STAT 113, SPRING 2022: SPECIFIC LEARNING OBJECTIVES (SLOS)

Below is a list of the Specific Learning Objectives (SLOs) that the course grade is based on.

Each graded item (hw question, quiz question, exam question, project phase) is associated with one of more of these objectives. The lion's share (80%) of the course grade is based on individual SLO grades. The grade for an individual SLO is the average of:

- the highest mark associated with that SLO from a quiz, exam or the project (if applicable for that SLO), and
- the highest (or next highest) mark associated with that SLO from any other source (which could be homework/lab)

A. Elements of Data, Study Design and Confounding

1. Identifying Elements of Data (Cases and Variables)
2. Classifying Variables Based on Measurement Scale and Role
3. Identifying and Distinguishing Potential Sources of Sampling and Measurement Bias
4. Reasoning About Study Design and Confounding Variables

B. Description and Visualization of Data

1. Creating/Interpreting Numerical and Graphical Summaries for Categorical Data
2. Reasoning about Center and Shape of Distributions of a Quantitative Variable
3. Reasoning about Variability of a Quantitative Variable
4. Using Correlation and Regression to Relate One Quantitative Variable to Another

C. Generalizing from the Data to the Phenomenon

Date: Last Revised February 18, 2022.

1. Distinguishing Between the Data and the Underlying Phenomenon
2. Creating and Interpreting Interval Estimates
3. Reasoning about Hypothesis Tests
4. Reasoning about False Discoveries and Missed Discoveries

D. Techniques and Technology

1. Producing Descriptive Summaries and Visualizations
2. Employing Techniques for Transparent and Reproducible Results
3. Using Standard Computational Techniques for Confidence Intervals and Hypothesis Tests
4. Using Inference Techniques With Multi-Category Variables

E. Application and Communication

1. Translating Conceptual Goals into Statistical Terms
2. Collecting Appropriate and Representative Data (only applies if collecting original data for the project)
3. Interpreting Statistical Results in the Concrete Context
4. Presenting and Clearly Communicating Statistical Ideas