

Statistical Consulting Unit

Workshops/Training courses

Spring 2023

Workshop # 7

Title: Applied Multivariate Analysis

Statistical Software: SPSS

Requirements: Basic background in Statistics

Instructor: Dr. Saeed AL Dahmani

Target Group: Faculty, research staff, and graduate students

Date: 6 March – 12 March

Period: 3 days, 4 hours/day

Platform: Face to face Meeting

Inclusive of Scientific Materials: PowerPoint Slide Presentation and E-Certificate.

Workshop Fee: 1500 AED

Contact US: statconsult@uaeu.ac.ae

Description:

This workshop is an introduction to the methodology and applications of some of the most widely used multivariate statistical analysis tools. It covers principal components analysis and factor analysis. Principal Component Analysis (PCA) is a popular multivariate technique used for data reduction. It re-expresses the data by re-orienting it so that the first few dimensions' account for most of the information in the data. The resulting principal components can then be used in further analyses such as regression and ordination. Factor Analysis is a data dimension reduction technique, like Principal Component Analysis, that attempts to explain a set of observable variables by a smaller set of underlying unobservable variables.

Topics Covered:

Day 1:

- Introduction to PCA
- Derivation of Principal Components
- Factor Loadings
- Application in SPSS
- Interpretation of SPSS output
- Exercises

Day 2:

- PC Scores
- Sphericity Test
- Introduction to Factor Analysis
- The Common Factor Model
- Methods of Estimation
- Exercises

Day 3:

- Principal Component Solution to FA
- Principal Factor Solution to FA
- Rotation of Factors
- Factor Scores
- Exercises