Math 21 – Pointers for Section 1.1

- A **population** is the entire group being studied.
  An **individual** is a person or object in the population being studied.
  A **sample** is a subset of the population being studied.
  (There is a great picture on page 3 that shows how these relate to each other.)
- A **statistic** is a numerical summary of a sample.
  A **parameter** is a numerical summary of a population.
- Statistics is made up of two branches: **descriptive** and **inferential**.
  Descriptive statistics consists of techniques for organizing and summarizing a complete set of data.
  Inferential statistics consists of techniques used to estimate or draw a conclusion about a population parameter based on a sample statistic.
  Do you have all of the data you are interested in? You are dealing with descriptive statistics.
  Do you need to get "outside" of your set of data? You are dealing with inferential statistics.
- Be familiar with the *Process of Statistics*, as described on the top of page 7.
  1) Identify the research objective.
  2) Collect the data needed to answer the question(s) posed in part 1.
  3) Describe the data.
  4) Perform inference.
- **Qualitative variables** classify individuals on the basis of a characteristic or category.
  Quantitative variables provide numerical measures of individuals.
- **Discrete variables** have gaps between possible values. In general, this means only whole numbers are possible values.
  Continuous variables have no gaps between possible values. In general, this means that any decimal value is possible.
  Discrete variables are typically counted, while continuous variables are typically measured.
- There are 4 levels of measurement: nominal, ordinal, interval, ratio.
  Nominal: Categorical data that cannot be put in an agreed upon order from low to high or worst to best.
  Ordinal: Categorical data that can be sorted from low to high.
  Interval: Numerical data that can be negative – there is no 0 starting point.
  Ratio: Numerical data that cannot be negative – there is a 0 starting point.