STAT 110
EXAM 1 REVIEW

GENERAL SUGGESTIONS:

1. Study the examples from your notes.
2. Study the homework problems/solutions, practice problems/solutions, and the practice exam/solutions.
3. You can fill ONE SIDE of an 8 ½ x 11 sheet of paper with formulas/examples/definitions.

CHAPTER 1

Know the following definitions:
- Descriptive Statistics vs. Inferential Statistics
- Categorical vs. Numerical Data
- Population vs. Sample

CHAPTER 2

Know the following definitions:
- Parameter vs. Statistic

Know the Binomial Distribution:
- Know the conditions that must be met in order to use this distribution
- Know how to calculate probabilities associated with this distribution from Excel output
- Know how to make a decision about a real-world problem based on this probability

Carry out inferential procedures for a single proportion:
- Know how to set up the null and alternative hypotheses for a given research hypothesis
- Know how to set up a spinner in Tinkerplots to investigate a research question
- Know how to use the file BinomialProbabilities.xls to investigate a research question
- Know how to estimate the p-value from the results of a simulation study carried out in Tinkerplots for lower-tailed, upper-tailed, and two-tailed tests
- Know how to calculate the p-value using the binomial distribution for lower-tailed, upper-tailed, and two-tailed tests
- UNDERSTAND THE DEFINITION OF A P-VALUE!
- Know how to make a decision based on the p-value
- Know how to write a conclusion in everyday language

- Calculate the margin of error associated with a confidence interval for a single proportion
- Calculate the endpoints of a confidence interval for a single proportion
- Understand the effects of sample size and the level of confidence on confidence intervals
- INTERPRET a confidence interval for a single proportion.

Understand the following concepts:
- If an outcome is found to be statistically significant, this means it was unlikely to have occurred purely by chance
- Statistical significance does not necessarily imply practical importance, especially for studies with large sample sizes
- Finding no statistically significant effect does not necessarily mean there is no effect in the population, especially for studies with small sample sizes.