

Multivariate Statistical Method: Practical Research Applications

Duration: 3.0 days

This course teaches how to apply a variety of multivariate statistical methods to research data.

Learn how to

- perform multivariate analysis of variance (MANOVA) and multivariate regression analysis
- perform canonical correlation and discriminant function analyses
- perform principal components analysis
- perform exploratory and confirmatory factor analysis
- use structural equation modeling.

Who should attend

Statisticians, researchers, and data analysts with a strong statistical background

Prerequisites

Before attending this course, you should

- know how to create and manage SAS data sets
- have experience performing a linear model analysis using the REG or GLM procedures of SAS/STAT software
- have completed and mastered the material covered in the *Statistics II: ANOVA and Regression* course or completed a graduate-level course on general linear models.

Exposure to matrix algebra will enhance your understanding of the material. Some experience manipulating SAS data sets and producing graphs SAS software is also recommended.

Course Contents

Overview and Examples of Multivariate Methods

- introduction and examples of multivariate statistics
- review of univariate statistics
- introduction to multivariate linear models
- ODS Statistical Graphics in SAS 9.2

Analysis of Groups: Multivariate Analysis of Variance

- factorial MANOVA
- contrasts

More Multivariate Linear Models

- multivariate multiple regression
- canonical correlation

Classification Into Groups: Discriminant Analysis

- canonical discriminant analysis
- linear discriminant analysis
- quadratic discriminant analysis
- discriminant analysis and empirical validation

Variable Reduction and Extraction of Meaningful Factors

- principal components analysis
- exploratory factor analysis
- Cronbach's coefficient alpha for scale reliability

Analysis of Structure Using the CALIS Procedure

- introduction to structural equation models
- confirmatory factor analysis
- regression path models
- structural equation models with latent variables
- structural models with repeated measurements

Additional Data Topics

- evaluating assumptions for multivariate analysis

Classroom Course Materials

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