Study Guide for the First Midterm
Math 1040

Chapter 1. (Mostly Vocabulary)

Be sure you know the meanings of the following:

(a) Populations (and parameters) vs Samples (and statistics)
(b) Descriptive vs Inferential Statistics
(c) Qualitative vs Quantitative Data
(d) Classifying data by level of measurement:
   Nominal
   Ordinal
   Interval
   Ratio
(e) Types of data collection:
   Observational study
   Experiment
   Simulation
   Survey
(f) Types of sampling techniques
   Random
   Cluster
   Stratified
   Convenience
   Systematic
Chapter 2.

(a) Given a list of numbers and a number of classes:
   - Create a table with frequencies, relative and cumulative frequencies
   - Construct a frequency and cumulative frequency histogram.
   - Construct a frequency polygon and an ogive.
   - Recognize a symmetric bell-shaped distribution

(b) Given a list of numbers, construct stem/leaf and dot plots.

(c) Given qualitative/quantitative paired data:
   - Construct a pie chart and a Pareto chart.

(d) Given quantitative/quantitative paired data:
   - Construct a scatter plot.

(e) Given raw data (a list of numbers):
   - Compute the mean, median and mode.
   - Compute the variances (deviations), and their squares
   - Compute the standard deviation.

(f) Given grouped data (individual or in classes):
   - Compute the weighted mean
   - Compute the sample standard deviation

(f) Given a frequency distribution and a standard deviation:
   - Be able to use the Empirical Rule to say things about the population if the distribution is (nearly) symmetric and bell-shaped
   - Use Chebychev’s Theorem to say things about the population with no assumptions on the distribution.

Remember: There is a sample midterm on the handout at:
   - www.math.utah.edu/~ahacon/1040.html