Review for First Exam

Caveat: The following list contains topics we’ve covered in class and which will be included on the first exam. Anything covered in class, the homework, or the quizzes is fair game for this exam, and while I have endeavored to make this list as complete as possible, it is your responsibility to review said homework, quizzes, and class notes directly. In particular, if I have inadvertently omitted a topic from this list (and I probably have), you should not interpret this omission as a signal that that topic will not appear on the exam.

- Graphs
  - histograms
  - stem and leaf plots
  - boxplots
  - scatterplots
  - scatterplots with categorical variables
  - time series plots
- Numerical Formulas
  - mean
  - median
  - first and third quartiles
  - variance
  - standard deviation
  - correlation
  - least squares regression line
  - residuals
- Definitions
  - IQR \times 1.5 \text{ rule}
  - simple random sample
- Concepts
  - density curve
  - distribution
  - histogram
  - outlier
  - center and spread
  - precision and accuracy
  - bias and variability
  - correlation and causation
  - block design (stratified, multi-stage, matched pairs, etc.)
- Normal Distribution
  - shape of density curve
  - 68-95-99.7 rule
  - using standard normal tables
  - forming $Z$-scores
  - normal quantile plots
- Questions
  - why randomize when you sample?
  - why worry about bin size for histograms?
  - when can we talk about “causation”?
  - are there ethical issues involved in generating statistical data?
  - etc. etc. etc.