MPRIM440: Statistical Analysis

Textbook

Title: Business Statistics, 2nd edition
Author: Robert A. Donnelly
Publisher: Pearson Learning Solutions
Ed/Year: 2015
Option #1: Hardback Textbook with MyStatLab – ISBN: 9780133865004
Option #2: E-Version Textbook with MyStatLab – ISBN: 9780321921468
Option #3: MyStatLab Access card -- purchase through MyStatLab within Moodle

Objectives

Lesson 1:

1. Define a population and a sample.
2. Identify when it is appropriate to study a sample vs. use a sample to draw inferences about a problem.
3. Determine how a variable is scaled and the descriptive statistics measures applicable to the scale.
4. Interpret probability.

Lesson 2:

1. Recognize the characteristics of a normal distribution including the defining parameters, μ and σ.
2. Compute the z-score and explain what it means.
3. Transform a normal distribution into a standard normal distribution.
4. Compute the probability that an element is less than a specified value, greater than a specified value, or in between two specified values.
5. Compute the value needed for an element to fall into a particular percentile (e.g., what would "x" need to be to fall in the top 25%?)
6. Explain the empirical rule.
7. Interpret the Central Limit Theorem (CLT), sampling distribution of sample means, and standard error.
8. Compute the probability that a sample mean is less than a specified value, greater than a specified value, or in between two specified values.
9. Compute the value that a sample mean would need to be to fall into a particular percentile (e.g., what would "x" need to be to fall in the top 25%?).
10. Given a specific problem, draw the "z-curve" and appropriately mark the x-axis and relevant points on the x-axis.

Lesson 3:

1. Determine the confidence interval with population standard deviation known.
2. Determine the confidence interval with a population standard deviation unknown.
3. Determine sample size.

Lesson 4:

1. Recognize when to apply the mean vs. hypothesized value test.
2. Identify when and how to apply the two-group difference of means test (with independent groups).
3. Recognize when and how to apply and interpret the paired observations test.
4. Recognize when and how to apply and interpret the Pearson Correlation coefficient.
5. Recognize when and how to apply and interpret simple regression.
6. Recognize when and how to apply and interpret multiple regression.
7. Recognize when and how to apply and interpret the chi-square test of independence.
8. Recognize when and how to apply and interpret the z-test difference of proportions for 1-observed samples.