

STAT 217 Spring 2011

Exam 2 Preparation

Logistics:

- Mon May 16, 8:10-9:15
- Open-notes, open-handouts
 - You may bring anything that I have provided or that you produce yourself
- Bring calculator, normal table, t -table
 - No computer use
- Handouts 10-18, Quizzes 10-18, HW8-13

Overview:

- We have analyzed studies that involve comparing two groups, both with a binary categorical response variable and with a quantitative response variable.
 - We have used both simulation methods and more conventional methods (z -test, t -tests) for assessing the strength of evidence that the groups differ.
- We have also considered issues of how studies are designed (observational vs. experimental) and how this affects the scope of conclusions that can be drawn (cause/effect).
- We have also studied descriptive methods (graphs and summary statistics) for analyzing quantitative data.

Outline:

- Handout 10: Statistical Significance for 2×2 Tables
 - Segmented bar graph, conditional proportions, simulating randomization test for comparing two groups with binary categorical response variable
- Handout 11: Observational Studies
 - Observational study, confounding variable, (lack of) cause/effect conclusion
- Handout 12: Experiments
 - Experiment, treatment, random assignment, cause/effect conclusion, blindness, double blindness
- Handout 13: Two-Proportion z -Test
 - Two-proportion z -test, two-proportion z -interval, impact of order of subtraction, impact of sample sizes
- Handout 14: Quantitative Response: Graphical and Numerical Summaries
 - Dotplot, center, variability, shape, outliers, symmetry, skewness, mean, median, standard deviation, inter-quartile range, five-number summary, boxplot, histogram, resistance
- Handout 15: Statistical Significance for Quantitative Response
 - Simulating randomization test for comparing two groups with quantitative response variable

- Handout 16: Two-Sample t -Test and t -Interval
 - 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 17: Paired Data
 - Paired data, paired t -test, paired t -interval, matched-pairs design
- Handout 8: One-Sample t -Test and t -Interval
 - One-sample t -test, one-sample t -interval, misconception of prediction interval

Advice:

- Organize notes for efficient retrieval of information/formulas
- Don't plan to use notes too much
 - Prepare as if exam were closed book/notes
 - Focus on understanding, not memorization
 - Be cognizant of time constraint
- Expect similar questions to what we answer in class every day, in quizzes, on HW, on exam 1
- Be prepared to think/explain/interpret
 - Not just plug into formulas
 - Be ready to explain process of how you would do calculations
- Be ready to interpret computer output
 - Possibly exclude irrelevant output
- Read carefully
 - Be sure to answer the question asked
- Take advantage of information provided
 - Perhaps including computer output
- Relate conclusions to context
- Justify/explain your answers
 - Unless you are explicitly told not to bother
- Arrive on time!
- Prepare as thoroughly as you would for a closed-book exam
 - Re-read handouts
 - Re-work in-class examples
 - Re-work quiz questions
 - Re-work HW questions
 - Come to Wed class prepared with questions
 - Bring questions to office hours (Wed 1-2, extra office hours on Fri from 8-10)
 - I'll also be available in our classroom from 7:30-8am on Mon