CHAPTER 9
Inferring Population Means

Section 9.1 Sample Means of Random Samples

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include **bias, precision, sampling distribution, unbiased estimator, standard error.**
Be sure to also read and study the key points, highlighted in the blue boxes in the text.
Be able to:

- Know how the **accuracy** and **precision** of an estimator are measured
- List the conditions for using the Central Limit Theorem which of the hypotheses gives the "status-quo" and which is the research hypothesis, which is what the researcher believes is true
- What is the formula for standard error of the sampling distribution of sample means? Is it the same or different than the standard error for the sampling distribution of sample proportions?
- How does the sample size affect the standard error? Why does this happen?

Section 9.2 The Central Limit Theorem for Sample Means

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include: **Central Limit Theorem, t-statistics, t-distribution, degrees of freedom**
Be sure to also read and study the key points, highlighted in the blue boxes in the text.

- Know the conditions necessary for applying the Central Limit Theorem (CLT) for sample means
- Know that we use the CLT so that we can find probabilities
- Read Example 3 on p. 442 carefully.   Why can we find the probability in question a) but not in question b)? .

Section 9.3 Answering Questions about the Mean of Population

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include: **Confidence Interval, confidence level.**
Be sure to also read and study the key points, highlighted in the blue boxes in the text.

- Focus on the vocabulary and the correct interpretation of a confidence interval
- Know how to find the margin of error
- Be sure you know what a confidence level measures
- Know how to find the *t*-multiplier

Section 9.4 Hypothesis Testing for Means

This section pulls together the ideas of hypothesis testing. You might again review the vocabulary from section 8.1
Be sure to also read and study the key points, highlighted in the blue boxes in the text.

- Know what a hypothesis test is about. What are we testing? A question about a sample statistic or a population parameter?
- Know proper set-up for the null and alternative hypothesis
- Know what a *p*-value is. What does a small p-value mean?
- What's the relationship between a p-value and the t-statistic?
- Know the common values for the significance level.
- Be sure to use proper words when interpreting the results of a hypothesis test.