Exam 2 Preparation

Logistics:
- Wed May 24
  - 90 minutes (8:30 – 10:00am, following Q&A from 7:45 – 8:30)
- Open-notes, open-handouts
  - You may bring anything that I have provided or that you produce yourself
- Bring calculator, normal probability table, \( t \)-table
  - No computer use
- Handouts 8 – 14, Quizzes 8 – 14, HW 5 – 10

Outline:
- Handout 8: Analyzing Quantitative Data
  - Shape, center, variability, outliers, symmetry, skewness, mean, median, standard deviation, inter-quartile range, five-number summary, boxplot, resistance
- Handout 9: Inference for Population Mean
  - CLT for sample mean, \( t \)-distribution, one-sample \( t \)-test, one-sample \( t \)-interval, technical conditions
- Handout 10: Observational Studies and Experiments
  - Observational study, association, conditional proportions, relative risk, confounding, experiment, random assignment, cause/effect conclusion, blindness
- Handout 11: Statistical Significance for 2×2 Tables
  - Segmented bar graph, conditional proportions, simulating randomization test for comparing two groups with binary categorical response variable
- Handout 12: Theory-Based Inference for 2×2 Tables
  - Two-proportion \( z \)-test, two-proportion \( z \)-interval, consistency between test and CI, impact of order of subtraction, impact of sample sizes
- Handout 13: Inference for Comparing Two Means
  - Simulating randomization test for comparing two groups, two-sample \( t \)-test, two-sample \( t \)-interval, impact of difference in sample means, impact of sample sizes, impact of within-sample variability, impact of confidence level
- Handout 14: Paired Data
  - Matched pairs design, analysis of differences, paired \( t \)-test, paired \( t \)-interval, technical conditions

Resources available online:
- This preparation sheet
- Handouts
- Quizzes and solutions
- HW assignments and solutions
- Practice exam and solutions
- Previous exam and solutions
Types of questions to expect:
- Short answer
- Calculations
- Interpretations and explanations
- Similar to examples, quizzes, HWs, previous exam

Advice for preparing:
- Prepare and organize your notes carefully
- Don’t study less because it’s open-notes/book
- Plan not to rely on your notes/book too much
- Re-read, work through handouts
- Focus on understanding, not memorization
- Review and make sure that you can answer example, quiz, HW, practice exam questions
- Ask questions during class, office hours

Advice during the exam:
- Show up on time!
- Be cognizant of time constraint
- Read carefully
- Relate conclusions to context
- Write and explain clearly
- Show details of calculations
- Do not elaborate excessively