MT 112, Exam #2 Review, Spring 2020   Name _____

The exam will cover topics in Probability and Statistics. Topics to review include:
- Definitions and properties of simple probability, including complement rule
- Counting methods: multiplication rule, combinations, permutations
- Properties of probability distributions
- Finding probabilities from a two-way table, including compound (AND & OR) and conditional probabilities
- Interpreting probabilities in context
- Calculating basic statistics: measures of central tendency (mean, median, mode) and spread (standard deviation, range), position (standard score, percentiles).
- Making graphs with technology.
- Interpreting distributions: shape especially, and how the shape relates to the appropriate statistics.
- Interpreting graphs: are they good graphs, or misleading graphs? What do they mean/what story do the graphs tells? Reading values from graphs.
    - Pie charts
    - Bar charts
    - Line graphs
    - Scatterplots/Linear Regression equations
    - Histograms
    - Boxplots
- Summary tables (one-way and two-way)
- Types of variables: categorical, quantitative, discrete, continuous, nominal, ordinal, interval, ratio
- Types of probability: classical/theoretical, observational/experimental, personal/subjective.

You are strongly encouraged to use your choice of technology to perform the statistical calculations. You will have options for doing calculations by hand, but they will be challenging even with some accommodations for that fact.

I'm not going to be providing sample problems for this exam, since it will be entirely take-home. You'll be able to use your notes to complete the exam. Similar questions do appear on the homework.

The exam will come in two parts.

Part I will be answers that require longer explanations rather than short answer or numerical answers and will be the portion of the exam graded by hand. You will have a data set to perform some calculations on, or produce graphs of, and then you'll submit your scanned work for grading.

Part II will be numerical, short-answer or multiple-choice type questions. You will have the questions in advance, and I encourage you to solve them before entering the online test where you will submit your answers. While there is no time limit, solving them in advance and entering the answers will be better. The online test will grade most questions as all or nothing, but you will have the opportunity to submit your work with the test so that once you see the graded answers, you can request that I review your work for partial credit. (Or if you chose to calculate values by hand.)

I will also be putting substantially more points on the exam than are required, so you will have some more wiggle-room given the odd situation we find ourselves in. If you do well, you will be able to keep the extra points.