Final Exam Preparation

• Logistical details
  o Mon Dec 7, 4:10-7pm, usual classroom OR
  o Tues Dec 8, 7:10-10am, room 38-227 OR
  o Fri Dec 11, 1:10-4pm, usual classroom
  o 170 minutes
    ▪ But exam will be less than twice as long as a midterm
  o Open-book, open-notes
  o Calculator, probability tables (normal, t-, chi-square) needed

• Coverage
  o Roughly two-thirds on material since previous midterm
    ▪ Handouts 21 – 25
  o Roughly one-third on earlier material
    ▪ Focusing on big ideas

• Resources available online
  o This preparation sheet
  o Handouts
  o Quizzes and solutions
  o HW assignments and solutions
  o Practice exam and solutions (on more recent material)
  o Preparation sheets for midterm exams
  o Solutions for midterm exams

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

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

• Advice during the exam
  o Show up on time!
  o Read carefully
  o Relate conclusions to context
  o Write and explain clearly
  o Show details of calculations
  o Do not elaborate excessively

• Extra office hours: Mon 1-2, Fri 11-12
Outline (of most important topics since previous midterm)

- Paired data
  - How to recognize
  - Advantages of paired design
  - Paired $t$-test
  - Paired $t$-interval

- Chi-square test for two-way tables
  - Test of independence
  - Expected counts, test statistic, $p$-value
  - Drawing conclusions
  - Largest contribution to test statistic

- Analysis of Variance (ANOVA)
  - Purpose, need
  - Big idea: compare variation between groups to variation within groups
  - ANOVA table
  - $F$-test
  - Multiple comparisons: Tukey procedure

- Inference for regression
  - Inference for slope coefficient
    - Standard error
    - $t$-test
    - Confidence interval
  - Test for correlation coefficient
  - Confidence interval for mean value
  - Prediction interval
    - Similarities, differences between CI and PI

- Multiple regression
  - Interpretation of coefficients
  - Interpretation of $R^2$
  - Model utility test ($F$)
  - Tests for individual coefficients ($t$)