

TRAINING SYLLABUS

# Course Title: Statistical Analysis using R

**Course Overview**

This introductory course is designed to train you in statistical analysis using the R programming language. Statistical analysis is a kind of quantitative analysis that involves descriptive data, such as survey data and observational data. This type of analysis enables the analyst to validate assumptions, hypothesis, and test theories using standard statistical models. This course provides the attendees with a lecture of probability theory and provides exercises of how those techniques are being used to deliver tremendous value for organizations across various industries. While introducing you to the theory, we'll pay special attention to practical aspects for working with probabilities, sampling, data analysis, and data visualization. The training provides a live demonstration of simple data science techniques. The course also provides an opportunity for attendees to ask questions and receive answers to general questions they have regarding the field in data science. R has for a long time been popular for data processing and statistical analysis. Among R's strengths are that it's a succinct programming language and has an extensive repository of third party libraries, Comprehensive R Archive Network (CRAN), for performing all types of analyses.

**Expected Learning Objectives**

The objectives of this course are to:

* Describe the data science process and how it’s components interact
* Present graphical techniques and the significance of exploratory data analysis (EDA) in Data Science
* Learn R coding for common and more advanced probability and statistics
* Present a brief description of the aim of the statistical test, when it is used, an example showing the R commands and R output with a brief interpretation of the output.
* Introduce a variety of statistical analysis techniques such as:
  + Distributions
  + Significance testing
  + Chi-square goodness of fit
  + t-tests
  + ANOVA
* Present probability theory and provide exercises of how these techniques are being used to deliver tremendous value for organizations across various industries.
* Discuss various Probability and Non-probability sampling methods
  + Discussion includes sampling challenges and issues in design, conduct, and interpretation
* Introduce Inferential Statistics in making decisions and drawing conclusions about populations
* Learn the concept of making decisions based on evidence. Learn the steps to conduct Hypothesis Testing.

**Intended Audience**

The Statistical Analysis using R course is intended for audiences that are relatively new to the field of Data Science. No prior Data Science training or knowledge is required. A basis in probability and statistics is preferred.

**Prerequisites**

Attendees that would like to participate in the hands-on session should download R and the Rstudio IDE onto their personal laptops prior to attending the training session. Instructions for downloading both tools are located below:   
  
<https://www.r-project.org/>

[https://www.rstudio.com/](https://rstudio.com/)

**BeVera Solutions, LLC**  
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**For scheduling and/or assistance call us at: 678-432-0218**