

Mastering Data Analysis with SPSS: From Basic to Advanced

Course Outline

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Days	Content	
Day 1	Chapter 1	Introduction <ul style="list-style-type: none">• Basic introduction and definitions• Download and install SPSS• SPSS related terms• Rules of variable names• Data type• Data file creation
Day 2	Chapter 2	Data Transformation and Manipulation <ul style="list-style-type: none">• Import file from several file format• Split file• Missing value analysis• Data re-computing and re-coding• Data manipulation
Day 3, Day 4	Chapter 3	Descriptive Statistics and Visualization <ul style="list-style-type: none">• Introduce to our data• Frequency analysis• Central tendency: mean, median, mode.• Variability test or Dispersion: range, variance, standard deviation, minimum, maximum.• Create t-score and z-score• Skewness, kurtosis• Explore• Normality test• Outlier detection• Measuring strength• Chart Builder• Legacy Dialogs• Steam-and-leaf plot
Day 5, Day 6	Chapter 4	Statistical Inference & Parametric Test <ul style="list-style-type: none">• Some definitions of related terms.• Distinguish parametric and non-parametric test.• Crosstabs analysis- Post Hoc tests• Mean calculation• One sample t-test and z-test• Independent sample t-test• Paired samples t-test

		<ul style="list-style-type: none"> • ANOVA (one way, two way) • ANCOVA • MANOVA • Levene's test • Welch's test
Day 7	Chapter 5	Non-Parametric Test <ul style="list-style-type: none"> • Chi-square- Post Hoc tests • Mann-Whitney U Test • McNemar • Wilcoxon Rank Sum Test • Kruskal-Wallis One-way • Jonckheere Trend Test • Median Test • Cochran's Q
Day 8, Day 9	Chapter 6	Correlation <ul style="list-style-type: none"> • Definition • Pearson correlation • Spearman correlation • Kendall's tau • Partial correlation • Semi-partial correlation • Streamlined correlation matrix • Point-biserial correlation • Reliability Test (Cronbach's Alpha) • Correlation table formation
Day 10	Exam	Chapter 1 to Chapter 7
Day 11, Day 12	Chapter 7	Regression <ul style="list-style-type: none"> • Definitions • Types of regression • Simple linear regression • Linear bi-variate regression • Multiple linear regression • Regression with dummy predictors • Non-linear regression • Logistic regression • Multinomial logistic regression • Testing heteroscedasticity • Heteroscedasticity adjusted standard errors • Robust regression
Day 13	Chapter 8	Dimension Reduction <ul style="list-style-type: none"> • Principal component analysis (PCA) • Factor Analysis

Day 14	Chapter 9	Classify and Clustering <ul style="list-style-type: none"> • Two step cluster • K-means cluster • Hierarchical cluster • Decision Tree
Day 15	Chapter 10	Neural network analysis
Day 16	Chapter 11	Survival Analysis <ul style="list-style-type: none"> • Life table • Kaplan-Meier • Cox regression
Day 17	Chapter 12	Time Series Analysis and Forecasting <ul style="list-style-type: none"> • Related terms and definitions • Decision build and analysis
Day 18	Exam	Chapter 8 to Chapter 13
Day 19	Project 1 discussion and evaluation	
Day 20	Project 2 discussion and evaluation	