1. Know that there are two components of estimation: **point estimates** and **confidence intervals**.

2. Know that a **point estimate** is the estimated value for a population parameter.

3. Know that a confidence interval specifies a lower and upper end point for a range of values which are likely to contain a population parameter.

4. Know that the wider the range, the more likely the range is to contain the population parameter being estimated.

5. Know that each confidence interval is defined in terms of a confidence level (e.g., a 95% confidence interval).

6. Know that the confidence level indicates the percentage of sample confidence intervals constructed in this way that will contain a population parameter. For example, if a researcher constructs a 95% confidence interval for the population mean, 95% of the intervals constructed in this manner will contain the population mean. See page 156 in Chernick and Friis for a graphic that demonstrates this notion.

7. Know that the bounds of a confidence interval are determined by three factors: a **point estimate** of the parameter being estimated, the **standard error** of the statistic used in the estimation, and a value from a **theoretical distribution**.

8. Know that the **normal** and **t distributions** are often used in calculating the confidence intervals, and that **empirical distributions** are also used.

9. Know that the **normal** is used for confidence intervals for the population mean when the population **standard deviation is known**, and if there is an intervention, the intervention is assumed not to effect the population standard deviation.

10. Know that the **t distribution** is used for confidence intervals for the mean, or the difference between two sample means, when the **population standard deviation is unknown**.

11. Know that confidence intervals obtained from bootstrap sampling often involve **percentile points** derived from an **empirical distribution**.

12. Know that the **empirical distribution** is created from multiple sample of the same size as the original sample drawn with **replacement**. An estimate of the population parameter is created on each bootstrap sample and the empirical distribution is created from these estimates.