

Getting Started With Statistics

by David Lantz

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Course Syllabus

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COURSE DESCRIPTION

In this course, we will survey some basic concepts in statistics. This course is ideally suited to be used as tutorial assistance for someone taking a course in statistics, or enrolled in a Six Sigma course. Quizzes, power points, excel spreadsheet templates and other materials will be provided to you.

TOPICS AND OBJECTIVES

Lesson 1: Descriptive & Inferential Statistics

- Difference between Descriptive and Inferential Statistics
- What is a Binomial Distribution
- What is the Variance and Standard Deviation
- Introduction to the Concept of a Z Distribution Table

Lesson 2: Working with the Z Distribution

- Calculating mean & standard deviation with Excel
- Learn how to use a Z Distribution Table
- Making calculations with the Z statistic
- Introducing the Hypothesis Testing Process

Lesson 3: Comparing Samples

- Comparing a sample and population mean
- Understanding the P-value
- The Student t Distribution Table
- Applying the Null and Alternate Hypotheses

Lesson 4: Independent and Dependent Samples

- The difference between independent and dependent samples.
- Using the Z statistic, independent large samples
- The idea of an “intervention” or “difference”
- Using the t statistic, dependent small samples

Lesson 5: Analysis of Variance (ANOVA)

- Introduce ANOVA
- Apply ANOVA to working with multiple samples
- Learn about the F distribution
- Use ANOVA to analyze both sample means AND sample variations

Lesson 6: Recap and Regression Analysis

- Theory of Regression
- Using Excel to Calculate Correlation, Intercept and Slope
- Determining the Coefficient of Correlation and Pearson's r
- Practical Applications of Regression Analysis

COURSE MATERIALS

1. Each lesson will have a quiz that you can take to assess your knowledge. The quiz will be graded, and feedback given.
2. An accompanying power point presentation that you can download.
3. Application of formulas used to analyze sales data of a company called “Books R Us”
4. An Excel File with data for Books R Us, Sample problems and Calculation Templates