

Statistics I: Introduction to ANOVA, Regression, and Logistic Regression

This Level II course is designed for SAS software users who perform statistical analyses using SAS/STAT software. This course is a prerequisite to many of the courses in the statistical analysis curriculum.

Duration: 3.0 days

Course Description [\[Click to register ONLINE \]](#)

This course focuses on the following key areas: statistical inference, analysis of variance, multiple regression, categorical data analysis, and logistic regression. You learn to construct graphs to explore and summarize data, construct confidence intervals for means, test hypotheses, apply multiple comparison techniques in ANOVA, assess and correct collinearity in multiple regression, use diagnostic statistics to identify potential outliers in multiple regression, use chi-square statistics to detect associations among categorical variables, and fit a multiple logistic regression model.

Prerequisites

Before attending this course, you should

- have completed an undergraduate course in statistics covering p -values, hypothesis testing, analysis of variance, and regression.
- be able to execute SAS programs and create SAS data sets. You can gain this experience by completing the [SAS Programming I: Essentials](#) course.

Course Contents

Introduction to Statistics

- examining data distributions
- obtaining and interpreting sample statistics using the UNIVARIATE and MEANS procedures
- constructing confidence intervals
- performing simple tests of hypothesis

Analysis of Variance

- performing one-way ANOVA with the GLM procedure
- performing multiple comparisons
- performing two-way ANOVA with and without interactions

Regression

- producing scatter plots with the GPLOT procedure
- producing correlations with the CORR procedure
- fitting a simple linear regression model with the REG procedure
- understanding the concepts of multiple regression
- building and interpreting models

Regression Diagnostics

- examining residuals
- investigating influence and collinearity

Categorical Data Analysis

- describing categorical data
- producing frequency tables with the FREQ procedure
- examining tests for general and linear association
- understanding the concepts of logistic regression

Classroom Course Materials

Students attend classroom courses in one of our public training centers. You receive a hardcopy of the course notes.