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# Data Analysis Level 2

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## **Course Overview**

This 3-day instructor-led course will expand students' knowledge of data analytics by covering advanced data analytics topics. Providing insight on data visualization, exploratory data analysis and the use of machine algorithms, this course will help students enhance their proficiency in data analytics using R. Through this advanced course, students will learn how to control the entire analytic process by deciphering large amounts of data and effectively communicating the information they derive. This course provides students with the core skills necessary to handle any data intensive analytic project and generate clarity, insight, and confidence in order to make sound and measurable business decisions. This course will also bridge the gap between team members that can often cause a project to be unsuccessful. Topics include Linear Regression, predictive modeling basics, classification models, Segmentation modeling, spreadsheet models and data analysis using R.

it is recommended that participants take Data Analysis Level 1 before taking Data Analysis Level 2.

## **Course Objectives**

By the end of this course, participants will be able to:

- Understand and leverage different distribution models, and how each are applied.
- Determine how the concept of liner regression demonstrates the relationships between data.
- Build and understand predictive models, including decision trees and regression models.
- Identify classification models and understand how data is used to predict certain outcomes.
- Use cluster analysis tools and techniques to understand data
- Display and Organize data in linear optimization models
- Identify R programming language and understand how to use R language to build statistical models

## Schedule



Currently, there are no public classes scheduled. Please contact a Phoenix TS Training Consultant to discuss hosting a private class at 301-258-8200.

## **Course Outline**

#### Module 1: Linear Regression - Part 1

- Correlation
- Simple Linear Regression
- Multiple Linear Regression
- Fit Measures

#### **Module 2: Predictive Modeling Basics**

- Data Preparation
- Data Cleansing
- Integrating Data from Multiple Sources
- Common Issues

#### **Module 3: Linear Regression**

- Predictive vs Explanatory Modeling using Regression.
- Overfitting vs Underfitting
- Splitting data into Training/Validation subsets
- Multicollinearity
- Feature Subset Selection Models

#### **Module 4: Classification Models**

- K-Nearest Neighbor
- Distance Function
- Similarity Function
- Combination Function
- Choosing k
- Advantages/Disadvantage



#### Module 5: Segmentation Modeling / Cluster Analysis

- Clustering
- Clustering vs. Classification
- K-Means Clustering
- Clusters Interpretation
- Hierarchical Clustering
- Segmentation

#### Module 6: Spreadsheet Models / Optimization

- Linear Optimization Models
- Maximizing Profit / Minimizing Cost

#### Module 7: Data Analysis using R

- Introduction to R
- Data Analysis using R
- Reading Data
- Data Type in R
- Clustering in R
- Regression in R

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