Exam 3 Preparation

Logistics:
- Mon Mar 16, 1:10-4pm
  - Together with final exam
- 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 16 – 23, Quizzes 16 – 24, HW 9 – 11, Chapters 7 – 10

Outline:
- Handout 16: Paired Data
  - Matched pairs design, analysis of differences, simulation-based analysis, paired $t$-test, paired $t$-interval, technical conditions
- Handout 17: One-Sample $t$-procedures
  - One-sample $t$-test, one-sample $t$-interval, technical conditions, misinterpretation of confidence interval as prediction interval
- Handout 18: Association and Correlation
  - Scatterplot, association (form, direction, strength), correlation coefficient, properties of correlation, association vs. causation,
- Handout 19: Least Squares Regression
  - Residual, least squares criterion, least squares line, prediction, interpretation of slope coefficient, coefficient of determination $r^2$, calculation of least squares line
- Handout 20: Inference for Correlation
  - Simulating randomization test for correlation coefficient, theory-based $t$-test for correlation coefficient
- Handout 21: Inference for Regression
  - Standard error of sample slope, $t$-test for population slope, $t$-interval for population slope
- Handout 22: Chi-Square Tests
  - Expected counts, chi-square statistic, chi-square table, test conclusion, largest contribution to test statistic
- Handout 23: Analysis of variance
  - Purpose/need, comparing variability between groups to variability within groups, ANOVA table, F-test, confidence intervals

Resources available online:
- This preparation sheet
- Handouts
- Chapters (PolyLearn)
- Quizzes and solutions
- HW assignments and solutions
• Practice exam and solutions
• Previous exam solutions

Types of questions to expect:
• Short answer
• Calculations
• Interpretations and explanations
• Similar to examples, quizzes, HWs, previous exams

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!
• Read carefully
• Relate conclusions to context
• Write and explain clearly
• Show details of calculations
• Do not elaborate excessively