, October 5th.

On Thursday, October 5th I will return your revised exams with any new comments and possibly adjust your evaluation to a "complete". *If you receive an incomplete again after rewrites, I would like to meet with you in person to discuss any confusion on the exam and make a plan for you to correct your mistakes and learn the material. It is important that you understand the material, as we will be building off of these topics in the next chapters.*