Final Exam Review

The final exam will focus primarily on the second half of the course (from confidence intervals forward) but you should use the quiz one review, midterm review, and quiz two review as study notes since it is comprehensive and the concepts build upon one another.

You should be able to carry out the confidence intervals and various significance tests that we practiced in class.

Key Concepts from the second half of the course

- Understand and identify the sample and statistics, the population and the parameter
- Null and Alternative hypotheses – know how to word and how to refer back to the null
- Understand one-tailed and two-tailed hypotheses
- Know alpha level and p-value (reject hypothesis when p-value is less than alpha-level)
- Know critical value & test stat. (reject hypothesis when test statistic is greater than critical value)
- Know how and when to use Table C (critical values for t-tests)
- Know when to use degrees of freedom and one-sided vs two-sided p-values.
- Know what a p-value tells us.
- Understand how significance testing and hypothesis rejection relates to our ability to generalize the sample finding to the population

Confidence Intervals

- You may be asked to solve a 95% confidence interval for a proportion (use z-value)
- You may be asked to solve a 95% confidence interval for a mean (use t-value, w/ deg of freedom)

Significance Testing

- You may be asked to state a hypothesis & carry out a t-test for a one-sample mean, a t-test for a matched pairs mean, and/or a z-test for a one sample proportion.
- You will need to calculate the t-value and estimate the p-value based on Table C.
- You will need to reject or fail to reject the null based on the result.
- You may be asked to interpret output from a two-sample t-test.
- You will need to find the critical value using Table C & compare it to the test statistic.
- You will need to reject of fail to reject the null based on the result.

Tables and chi-square

- I will give you a table with the raw numbers/count for each sub-category.
- You will need to calculate the column percentages (adding to a total of 100% in each column)
- You will need to be able to compare the percentages across the row to determine the relationship between the variables
- You will need to be able to summarize the relationship (or lack thereof)

Chi-Square (test if the relationship in the sample (the table) can be generalized to the pop.)

- Know how to state the null and alternative hypothesis
- Know Degrees of Freedom (rows-1)*(columns-1)
- Understand the purpose of the Chi-square value and how to use it for significance testing
- Know how to find critical value for Chi-square test using Chi-Square table
- Know whether or not null can be rejected and the implications for statistical significance and generalization/inference.