
Course Catalog

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a. Locations



Our trainings take place at various locations in the German-speaking countries.

Public trainings:

You can enroll for public trainings at our training centers across Germany like in Berlin, Dresden, Hamburg, München / Munich, Düsseldorf, Frankfurt, and Stuttgart. Not all public trainings will be organized in all cities but you can still book a particular training for your team in one of our training and conference centers.

In Austria you can attend seminars and trainings in Wien / Vienna while we offer training dates in Switzerland in Zürich / Zurich.

On-site trainings:

We have mobile and flexible trainers / lecturers who like to visit you and your team for an on-site training or a training in a conference center or hotel near you.

USA

Chicago	Tel: Fax:
Miami	Tel: +1.305.395.7962 Fax: +1.305.395.7964
New York	Tel: +1.212.380.1181 Fax: +1.305.395.7964

1. IBM

A. DB2



(i) SQL - Fundamentals



Overview

Course ID	2020297
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	DB developers, programmers, database administrators
Prerequisites	General database knowledge
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
03-05 Aug 28-30 Sep 23-25 Nov	07-09 Sep 02-04 Nov 28-30 Dec	17-19 Aug 12-14 Oct 07-09 Dec

Prices plus local taxes.



Course Description

Das Seminar zeigt angehenden Verwendern von IBM DB2, wie sie mit Hilfe von SQL Daten eintragen (INSERT, MERGE), aktualisieren (UPDATE) oder auch löschen (DELETE) können. Der besondere Schwerpunkt des Seminars liegt auf Abfragen (SELECT) und Analysen von Daten. Dabei werden sowohl die in IBM DB2 nutzbaren Techniken von Standard-SQL gezeigt, aber auch fortgeschrittene und erweiterte Anweisungen.



Course Outline

A. DB und DB-Objekte

(0.25 Days) Datenbank erstellen - Tabellen und Spalten erstellen, löschen und ändern

B. Datenmanipulation

(0.5 Days) Daten erfassen (INSERT) - Daten löschen (DELETE) - Daten aktualisieren (UPDATE) - SELECT DML

C. Einfache Abfragen

(0.25 Days) Struktur der SELECT-Anweisung - Vergleichsoperatoren - Mathematische Operatoren - Logische Operatoren (AND, OR, NOT) - Mengenoperatoren (UNION, INTERSECT, EXCEPT) - Sortierung - Prädikate

D. Komplexe Abfragen

(0.5 Days) Verknüpfungen: Innere und äußere Verknüpfung, Kreuzverknüpfung, Selbstverknüpfung - Unterabfragen: Einfache Unterabfragen, korrelierte Unterabfragen, Unterabfragen in FROM und in der Spaltenliste - Common Table Expressions (CTE)

E. Aggregate und Gruppierungen

(0.25 Days) Standard-Aggregatfunktionen: MIN(), MAX(), SUM(), AVG(), COUNT() - Gruppierungen und Gruppenfilter - Fenster-/Bereichsaggregate: Extremwerte, Kumulierung, gleitende Durchschnitte

F. Anwendungsbeispiele von Abfragen

(0.5 Days) Hierarchische und rekursive Abfragen - Zeit- und Zeitreihen - SQL generieren - Daten generieren - Transponierung und Pivot

G. Gespeicherte Abfragen

(0.25 Days) Sichten - Materialisierte Abfragetabellen - Temporäre Tabellen

H. Funktionen verwenden

(0.5 Days) OLAP-Funktionen: Erweiterung der GROUP BY-Klausel um ROLLUP, GROUPING SETS und CUBE für Untersummen und Gesamtsummen - Ausgewählte wichtige Skalar- und Spaltenfunktionen



(ii) SQL PL Programming



Overview

Course ID	2020294
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	DBAs, database developers
Prerequisites	General database knowledge
Method	Lecture with examples and exercises.
Course level	Advanced



Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
03-05 Aug 28-30 Sep 23-25 Nov	07-09 Sep 02-04 Nov 28-30 Dec	17-19 Aug 12-14 Oct 07-09 Dec

Prices plus local taxes.



Course Description

SQL PL, is a subset of SQL that provides procedural constructs that can be used to implement logic around traditional SQL statements. SQL PL is a high level programming language with a simple syntax, and common programming control statements. SQL PL procedures and functions can contain parameters, variables, assignment-statements, SQL PL control statements, and compound SQL statements. SQL PL procedures also support a powerful condition and error handling mechanism, nested and recursive calls, the returning of multiple result sets to the caller or the client application. This trainings explains you how to use SQL PL for scripting common DB-related tasks or writing functions and procedures with complex logic.



Course Outline

A. Fundamentals of SQL PL

(0.25 Days) Introduction - Usage Scenarios - Variables and Data Types - Mix SQL with SQL PL - Blocks and Labels

B. Control Structures

(0.25 Days) Loops (FOR, WHILE, REPEAT, LOOP) - Conditions (IF, CASE) - Program control with GOTO, ITERATE, LEAVE, RETURN

C. Cursors

(0.25 Days) Definition - Processing - Cursors for simple and multiple result sets - Data manipulation and cursor processing - Dynamic cursors

D. Errors and Exception Handling

(0.25 Days) Analysis using SQLCODE and SQLSTATE - Complex exception handling - Custom error messages with SIGNAL and RESIGNAL - Analysis with GET DIAGNOSTICS

E. Dynamic SQL

(0.25 Days) Simple dynamic SQL using EXECUTE IMMEDIATE - Prepared instructions with PREPARE and EXECUTE - Dynamic SQL in cursors

F. Procedures

(0.5 Days) Definition - Parameters - Programming simple and nested procedures - Cursors as return values

G. Functions

(0.25 Days) Definition - Parameters and return values - Scalar functions and Table-valued functions - Using functions in SQL

H. Triggers

(0.5 Days) Definition - Before, After and Instead-Of Triggers - Data integrity through triggers - Triggers on row or on statement level

I. Techniques of Application Development

(0.5 Days) Identity and keys: identity columns, sequences - Versioning of data - Temporary tables - Materialized Query - Transactions: ROLLBACK, COMMIT, and savepoints -



(iii) XML - Einsatz



Overview

Course ID	2020956
Language	en
Duration	2 D ys
Delivery mode	Classroom
Course Type	
Target Group	DB developers, programmers, database administrators
Prerequisites	XML basics
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,600.00 USD	1,550.00 USD	1,600.00 USD
06-07 Aug 24-25 Sep 12-13 Nov 31 Dec - 01 Jan	10-11 Sep 29-30 Oct 17-18 Dec	13-14 Aug 08-09 Oct 26-27 Nov

Prices plus local taxes.



Course Description

IBM bietet umfassende Möglichkeiten, XML direkt in der Datenbank zu speichern sowie XML und relationale Daten zu mischen oder gemeinsam zu verwenden. Dieser Kurs gibt einen beispielorientierten Überblick über die verschiedenen Technologien und Verfahren, die mit IBM DB2 im Bereich XML möglich sind: Für den Aufbau von Import-/Export-Schnittstellen lernen Sie die Generierung von XML aus relationalen Daten mit SQL sowie die Zerlegung von XML zu relationalen Daten kennen. Für die erweiterte Nutzung von XML mit SQL und SQL PL sehen Sie, wie Sie direkt in der Datenbank XML mit DTD und XML Schema validieren, mit XSLT umwandeln oder mit XPath und XQuery abfragen.



Course Outline

A. Relationale Daten in XML

(0.5 Days) SQL/XML-Standard - Einfache XML-Dokumente aus relationalen Daten erzeugen - Verschachtelte und komplexe XML-Strukturen erzeugen - Exportschnittstellen mit Sichten und Funktionen

B. XML relational zerlegen

(0.5 Days) XML relational zerlegen - XML-Elemente mit XPath auf Spaltenstrukturen übertragen - Designprinzipien für Import-/Export-Schnittstellen - Importschnittstellen mit Prozeduren

C. XML speichern und definieren

(0.75 Days) Tabellen für XML-Speicherung - Speicherformen und Designprinzipien zur Übertragung von XML-Strukturen auf relationale Strukturen - XML-Daten komplett oder teilweise aktualisieren und löschen (XML DML) - Document Access Definition (DAD) für XML-Eigenschaften zur Erstellung und Speicherung von XML Collections - XML und relationale Daten mischen

D. XML mit SQL PL verarbeiten

(0.25 Days) XML in der Datenbank transformieren mit XSLT - XML in der Datenbank abfragen und filtern mit XPath und XQuery - XML validieren mit DTD und XML Schema

A. Minitab



(i) Descriptive and Inductive Statistics using Minitab



Overview

Course ID	2024696
Language	en
Duration	5 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	no
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
2,850.00 USD	2,650.00 USD	2,850.00 USD
24-28 Aug 19-23 Oct 14-18 Dec	31 Aug - 04 Sep 26-30 Oct 21-25 Dec	27-31 Jul 21-25 Sep 16-20 Nov

Prices plus local taxes.



Course Description

Statistics is the study of the collection, organization, analysis, interpretation and presentation of data. It deals with all aspects of data, including the planning of data collection in terms of the design of surveys and experiments. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of data, or the quantitative description itself. Statistical inference (or inductive statistics) is the process of drawing conclusions from data that is subject to random variation, for example, observational errors or sampling variation. This training provides you with a substantial overview of both descriptive and inductive statistics. All topics are firstly explained in presentations with the fundamental mathematical theory and examples followed secondly by hands-on exercises.



Course Outline

A. Introduction to Statistics

(0.5 Days) Descriptive and Inductive Statistics - Uni-/Bi- and Multi-variate Statistics - Summary tables: Grouped data, Frequency distributions, Contingency tables - Statistical graphics: Bar chart, Biplot, Box plot, Histogram

B. Descriptive Statistics: Univariate Analysis

(1 Day) Location: Mean (Arithmetic, Geometric, Harmonic), Median, Mode - Dispersion: Range, Standard deviation, Coefficient of variation, Percentiles, Interquartile range - Shape: Variance, Skewness, Kurtosis, Moments

C. Descriptive Statistics: Bivariate Analysis

(1 Day) Dependence: Pearson product-moment correlation, Rank correlation (Spearman's rho, Kendall's tau), Partial correlation, Scatter plot - Linear regression: Simple linear regression, Ordinary least squares - Regression analysis: Errors and residuals, Regression model validation, Mixed effects models

D. Inductive Statistics: Probability Theory

(0.75 Days) Probability axioms - Probability space Sample space - Elementary event - Random variable - Probability measure - Complementary event - Joint probability - Marginal probability - Conditional probability - Independence - Conditional independence - Law of total probability - Law of large numbers - Bayes' theorem - Venn diagram - Tree diagram

E. Inductive Statistics: Probability Distributions

(0.5 Days) Introduction: Probability mass function, Probability density function, Probability distribution function - Discrete univariate distributions: Binomial, Poisson, Geometric, Hypergeometric - Continuous univariate distributions: Uniform, Exponential, Normal (Gaussian)

F. Inductive Statistics: Frequentist Inference

(0.5 Days) Unbiased estimators (Mean unbiased minimum variance, Median unbiased) - Confidence interval - Testing hypotheses - Alpha-/Beta-Error and Power

G. Inductive Statistics: Specific Tests

(0.75 Days) Z (normal) - Student's t-test - F - Goodness of fit (Chi-squared) - Signed-rank (1-sample, 2-sample, 1-way anova)



(ii) Multivariate Analysis using Minitab



Overview

Course ID	2024694
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Advanced



Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 14-16 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



Course Description

Multivariate statistics is a form of statistics encompassing the simultaneous observation and analysis of more than one variable. The application of multivariate statistics is multivariate analysis. Multivariate statistics concerns understanding the different aims and background of each of the different forms of multivariate analysis, and how they relate to each other. The practical implementation of multivariate statistics to a particular problem may involve several types of univariate and multivariate analysis in order to understand the relationships between variables and their relevance to the actual problem being studied. This training is one part of a pair of courses on multivariate statistics. It helps you understand the techniques of complex and more advanced data analysis for marketing, controlling and engineering.



Course Outline

A. Multivariate Regression Analysis

(0.5 Days) Determination of a formula that can describe how elements in a vector of variables respond simultaneously to changes in others.

B. Multivariate Analysis of Variance (ANOVA and MANOVA)

(0.5 Days) Comparing multivariate means of several groups using the variance-covariance between variables in testing the statistical significance of the mean differences.

C. Discriminant Analysis

(0.5 Days) Examination whether a set of variables can be used to distinguish between two or more groups of cases.

D. Logistic Regression

(0.5 Days) Prediction of the outcome of a categorical dependent variable based on one or more predictor variables.

E. Factor Analysis

(0.5 Days) Extraction of a specified number of synthetic variables (latent variables or factors), fewer than the original set, leaving the remaining unexplained variation as error.

F. Clustering

(0.5 Days) Assignment of objects into groups (clusters) so that objects (cases) from the same cluster are more similar to each other than objects from different clusters.

A. R



(i) Descriptive and Inductive Statistics using R



Overview



Course Dates

Course ID	2024697
Language	en
Duration	5 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	no
Method	Lecture with examples and exercises.
Course level	Beginning

Chicago	Miami	New York
2,850.00 USD	2,650.00 USD	2,850.00 USD
24-28 Aug 19-23 Oct 14-18 Dec	31 Aug - 04 Sep 26-30 Oct 21-25 Dec	27-31 Jul 21-25 Sep 16-20 Nov

Prices plus local taxes.



Course Description

Statistics is the study of the collection, organization, analysis, interpretation and presentation of data. It deals with all aspects of data, including the planning of data collection in terms of the design of surveys and experiments. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of data, or the quantitative description itself. Statistical inference (or inductive statistics) is the process of drawing conclusions from data that is subject to random variation, for example, observational errors or sampling variation. This training provides you with a substantial overview of both descriptive and inductive statistics. All topics are firstly explained in presentations with the fundamental mathematical theory and examples followed secondly by hands-on exercises.



Course Outline

A. Introduction to Statistics

(0.5 Days) Descriptive and Inductive Statistics - Uni-/Bi- and Multi-variate Statistics - Summary tables: Grouped data, Frequency distributions, Contingency tables - Statistical graphics: Bar chart, Biplot, Box plot, Histogram

B. Descriptive Statistics: Univariate Analysis

(1 Day) Location: Mean (Arithmetic, Geometric, Harmonic), Median, Mode - Dispersion: Range, Standard deviation, Coefficient of variation, Percentiles, Interquartile range - Shape: Variance, Skewness, Kurtosis, Moments

C. Descriptive Statistics: Bivariate Analysis

(1 Day) Dependence: Pearson product-moment correlation, Rank correlation (Spearman's rho, Kendall's tau), Partial correlation, Scatter plot - Linear regression: Simple linear regression, Ordinary least squares - Regression analysis: Errors and residuals, Regression model validation, Mixed effects models

D. Inductive Statistics: Probability Theory

(0.75 Days) Probability axioms - Probability space Sample space - Elementary event - Random variable - Probability measure - Complementary event - Joint probability - Marginal probability - Conditional probability - Independence - Conditional independence - Law of total probability - Law of large numbers - Bayes' theorem - Venn diagram - Tree diagram

E. Inductive Statistics: Probability Distributions

(0.5 Days) Introduction: Probability mass function, Probability density function, Probability distribution function - Discrete univariate distributions: Binomial, Poisson, Geometric, Hypergeometric - Continuous univariate distributions: Uniform, Exponential, Normal (Gaussian)

F. Inductive Statistics: Frequentist Inference

(0.5 Days) Unbiased estimators (Mean unbiased minimum variance, Median unbiased) - Confidence interval - Testing hypotheses - Alpha-/Beta-Error and Power

G. Inductive Statistics: Specific Tests

(0.75 Days) Z (normal) - Student's t-test - F - Goodness of fit (Chi-squared) - Signed-rank (1-sample, 2-sample, 1-way anova)



(ii) Multivariate Analysis using R



Overview

Course ID	2024695
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Advanced



Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 19-21 Oct 14-16 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



Course Description

Multivariate statistics is a form of statistics encompassing the simultaneous observation and analysis of more than one variable. The application of multivariate statistics is multivariate analysis. Multivariate statistics concerns understanding the different aims and background of each of the different forms of multivariate analysis, and how they relate to each other. The practical implementation of multivariate statistics to a particular problem may involve several types of univariate and multivariate analysis in order to understand the relationships between variables and their relevance to the actual problem being studied. This training is one part of a pair of courses on multivariate statistics. It helps you understand the techniques of complex and more advanced data analysis for marketing, controlling and engineering.



Course Outline

A. Multivariate Regression Analysis

(0.5 Days) Determination of a formula that can describe how elements in a vector of variables respond simultaneously to changes in others.

B. Multivariate Analysis of Variance (ANOVA and MANOVA)

(0.5 Days) Comparing multivariate means of several groups using the variance-covariance between variables in testing the statistical significance of the mean differences.

C. Discriminant Analysis

(0.5 Days) Examination whether a set of variables can be used to distinguish between two or more groups of cases.

D. Logistic Regression

(0.5 Days) Prediction of the outcome of a categorical dependent variable based on one or more predictor variables.

E. Factor Analysis

(0.5 Days) Extraction of a specified number of synthetic variables (latent variables or factors), fewer than the original set, leaving the remaining unexplained variation as error.

F. Clustering

(0.5 Days) Assignment of objects into groups (clusters) so that objects (cases) from the same cluster are more similar to each other than objects from different clusters.

A. SPSS



(i) SPSS Statistics - Statistical Data Analysis 1



Overview

Course ID	2023679
Language	en
Duration	2 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	Basics in Statistics
Method	Presentation with examples and hands-on labs.
Course level	Beginning



Course Dates

Chicago	Miami	New York
2,000.00 USD	1,950.00 USD	2,000.00 USD
13-14 Aug 08-09 Oct 03-04 Dec	27-28 Aug 22-23 Oct 17-18 Dec	30-31 Jul 24-25 Sep 19-20 Nov

Prices plus local taxes.



Course Description

IBM SPSS Statistics is a comprehensive system for analyzing data. SPSS Statistics can take data from almost any type of file and use them to generate tabulated reports, charts and plots of distributions and trends, descriptive statistics, and complex statistical analyses. This training shows you how to use the graphical user interface of SPSS Statistics. You will learn how to make the most out of the wide range of statistical procedures for basic analyses and reports, including counts, crosstabs and descriptive statistics. For legal reasons (license management), this training can only be delivered on your hardware using your (test) license. Please contact us concerning dates and handling before the actual booking.



Course Outline

A. Data Files

Opening data files - File information - Saving data files - Comparing datasets - Data View - Variable View - Entering data - Editing data - Finding cases, variables, or imputations - Finding and replacing data and attribute values - Working with Multiple Data Sources

B. Data preparation and transformation

Variable properties - Defining Variable Properties - Setting measurement level for variables with unknown measurement level - Multiple Response Sets - Copying Data Properties - Visual Binning - Count Occurrences of Values within Cases - Identifying Duplicate Cases - Computing Variables - Recoding Values - Rank Cases - Time Series Data Transformations

C. Outputs

Viewer - Export output - Viewer printing - Saving output

D. Pivot Tables

Manipulating a pivot table - Workingwithlayers - Showing and hiding items - Table properties - Cell properties - Footnotes and captions

E. Working with Command Syntax

Syntax Rules - Using the Syntax Editor

(ii) SPSS Statistics - Statistical Data Analysis 2 (Multivariate Analysis)



Overview

Course ID	2023680
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	Basic knowledge of statistics
Method	Lecture with examples and exercises.
Course level	Advanced



Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 30 Nov - 02 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



Course Description

The IBM SPSS Statistics Premium Edition helps data analysts, planners, forecasters, survey researchers, program evaluators and database marketers – among others – to easily accomplish tasks at every phase of the analytical process. It includes a broad array of fully integrated Statistics capabilities and related products for specialized analytical tasks across the enterprise. The software will improve productivity significantly and help achieve superior results for specific projects and business goals. This training covers topics as the analysis of categorical and numeric data , linear and nonlinear models, decision trees, articial neural networks, forecasting and time series and more. For legal reasons (license management), this training can only be delivered on your hardware using your (test) license. Please contact us concerning dates and handling before the actual booking.



Course Outline

A. Regression

(0.5 Days) GLM Univariate - Linear Regression - Ordinal Regression - Curve Fitting - Partial Least Squares Regression

B. Discriminant Analysis

(0.25 Days) Defining Ranges - Selecting Cases - Stepwise Method - Classifying

C. Exploratory Factor Analysis

(0.25 Days) Selecting Cases - Descriptive Statistics - Factor Extraction - Rotation - Factor Values

D. Decision Trees

(0.5 Days) Creating Decision Trees: Selecting Categories, Validation Criteria for the Construction of the Tree - Tree Editor: Working with Large Trees, Controlling the Data Displayed in the Tree - Data Assumptions and Requirements - Construct a Valuation Model - Missing Values ??in Tree Models

E. Cluster Analysis

(0.5 Days) Distance Calculations - Nearest Neighbor Analysis - Two-Step Cluster Analysis - Hierarchical Cluster Analysis - Cluster Analysis

F. Artificial Neural Networks

(0.5 Days) Structure of Neural Networks - Multilayer Perceptron: Partitions, Architecture, Training, Editing - Radial Basis Function: Architecture, Training

G. Time Series

(0.5 Days) Transforming Data - Time Series Modeling: Exponential Smoothing, Custom ARIMA Models, Output - Seasonal Decomposition - Spectra - Forecasts - Determining Significant Predictors

(iii) SPSS Statistics - Statistical Data Analysis 3 (Questionnaires, Surveys and Market Research)



Overview

Course ID	2023681
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	Basics in Statistics
Method	Presentation with examples and hands-on labs.
Course level	Advanced



Course Dates

Chicago	Miami	New York
2,200.00 USD	2,100.00 USD	2,200.00 USD
17-19 Aug 12-14 Oct 07-09 Dec	10-12 Aug 05-07 Oct 30 Nov - 02 Dec	03-05 Aug 28-30 Sep 23-25 Nov

Prices plus local taxes.



Course Description

IBM SPSS Direct Marketing helps you understand your customers in greater depth, improve your marketing campaigns and maximize the ROI of your marketing budget. This training shows you how to conduct sophisticated analyses of your customers or contacts – and with a high level of confidence in your results. You will get to know concepts like cluster analysis, prospect profiling, Conjoint Analysis, Multidimensional Scaling, Correspondence Analysis or the analysis of complex samples. For legal reasons (license management), this training can only be delivered on your hardware using your (test) license. Please contact us concerning dates and handling before the actual booking.



Course Outline

A. Exploratory Data Analysis

(0.5 Days) Crosstabs - Summarizing Values ??- OLAP Cubes - Sample t-Tests - Components of Variance - One-Way ANOVA - Custom Tables: Simple Tables for Categorical Variables, Stacking, Nesting, and Layers with Categorical Variables, Totals and Subtotals, Computed Categories

B. Generalized Linear Models (GLM)

(0.5 Days) Generalized Linear Models - Generalized Linear Mixed Models - Model Loglinear Analysis - General Loglinear Analysis - Logit Loglinear Analysis

C. Analysis of Categorical Data

(0.5 Days) Categorical Regression: Define the Scale in the Categorical Regression, Discretization, Missing Values??, Output - Categorical Principal Components Analysis: Defining Scale and Weight, Discretization, Missing Values??, Output

D. Conjoint Analysis

(0.25 Days) Profile Method: Orthogonal Field, Experimental Stimuli, Data Collection and Analysis - Generating an Orthogonal Design - Display

E. Multidimensional Scaling

(0.25 Days) Multidimensional Scaling Analysis of Similarities, Creating Distances from Data - Defining a Model for the Multidimensional Scaling - Multidimensional Unfolding: Defining a Model Output

F. Correspondence Analysis

(0.25 Days) Defining the Row and Column Range in the Correspondence Analysis - Model - Statistics - Charts - Multiple Correspondence Analysis: Definition of the Variables' Weight in the Multiple Correspondence Analysis, Discretization, Missing Values??, Output, Diagrams

G. Analyse von komplexen Stichproben

(0.5 Days) Stichprobenziehung mithilfe eines komplexen Plans - Vorbereiten einer komplexen Stichprobe für die Analyse - Häufigkeiten, Kreuztabellen und Deskriptive Statistiken - Regression für komplexe Stichproben: Logistische Regression, Ordinale Regression, Cox-Regression

H. Direktmarketing

(0.25 Days) RFM-Analyse - Clusteranalyse - Profile über potenzielle Kunden - Responseraten nach Postleitzahlen - Kaufneigung - Kontrollpakettest

A. Statistics



(i) Descriptive Statistics



Overview

Course ID	2020581
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
07-09 Sep 02-04 Nov 28-30 Dec	03-05 Aug 28-30 Sep 23-25 Nov	10-12 Aug 05-07 Oct 30 Nov - 02 Dec

Prices plus local taxes.



Course Description

Descriptive statistics is the discipline of quantitatively describing the main features of a collection of data, or the quantitative description itself. Descriptive statistics are distinguished from inferential statistics (or inductive statistics), in that descriptive statistics aim to summarize a sample, rather than use the data to learn about the population that the sample of data is thought to represent. Univariate analysis involves describing the distribution of a single variable, including its central tendency (including the mean, median, and mode) and dispersion (including the range and quantiles of the data-set, and measures of spread such as the variance and standard deviation). The shape of the distribution may also be described via indices such as skewness and kurtosis. Characteristics of a variable's distribution may also be depicted in graphical or tabular format, including histograms and stem-and-leaf display. When a sample consists of more than one variable, descriptive statistics may be used to describe the relationship between pairs of variables. In this case, descriptive statistics include quantitative measures of dependence. This training covers all the fundamentals of descriptive statistics which can be used in marketing, controlling and engineering. You will learn theory and the mathematical foundations in lectures with examples and you will train your new knowledge in practical hands-on labs and exercises.



Course Outline

A. Introduction to Statistics

(0.25 Days) Descriptive and Inductive Statistics - Uni-/Bi- and Multi-variate Statistics - Summary tables: Grouped data, Frequency distributions, Contingency tables - Statistical graphics: Bar chart, Biplot, Box plot, Histogram

B. Univariate Analysis: Measures of Central Tendency

(0.5 Days) Mean (Arithmetic, Geometric, Harmonic) - Median - Mode

C. Univariate Analysis: Measures of Dispersion

(0.5 Days) Range - Variance and Standard deviation - Coefficient of variation - Percentiles - Interquartile range - Shape: Variance, Skewness, Kurtosis, Moments

D. Univariate Analysis: Measures of Shape

(0.25 Days) Skewness - Kurtosis - Moments

E. Bivariate Analysis: Dependence

(0.75 Days) Continuous data: Pearson product-moment correlation, Partial correlation, Scatter plot - Ordinal data: Rank correlation (Spearman's rho, Kendall's tau) - Categorical data: Contingency tables, Cramer's V, Phi coefficient, Chi coefficient

F. Bivariate Analysis: Regression

(0.75 Days) Linear regression: Simple linear regression, Ordinary least squares - Regression analysis: Errors and residuals, Regression model validation, Estimations - Overview of non-linear regression models



(ii) Descriptive and Inductive Statistics



Overview

Course ID	2020177
Language	en
Duration	5 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	no
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
2,850.00 USD	2,650.00 USD	2,850.00 USD
07-11 Sep 02-06 Nov 28 Dec - 01 Jan	03-07 Aug 28 Sep - 02 Oct 23-27 Nov	10-14 Aug 05-09 Oct 30 Nov - 04 Dec

Prices plus local taxes.



Course Description

Statistics is the study of the collection, organization, analysis, interpretation and presentation of data. It deals with all aspects of data, including the planning of data collection in terms of the design of surveys and experiments. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of data, or the quantitative description itself. Statistical inference (or inductive statistics) is the process of drawing conclusions from data that is subject to random variation, for example, observational errors or sampling variation. This training provides you with a substantial overview of both descriptive and inductive statistics. All topics are firstly explained in presentations with the fundamental mathematical theory and examples followed secondly by hands-on exercises.



Course Outline

A. Introduction to Statistics

(0.5 Days) Descriptive and Inductive Statistics - Uni-/Bi- and Multi-variate Statistics - Summary tables: Grouped data, Frequency distributions, Contingency tables - Statistical graphics: Bar chart, Biplot, Box plot, Histogram

B. Descriptive Statistics: Univariate Analysis

(1 Day) Location: Mean (Arithmetic, Geometric, Harmonic), Median, Mode - Dispersion: Range, Standard deviation, Coefficient of variation, Percentiles, Interquartile range - Shape: Variance, Skewness, Kurtosis, Moments

C. Descriptive Statistics: Bivariate Analysis

(1 Day) Dependence: Pearson product-moment correlation, Rank correlation (Spearman's rho, Kendall's tau), Partial correlation, Scatter plot - Linear regression: Simple linear regression, Ordinary least squares - Regression analysis: Errors and residuals, Regression model validation, Mixed effects models

D. Inductive Statistics: Probability Theory

(0.75 Days) Probability axioms - Probability space Sample space - Elementary event - Random variable - Probability measure - Complementary event - Joint probability - Marginal probability - Conditional probability - Independence - Conditional independence - Law of total probability - Law of large numbers - Bayes' theorem - Venn diagram - Tree diagram

E. Inductive Statistics: Probability Distributions

(0.5 Days) Introduction: Probability mass function, Probability density function, Probability distribution function - Discrete univariate distributions: Binomial, Poisson, Geometric, Hypergeometric - Continuous univariate distributions: Uniform, Exponential, Normal (Gaussian)

F. Inductive Statistics: Frequentist Inference

(0.5 Days) Unbiased estimators (Mean unbiased minimum variance, Median unbiased) - Confidence interval - Testing hypotheses - Alpha-/Beta-Error and Power

G. Inductive Statistics: Specific Tests

(0.75 Days) Z (normal) - Student's t-test - F - Goodness of fit (Chi-squared) - Signed-rank (1-sample, 2-sample, 1-way anova)

(iii) Inferential Statistics for Probability Analysis and Testing



Overview

Course ID	2020583
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,900.00 USD	1,800.00 USD	1,900.00 USD
03-05 Aug 28-30 Sep 23-25 Nov	07-09 Sep 02-04 Nov 28-30 Dec	17-19 Aug 12-14 Oct 07-09 Dec

Prices plus local taxes.



Course Description

In statistics, statistical inference is the process of drawing conclusions from data that is subject to random variation, for example, observational errors or sampling variation. Statistical induction helps describing systems of procedures that can be used to draw conclusions from datasets arising from systems affected by random variation, such as observational errors, random sampling, or random experimentation. It is then used to test hypotheses and make estimations using sample data. This training covers all the fundamentals of inductive statistics (probability theory, probability distributions and hypotheses testing) which can be used in marketing, controlling and engineering. You will learn theory and the mathematical foundations in lectures with examples and you will train your new knowledge in practical hands-on labs and exercises.



Course Outline

A. Probability Theory

(0.75 Days) Probability axioms - Probability space Sample space - Elementary event - Random variable - Probability measure - Complementary event - Joint probability - Marginal probability - Conditional probability - Independence - Conditional independence - Law of total probability - Law of large numbers - Bayes' theorem - Venn diagram - Tree diagram

B. Probability Distributions

(0.75 Days) Introduction: Probability mass function, Probability density function, Probability distribution function - Discrete univariate distributions: Binomial, Poisson, Geometric, Hypergeometric - Continuous univariate distributions: Uniform, Exponential, Normal (Gaussian)

C. Frequentist Inference

(0.75 Days) Unbiased estimators (Mean unbiased minimum variance, Median unbiased) - Confidence interval - Testing hypotheses - Alpha-/Beta-Error and Power

D. Specific Tests

(0.75 Days) Z (normal) - Student's t-test - F - Goodness of fit (Chi-squared) - Signed-rank (1-sample, 2-sample, 1-way anova)



(iv) Multivariate Analysis I



Overview

Course ID	2020576
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Advanced



Course Dates

Chicago	Miami	New York
2,050.00 USD	1,950.00 USD	2,050.00 USD
07-09 Sep 02-04 Nov 28-30 Dec	03-05 Aug 28-30 Sep 23-25 Nov	10-12 Aug 05-07 Oct 30 Nov - 02 Dec

Prices plus local taxes.



Course Description

Multivariate statistics is a form of statistics encompassing the simultaneous observation and analysis of more than one variable. The application of multivariate statistics is multivariate analysis. Multivariate statistics concerns understanding the different aims and background of each of the different forms of multivariate analysis, and how they relate to each other. The practical implementation of multivariate statistics to a particular problem may involve several types of univariate and multivariate analysis in order to understand the relationships between variables and their relevance to the actual problem being studied. This training is one part of a pair of courses on multivariate statistics. It helps you understand the techniques of complex and more advanced data analysis for marketing, controlling and engineering.



Course Outline

A. Multivariate Regression Analysis

(0.5 Days) Determination of a formula that can describe how elements in a vector of variables respond simultaneously to changes in others.

B. Multivariate Analysis of Variance (ANOVA and MANOVA)

(0.5 Days) Comparing multivariate means of several groups using the variance-covariance between variables in testing the statistical significance of the mean differences.

C. Discriminant Analysis

(0.5 Days) Examination whether a set of variables can be used to distinguish between two or more groups of cases.

D. Logistic Regression

(0.5 Days) Prediction of the outcome of a categorical dependent variable based on one or more predictor variables.

E. Factor Analysis

(0.5 Days) Extraction of a specified number of synthetic variables (latent variables or factors), fewer than the original set, leaving the remaining unexplained variation as error.

F. Clustering

(0.5 Days) Assignment of objects into groups (clusters) so that objects (cases) from the same cluster are more similar to each other than objects from different clusters.



(v) Multivariate Analysis II



Overview

Course ID	2020577
Language	en
Duration	3 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Advanced



Course Dates

Chicago	Miami	New York
1,450.00 USD	1,350.00 USD	1,450.00 USD
14-16 Sep 09-11 Nov	31 Aug - 02 Sep 26-28 Oct 28-30 Dec	07-09 Sep 02-04 Nov

Prices plus local taxes.



Course Description

Multivariate statistics is a form of statistics encompassing the simultaneous observation and analysis of more than one variable. The application of multivariate statistics is multivariate analysis. Multivariate statistics concerns understanding the different aims and background of each of the different forms of multivariate analysis, and how they relate to each other. The practical implementation of multivariate statistics to a particular problem may involve several types of univariate and multivariate analysis in order to understand the relationships between variables and their relevance to the actual problem being studied. This training is one part of a pair of courses on multivariate statistics. It helps you understand the techniques of complex and more advanced data analysis for marketing, controlling and engineering.



Course Outline

A. Introduction to Data Mining

(0.125 Days) Data Mining Functionalities - Classification of Data Mining Systems - Data Mining Task Primitives - Integration of a Data Mining System with a Database or DataWarehouse System - Major Issues in Data Mining

B. Data Preprocessing

(0.125 Days) Descriptive Data Summarization - Data Cleaning - Data Integration and Transformation - Data Reduction - Data Discretization and Concept Hierarchy Generation

C. Mining Frequent Patterns, Associations, and Correlations

(0.5 Days) Basic Concepts - Efficient and Scalable Frequent Itemset Mining Methods - Mining Various Kinds of Association Rules - From Association Mining to Correlation Analysis - Constraint-Based Association Mining

D. Classification and Prediction

(0.75 Days) Issues Regarding Classification and Prediction - Classification by Decision Tree Induction - Bayesian Classification - Rule-Based Classification - Classification by Backpropagation - Support Vector Machines - Accuracy and Error Measures - Evaluating the Accuracy of a Classifier or Predictor: Holdout Method and Random Subsampling, Cross-validation - Model Selection

E. Cluster Analysis

(0.25 Days) Types of Data in Cluster Analysis - Partitioning Methods: k-Means and k-Medoids - Hierarchical Methods: Agglomerative and Divisive Hierarchical Clustering

F. Mining Time-Series and Sequence Data

(0.25 Days) Mining Time-Series Data: Trend Analysis, Similarity Search in Time-Series Analysis - Mining Sequence Patterns in Transactional Databases: Sequential Pattern Mining: Concepts and Primitives, Scalable Methods for Mining Sequential Patterns, Periodicity Analysis for Time-Related Sequence Data



(vi) Structural Equation Modelling



Overview

Course ID	2020582
Language	en
Duration	2 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
06-07 Aug 01-02 Oct 26-27 Nov	30-31 Jul 24-25 Sep 19-20 Nov	20-21 Aug 15-16 Oct 10-11 Dec

Prices plus local taxes.



Course Description

Structural equation modelling (SEM) is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions. Structural equation models (SEM) allow both confirmatory and exploratory modeling, meaning they are suited to both theory testing and theory development. Confirmatory modeling usually starts out with a hypothesis that gets represented in a causal model. The concepts used in the model must then be operationalized to allow testing of the relationships between the concepts in the model. The model is tested against the obtained measurement data to determine how well the model fits the data. Among the strengths of SEM is the ability to construct latent variables: variables which are not measured directly, but are estimated in the model from several measured variables each of which is predicted to 'tap into' the latent variables. This allows the modeler to explicitly capture the unreliability of measurement in the model, which in theory allows the structural relations between latent variables to be accurately estimated. Factor analysis, path analysis and regression all represent special cases of SEM.



Course Outline

A. Introduction to Structural Equation Modeling

(0.25 Days) Equivalent models - Steps in performing SEM analysis: Model specification, Estimation of free parameters, Assessment of model and model fit, Model modification, Sample size and power, Interpretation and communication - Advanced uses - SEM-specific software

B. Path Analysis

(0.5 Days) Causality - Latent variable model - Path modeling - Path coefficient - Path tracing rules

C. Causal Analysis using AMOS

(0.75 Days) Analysis of SEM with latent variables (causal analysis) - General modeling and verification process - Construct operationalization - Confirmatory factor analysis for testing reflective measurement models of latent variables (hypothetical constructs) - Testing of hypothesis using the analysis of covariance

D. Variants and Extensions

(0.75 Days) Characteristics of formative measurement models - MIMIC models - Second-order factor analysis (SFA) - multi-group causal analysis and the comparative analysis of causal models in several groups (samples) - Differences between the LISREL approach and the PLS approach - Universal structure modeling



(vii) Time Series Analysis



Overview

Course ID	2020631
Language	en
Duration	2 D ys
Delivery mode	Classroom
Course Type	
Target Group	Data Analysts
Prerequisites	General knowledge of math
Method	Lecture with examples and exercises.
Course level	Beginning



Course Dates

Chicago	Miami	New York
1,400.00 USD	1,350.00 USD	1,400.00 USD
17-18 Sep 12-13 Nov	27-28 Aug 15-16 Oct 03-04 Dec	20-21 Aug 22-23 Oct 10-11 Dec

Prices plus local taxes.



Course Description

Time series analysis comprises methods for analyzing time series data in order to extract meaningful statistics and other characteristics of the data. Time series forecasting is the use of a model to predict future values based on previously observed values. The course provides tools for empirical work with time series data and is an introduction into the foundation of time series models. It focuses on both univariate and multivariate time series analysis. After completing this course, a student will be able to analyze univariate and multivariate time series data using available software like MS Excel, SPSS and jMulti.



Course Outline

A. Univariate analysis of time series data

(0.25 Days) Estimation of the moment-generating functions (expected value, auto-covariance) - auto-correlation: the lag operator, creating and interpreting the correlogram - smoothing of time series data: moving averages, exponential smoothing - transformation and filtering of time series data - first-order and second-order differences

B. Decomposition of time series using deterministic models

(0.5 Days) Component models: additive and multiplicative models - seasonal structures in time series: trend, seasons and identification of the seasonal pattern, prognosis and residual analysis - level shifts - linear, parabolic, logistic, exponential fit and regression of time series - polynomials - quality measures

C. Periodicities in time series

(0.25 Days) Trigonometric functions and their importance for periodic trends - period detection and frequencies - periodogram: identification and interpretation - regression models with periodic oscillations - spectra and spectral density estimation of time series - introduction to Fourier transformation for time series

D. Univariate linear time series models using AR(I)MA

(0.25 Days) Stationarity in time series - White Noise process - AR (Auto Regressive)-models - MA (Moving Average)-models - ARMA and ARIMA models - forecasting - residual analysis - statistical tests for linear time series models - quality measures and model selection

E. Analysis of multidimensional time series

(0.25 Days) Cross-correlation and cross-covariance - stationary cross-covariance - co-integration - introduction to cross-spectral analysis and coherence analysis

F. Multidimensional time series using VAR

(0.25 Days) VAR (Vector AutoRegressive) processes: modeling, prediction, residual analysis, quality measures, tests

G. Time series with exogenous influences

(0.25 Days) Regression with auto-correlated shocks - intervention analysis - transfer function models

b. Disclaimer



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