**Traditional Statistics Course Content**

**(as taught by Carol Blumberg at Winona State University in 2005)**

1. Types of data—Categorical, Ordinal, Interval, Ratio (although exact terms vary by textbook)
2. Basic terms—samples, population, bias
3. Frequency tables—frequency, relative frequency and cumulative frequency
4. Histograms of categorical and quantitative data
5. Stem-and-leaf displays
6. Measures of central tendency (Mean, Median, Mode)
7. Measures of variation (Variance, SD, Range)
8. Percentiles, Quartiles, Boxplots and Outliers
9. z-Scores and empirical rule
10. Scatterplots
11. (Note: Most textbooks then have a chapter on probability—I always skipped this chapter)
12. Normal distribution (I did NOT include binomial, poisson, uniform and exponential distributions) and how to use whatever normal table was included in the textbook
13. Concept of a sampling distribution (via pictures—no simulations), standard error of the mean, and Central Limit Theorem
14. Logic of hypothesis testing including Type I and Type II error and significance level
15. One-sample z-test (both one-tailed and two-tailed)
16. Confidence interval for a single mean using normal distribution
17. Probability values for a single mean using normal distribution
18. One-sample t-test plus associated confidence interval and p-values
19. Paired samples and Independent samples t-tests plus associated confidence interval and p-values
20. Two-way contingency tables and associated chi-square test and p-values
21. Wilcoxon rank sum test