Frequency Distributions and Percentile Ranks

1. Raw score, ungrouped Frequencies
   - Scores/Values
   - Frequencies/Counts
   - Percent vs. Valid Percent (Relative Frequency)
   - Cumulative Percent (Cumulative Relative Frequency)
   - Ranked vs. Unranked Data (Test Scores vs. Student Sex)

2. Reading the Table
   - Percent or Probability Scores Equal X: P(X) = N(X) / N(Total Number of Scores)
   - Percent or Probability Scores Below X
   - Percent or Probability Scores Between X and Y: $X \leq P(score) \leq Y$ vs. $X < P(score) < Y$

3. Grouped Frequencies
   - Combine Test Scores into Common Groups, e.g., Letter Grades (A = 100 to 90, B = 89.9 to 80, etc.)
   - Grouped Frequencies Convenient for Recognizing Common Patterns for Data (Letter Grades vs. Percent Correct)

4. Percentile Rank
   - Only for ranked data, i.e. yes for test scores, no for student sex
   - Percentile Rank Defined = Percent of scores at or below a given score (most common definition), an alternative definition is the Percent of scores below a given score (less commonly used)
   - Use Cumulative Relative Frequency (Cumulative Percent; assumes ascending order)