DOWNLOAD PDF A COURSE IN MULTIVARIATE ANALYSIS

Chapter 1 : Training on Multivariate Data Analysis

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PCA calculates an uncorrelated set of variables known as factors or principal components. These factors are ordered so that the first few retain most of the variation present in all of the original variables. NCSS uses a double-precision version of the modern QL algorithm as described by Press to solve the eigenvalue-eigenvector problem involved in the computations of PCA. The analysis may be carried out using robust estimation techniques. Sample Output [Documentation PDF] Canonical correlation analysis is the study of the linear relationship between two sets of variables. It is the multivariate extension of correlation analysis. By way of illustration, suppose a group of students is each given two tests of ten questions each and you wish to determine the overall correlation between these two tests. Canonical correlation finds a weighted average of the questions from the first test and correlates this with a weighted average of the questions from the second test. Weights are constructed to maximize the correlation between these two averages. This correlation is called the first canonical correlation coefficient. You can then create another set of weighted averages unrelated to the first and calculate their correlation. This correlation is the second canonical correlation coefficient. The process continues until the number of canonical correlations equals the number of variables in the smallest group. Canonical correlation provides the most general multivariate framework Discriminant analysis, MANOVA, and multiple regression are all special cases of canonical correlation. Because of this generality, canonical correlation is probably the least used of the multivariate procedures. Sample Output [Documentation PDF] Discriminant Analysis is a technique used to find a set of prediction equations based on one or more independent variables. These prediction equations are then used to classify individuals into groups. There are two common objectives in discriminant analysis: In many ways, discriminant analysis is much like logistic regression analysis. The methodology used to complete a discriminant analysis is similar to logistic regression analysis. You often plot each independent variable versus the group variable, go through a variable selection phase to determine which independent variables are beneficial, and conduct a residual analysis to determine the accuracy of the discriminant equations. In fact, the roles of the variables are simply reversed. This test is used when the number of response variables is two or more, although it can be used when there is only one response variable. The test requires the assumption that the data are approximately multivariate normal, however randomization tests are provided that do not rely on this assumption. The test requires the assumptions of equal variances and normally distributed residuals, however randomization tests are provided that do not rely on these assumptions. MANOVA is designed for the case where you have one or more independent factors each with two or more levels and two or more dependent variables. The hypothesis tests involve the comparison of vectors of group means. The actual distributions of these test statistics are difficult to calculate, so we rely on approximations based on the F-distribution to calculate p-values. These coordinates are analogous to factors in a principal components analysis used for continuous data except that they partition the Chi-square value used in testing independence instead of the total variance. Often referred to as multiway frequency analysis, it is an extension of the familiar chi-square test for independence in two-way contingency tables. LLM may be used to analyze surveys and questionnaires which have complex interrelationships among the questions. Although questionnaires are often analyzed by considering only two questions at a time, this ignores important three-way and multi-way relationships among the questions. The use of LLM on this type of data is analogous to the use of multiple regression rather that simple correlations on continuous data. Reports in this procedure include multi-term reports, single-term reports, chi-square reports, model reports, parameter estimation reports, and table reports. Sample Output [Documentation PDF] Multidimensional Scaling MDS is a technique that creates a map displaying the relative positions of a number of objects, given only a table of the distances between them. The map may consist of one, two, three, or more dimensions. The procedure calculates either the metric or the non-metric solution. The table of distances is known as the proximity matrix. It arises either directly from experiments or indirectly as a correlation matrix. The program offers two general methods for solving the MDS problem. Hence, this method produces a map

which tries to reproduce the ranks. The distances themselves are not reproduced. I have been exposed to many other analytical and statistical software applications and have found there is no other product on the market that can match the ease of learning, comprehension of function, and the frugality of price the NCSS product offers It has been a vital part of the research initiatives we have conducted over the years. Through each version of NCSS, we have been able to count on its user-friendly design, broad range of statistical tools and a high level of very personalized customer support

Chapter 2 : Multivariate Analysis | Factor Analysis | PCA | MANOVA | NCSS

This is a nice well balanced text on multivariate analysis very suitable as a first course for graduate students. It provides a very good treatment of principal component analysis and discriminant analysis.

Chapter 3 : Quantitative Research Methods: Multivariate | Political Science | MIT OpenCourseWare

About this course: Covering the tools and techniques of both multivariate and geographical analysis, this course provides hands-on experience visualizing data that represents multiple variables. This course will use statistical techniques and software to develop and analyze geographical knowledge.

Chapter 4 : STAT (Applied Multivariate Statistics and Data Mining)

Welcome to STAT - Applied Multivariate Statistical Analysis This is the STAT online course materials website. All of the examples, notes, i.e., the lecture materials will all be found on this website.

Chapter 5 : What does multivariate analysis mean? definition and meaning (Free English Language Dictior

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Chapter 6 : Modern Multivariate Analysis | Programs and Courses

Multivariate analysis techniques may be used for several purposes, such as dimension reduction, clustering, or classification. The primary goal of this short course is to help researchers who want to understand multivariate data and explore multivariate analysis tools.

Chapter 7 : Free online Multivariate courses and MOOCs | Class Central

Introduction to Multivariate Analysis Lecture 1 July 18, ways data are organized in this book/course Multivariate data are a collection of observations (or.

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Chapter 9 : STAT Applied Multivariate Statistical Analysis | STAT ONLINE

Multivariate statistics is a wide field, and many courses at calendrierdelascience.com cover areas not included in this course. These include: Data Mining 1 and Data Mining 2, Cluster Analysis, Logistic Regression, Microarray Analysis,

Factor Analysis, Longitudinal Data, and Missing Data among others.