

Advanced Data

*Manama (Bahrain)*

*8 - 12 September 2024*

UK Traininig

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## Advanced Data

Code: IT28 From: 8 - 12 September 2024 City: Manama (Bahrain) Fees: 3900 Pound

### Introduction

This course focuses on advanced analytical techniques that are routinely used in industry and academic research. Advanced analytics is a tool that can help you get more out of your data. Predictive analytics can use these clean sets and existing insights to extrapolate and make predictions and projections about future activity, trends, and consumer behaviors.

### Course Objectives of Advanced Data

- Estimation of basic models in R/ Python
- Approaches to dealing with missing data.
- Data reduction techniques

### Course Outlines of Advanced Data

#### Day 1

##### Principal components analysis

- Rescaling principal components
- Choosing the number of components
- Component scores

#### Day 2

##### Factor analysis

- Factor extraction and common factor analysis
- Factor rotation and factor scores

##### Item response theory models

- Latent trait models and item response function
- Logistic and normal IRT models and interpreting the IRT score scale

#### Day 3

##### Structural equation modeling and path models



- Path diagrams
- Structural equations & designing SEMs
- Confirmatory factor analysis
- Latent class models

#### Day 4

##### Clustering and cluster analysis, and association rules

- Classification in social sciences
- Hierarchical clustering; k-means clustering;
- Model-based clustering
- Visualization of clustering results

#### Day 5

##### Missing data

- Missing data generation and mechanisms
- Multiple imputations
- Pattern mixture models
- Data missing not at random
- Missing data in longitudinal studies



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