Stat 201: Statistics I
Midterm Review

August 7, 2017

About the final exam

- Available on MyStatLab following class on 8/7
- Due on 8/14 by 11 pm
- 19 questions, 100 points
  - 6 questions, 16 points from chapters 3 - 6
  - 13 questions, 84 points from chapters 7 - 11
- Every question on exam has been a homework question, though the details will likely be different
- Estimated time to complete (median): 61 minutes, 16 seconds
- Time limit: 4 hours, must be completed in one sitting
- Can use any resource (book, notes, internet), except other people

Chapter 3

- From a set of data, find:
  - Mean
  - Median
  - Mode
  - Midrange
  - Range
  - Variance
  - Standard deviation

Chapter 4

- Calculate probabilities:
  - From proportions (3 in 12)
  - From a 2×2 contingency table
  - Complements
  - **Addition rule**
  - **Multiplication rule**
  - Complex events ("At least one...")
  - Conditional events

Chapter 5

- Find probability of event from a binomial distribution

Chapter 6

- Find probability from standard normal, z, distribution
- Find z-score which corresponds to given probability
- Find probability of event from a non-standard normal distribution
- Find value from non-standard normal distribution which corresponds to given probability

Chapter 7

- Estimate a populations proportion:
  - Find a confidence interval
  - Find sample size for desired margin of error
    - Known and unknown estimated proportion
- Estimate a population mean:
  - Find a confidence interval
  - Find sample size for desired margin of error

Chapter 8

- Hypothesis testing:
  - Identify the null and alternative hypotheses
  - Calculate a test statistic and p-value
  - Make a decision based on p-value and significance level
  - State conclusion in terms of research question
- Test a claim about population proportion
- Test a claim about population mean

Chapter 9

- Test a claim about two population proportions
- Test a claim about two population means using two independent samples
- Test a claim about the difference between populations using samples of paired data

Chapter 10

- Correlation:
  - Identify linear correlation vs. non-linear correlation vs. no correlation
  - Calculate correlation coefficient of a sample
  - Test whether population correlation parameter ρ is zero or not
- Regression:
  - Calculate regression equation from sample
  - Make predictions for the response variable given a predictor value and regression results

Chapter 11

- Test the fit of a sample frequency distribution to an expected distribution
- Test independence of two factors using a sample contingency table