

jmp multivariate analysis

Unlocking Insights: A Deep Dive into JMP Multivariate Analysis

Introduction:

Are you drowning in data, struggling to uncover hidden patterns and relationships? Multivariate analysis can be the life raft you need. This comprehensive guide will equip you with the knowledge and practical skills to harness the power of JMP, a leading statistical discovery software, for effective multivariate analysis. We'll delve into the various techniques, their applications, and practical examples to help you confidently navigate the complexities of this powerful analytical tool. Whether you're a seasoned statistician or just starting your data analysis journey, this post will provide valuable insights and actionable strategies to improve your analytical capabilities using JMP.

What is JMP Multivariate Analysis?

JMP, developed by SAS, is a powerful statistical discovery software renowned for its intuitive interface and robust analytical capabilities. Its multivariate analysis features allow you to explore complex datasets with multiple variables simultaneously, revealing relationships that might be missed using univariate or bivariate techniques. This isn't just about crunching numbers; it's about extracting meaningful insights that drive better decisions. JMP makes multivariate analysis accessible, even for those without extensive statistical programming experience. Its visual approach to data exploration makes understanding complex relationships easier and faster.

Key Multivariate Techniques in JMP:

This section explores several core multivariate techniques readily available within JMP:

1. Principal Component Analysis (PCA):

PCA is a dimensionality reduction technique used to simplify complex datasets by identifying principal components – new uncorrelated variables that capture the maximum variance in the original data. In JMP, you can easily perform PCA, visualize the results with scatter plots and loading plots, and determine which original variables contribute most significantly to each principal component. This is invaluable for identifying key drivers and reducing data complexity before further analysis. For example, in market

research, PCA can help identify key factors driving customer satisfaction from a large survey.

1. Factor Analysis:

Similar to PCA, factor analysis aims to reduce the dimensionality of data. However, it focuses on uncovering underlying latent factors that explain the correlations between observed variables. JMP provides tools to estimate the number of factors, rotate the factor loadings for better interpretation, and assess the overall model fit. Factor analysis is particularly useful in social sciences, where it can identify underlying constructs influencing observed behaviors or attitudes.

1. Cluster Analysis:

Cluster analysis groups similar observations together based on their characteristics. JMP offers various clustering methods, including k-means and hierarchical clustering. The results are visualized using dendrograms (hierarchical) or scatter plots (k-means), providing a clear picture of the data clusters. This is widely used in market segmentation, customer profiling, and anomaly detection.

1. Discriminant Analysis:

Discriminant analysis is a supervised learning technique used to classify observations into predefined groups based on their characteristics. JMP allows you to perform both linear and quadratic discriminant analysis, assess model accuracy, and visualize the results. This is particularly useful in applications such as medical diagnosis, credit scoring, and spam detection, where classifying observations into distinct categories is crucial.

1. MANOVA (Multivariate Analysis of Variance):

MANOVA extends ANOVA to handle multiple dependent variables simultaneously. JMP makes it easy to compare group means across multiple variables and determine if there are significant differences. This is used in experimental designs where you want to investigate the effects of a treatment on multiple outcome variables.

Interpreting Results and Visualizations in JMP:

JMP's strength lies in its intuitive visual interface. The software provides various graphical tools to interpret the results of multivariate analyses, including:

Scatter plots: Visualizing relationships between variables.

Loading plots: Identifying the contribution of original variables to principal components or factors.

Dendrograms: Representing hierarchical cluster analysis results.

Classification plots: Visualizing the results of discriminant analysis.

Profile plots: Comparing group means across multiple variables in MANOVA.

These visualizations are crucial for understanding the patterns and relationships uncovered by the analysis, making it accessible to both statisticians and non-statisticians.

Practical Applications of JMP Multivariate Analysis:

The applications of JMP multivariate analysis are vast and span numerous fields:

Marketing: Customer segmentation, brand positioning, market research.

Finance: Risk management, portfolio optimization, credit scoring.

Healthcare: Disease diagnosis, clinical trials, drug discovery.

Manufacturing: Process optimization, quality control, defect detection.

Engineering: Design optimization, materials science, reliability analysis.

Case Study: Analyzing Customer Satisfaction Data using JMP

Let's imagine a company wants to understand customer satisfaction. They collect data on various aspects, including product quality, customer service, and pricing. Using JMP, they can perform PCA to identify the key drivers of overall satisfaction, revealing which factors contribute most significantly to customer happiness. This allows the company to focus its improvement efforts on the most impactful areas. Further, cluster analysis can segment customers into distinct groups based on their satisfaction levels, enabling targeted marketing campaigns and personalized service strategies.

A Step-by-Step Guide to Performing PCA in JMP:

1. Import your data: Load your dataset into JMP.
2. Select Analyze > Multivariate Methods > Principal Components: This opens the PCA dialog box.
3. Select your variables: Choose the variables you want to include in the analysis.
4. Run the analysis: JMP will calculate the principal components and

generate various plots and tables.

5. Interpret the results: Examine the eigenvalues, eigenvectors, loading plots, and score plots to understand the relationships between variables and the structure of your data.

Book Outline: Mastering JMP Multivariate Analysis

Book Title: Mastering JMP Multivariate Analysis: From Beginner to Expert

Introduction: What is multivariate analysis? Why use JMP? Setting up your JMP environment.

Chapter 1: Fundamentals of Multivariate Data: Exploring data types, handling missing data, data transformations.

Chapter 2: Principal Component Analysis (PCA): Theory, implementation in JMP, interpreting results, practical examples.

Chapter 3: Factor Analysis: Theory, comparison with PCA, JMP implementation, interpreting factor loadings, rotation methods.

Chapter 4: Cluster Analysis: Different clustering methods (k-means, hierarchical), JMP implementation, cluster validation.

Chapter 5: Discriminant Analysis: Linear and quadratic discriminant analysis, JMP implementation, assessing model performance.

Chapter 6: MANOVA (Multivariate Analysis of Variance): Theory, JMP implementation, interpreting results, post-hoc tests.

Chapter 7: Advanced Techniques: Canonical correlation analysis, correspondence analysis (optional, depending on book length).

Chapter 8: Case Studies: Real-world applications across various industries.

Conclusion: Recap of key concepts, future directions in multivariate analysis.

(Each chapter would then be elaborated upon with detailed explanations, JMP screenshots, and practical examples.)

FAQs:

1. What is the difference between PCA and Factor Analysis? PCA focuses on explaining variance, while factor analysis focuses on uncovering latent factors underlying observed correlations.
1. How do I choose the optimal number of clusters in k-means clustering? Use methods like the elbow method or silhouette analysis to determine the optimal number of clusters.

1. What are the assumptions of MANOVA? Similar to ANOVA, MANOVA assumes multivariate normality, homogeneity of covariance matrices, and independence of observations.
1. Can I use JMP for non-parametric multivariate analysis? While JMP is primarily geared towards parametric methods, some non-parametric alternatives can be implemented using custom scripts or add-ons.
1. How do I handle missing data in my dataset? JMP offers various methods for handling missing data, including imputation and exclusion. The best approach depends on the nature and extent of the missing data.
1. What are the limitations of multivariate analysis? Overfitting, the curse of dimensionality, and the need for sufficient sample size are some limitations.
1. Is JMP suitable for large datasets? JMP can handle large datasets, although performance may vary depending on computer resources and data complexity.
1. How can I improve the interpretability of my multivariate analysis results? Use clear visualizations, focus on practical implications, and avoid overinterpreting statistically significant results.
1. Where can I find more information and resources on JMP multivariate analysis? The SAS website offers extensive documentation, tutorials, and support resources for JMP.

Related Articles:

1. A Beginner's Guide to Multivariate Analysis: An introductory overview of core multivariate techniques.
2. Understanding Principal Component Analysis (PCA) in JMP: A detailed tutorial on PCA in JMP, covering theory and application.
3. Mastering Cluster Analysis with JMP: A guide to various clustering methods and their implementation in JMP.
4. Practical Applications of Discriminant Analysis in JMP: Real-world examples of discriminant analysis using JMP.
5. Interpreting MANOVA Results in JMP: A step-by-step guide to interpreting MANOVA output in JMP.
6. Data Visualization Techniques for Multivariate Analysis: Best practices for creating effective visualizations of multivariate analysis results.
7. Handling Missing Data in JMP for Multivariate Analysis: Strategies for dealing with missing values in multivariate datasets.
8. Comparing PCA and Factor Analysis in JMP: A detailed comparison of PCA and Factor Analysis, including their strengths and limitations.
9. Advanced Multivariate Techniques in JMP: Exploring advanced techniques such as canonical correlation analysis and correspondence analysis.

jmp multivariate analysis: JMP for Basic Univariate and Multivariate Statistics Ann Lehman, PhD, Norm O'Rourke, Ph.D., R.Psych., Larry Hatcher, Ph.D., Edward J. Stepanski, Ph.D., 2013-04-16 Updated for JMP 10, the book provides hands-on tutorials with just the right amount of conceptual and motivational material to illustrate how to use the intuitive interface for data analysis in JMP. Features concept-specific tutorials, examples, brief reviews of concepts, step-by-step illustrations, and exercises.

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jmp multivariate analysis: Fundamentals of Predictive Analytics with JMP, Second Edition Ron Klimberg, B. D. McCullough, 2017-12-19 Going beyond the theoretical foundation, this step-by-step book gives you the technical knowledge and problem-solving skills that you need to perform real-world multivariate data analysis. --

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Each chapter features concept-specific tutorials, examples, brief reviews of concepts, step-by-step illustrations, and exercises. Updated for JMP 13, *JMP Start Statistics, Sixth Edition* includes many new features, including: The redesigned Formula Editor. New and improved ways to create formulas in JMP directly from the data table or dialogs. Interface updates, including improved menu layout. Updates and enhancements in many analysis platforms. New ways to get data into JMP and to save and share JMP results. Many new features that make it easier to use JMP.

jmp multivariate analysis: *Biostatistics Using JMP* Trevor Bihl, 2017-10-03 Analyze your biostatistics data with JMP! Trevor Bihl's *Biostatistics Using JMP: A Practical Guide* provides a practical introduction on using JMP, the interactive statistical discovery software, to solve biostatistical problems. Providing extensive breadth, from summary statistics to neural networks, this essential volume offers a comprehensive, step-by-step guide to using JMP to handle your data. The first biostatistical book to focus on software, *Biostatistics Using JMP* discusses such topics as data visualization, data wrangling, data cleaning, histograms, box plots, Pareto plots, scatter plots, hypothesis tests, confidence intervals, analysis of variance, regression, curve fitting, clustering, classification, discriminant analysis, neural networks, decision trees, logistic regression, survival analysis, control charts, and metaanalysis. Written for university students, professors, those who perform biological/biomedical experiments, laboratory managers, and research scientists, *Biostatistics Using JMP* provides a practical approach to using JMP to solve your biostatistical problems.

jmp multivariate analysis: *Applied Regression Modeling* Iain Pardoe, 2013-01-07 Praise for the First Edition The attention to detail is impressive. The book is very well written and the author is extremely careful with his descriptions . . . the examples are wonderful. —The American Statistician Fully revised to reflect the latest methodologies and emerging applications, *Applied Regression Modeling, Second Edition* continues to highlight the benefits of statistical methods, specifically regression analysis and modeling, for understanding, analyzing, and interpreting multivariate data in business, science, and social science applications. The author utilizes a bounty of real-life examples, case studies, illustrations, and graphics to introduce readers to the world of regression analysis using various software packages, including R, SPSS, Minitab, SAS, JMP, and S-PLUS. In a clear and careful writing style, the book introduces modeling extensions that illustrate more advanced regression techniques, including logistic regression, Poisson regression, discrete choice models, multilevel models, and Bayesian modeling. In addition, the Second Edition features clarification and expansion of challenging topics, such as: Transformations, indicator variables, and interaction Testing model assumptions Nonconstant variance Autocorrelation Variable selection methods Model building and graphical interpretation Throughout the book, datasets and examples have been updated and additional problems are included at the end of each chapter, allowing readers to test their comprehension of the presented material. In addition, a related website features the book's datasets, presentation slides, detailed statistical software instructions, and learning resources including additional problems and instructional videos. With an intuitive approach that is not heavy on mathematical detail, *Applied Regression Modeling, Second Edition* is an excellent book for courses on statistical regression analysis at the upper-undergraduate and graduate level. The book also serves as a valuable resource for professionals and researchers who utilize statistical methods for decision-making in their everyday work.

jmp multivariate analysis: *Statistical Analysis for Business Using JMP* Willbann D. Terpening, 2011 *Statistical Analysis for Business Using JMP: A Student's Guide* by Willbann D. Terpening is a complete and thorough introduction to business statistics using JMP. While designed for introductory business statistics courses at the undergraduate or MBA level, industry professionals wanting to brush up on their knowledge of statistics and those wanting an introduction to using JMP for statistical analysis will also find the book useful. The book starts with an introduction to using JMP in statistical analysis, basic descriptive statistics and graphical analysis, and the fundamentals of inferential statistics. The book then covers more advanced topics in inferential statistics organized around the analysis platforms of JMP. Topics include the effects of a qualitative variable on a

quantitative variable (two group tests and analysis of variance), the effects of a qualitative variable on a qualitative variable (chi-square and contingency tables), the effects of a quantitative variable on a quantitative variable (simple regression and correlation), and the effects of a quantitative variable on a qualitative variable (logistic and multinomial regression). The final chapter provides an introduction to multivariate statistics and multiple regression.

jmp multivariate analysis: Data Management and Analysis Using JMP Jane E Oppenlander, Patricia Schaffer, 2017-10-17 A holistic, step-by-step approach to analyzing health care data! Written for both beginner and intermediate JMP users working in or studying health care, *Data Management and Analysis Using JMP: Health Care Case Studies* bridges the gap between taking traditional statistics courses and successfully applying statistical analysis in the workplace. Authors Jane Oppenlander and Patricia Schaffer begin by illustrating techniques to prepare data for analysis, followed by presenting effective methods to summarize, visualize, and analyze data. The statistical analysis methods covered in the book are the foundational techniques commonly applied to meet regulatory, operational, budgeting, and research needs in the health care field. This example-driven book shows practitioners how to solve real-world problems by using an approach that includes problem definition, data management, selecting the appropriate analysis methods, step-by-step JMP instructions, and interpreting statistical results in context. Practical strategies for selecting appropriate statistical methods, remediating data anomalies, and interpreting statistical results in the domain context are emphasized. The cases presented in *Data Management and Analysis Using JMP* use multiple statistical methods. A progression of methods--from univariate to multivariate--is employed, illustrating a logical approach to problem-solving. Much of the data used in these cases is open source and drawn from a variety of health care settings. The book offers a welcome guide to working professionals as well as students studying statistics in health care-related fields.

jmp multivariate analysis: Practical Data Analysis with JMP, Third Edition Robert Carver, 2019-10-18 Master the concepts and techniques of statistical analysis using JMP *Practical Data Analysis with JMP, Third Edition*, highlights the powerful interactive and visual approach of JMP to introduce readers to statistical thinking and data analysis. It helps you choose the best technique for the problem at hand by using real-world cases. It also illustrates best-practice workflow throughout the entire investigative cycle, from asking valuable questions through data acquisition, preparation, analysis, interpretation, and communication of findings. The book can stand on its own as a learning resource for professionals, or it can be used to supplement a college-level textbook for an introductory statistics course. It includes varied examples and problems using real sets of data. Each chapter typically starts with an important or interesting research question that an investigator has pursued. Reflecting the broad applicability of statistical reasoning, the problems come from a wide variety of disciplines, including engineering, life sciences, business, and economics, as well as international and historical examples. Application Scenarios at the end of each chapter challenge you to use your knowledge and skills with data sets that go beyond mere repetition of chapter examples. New in the third edition, chapters have been updated to demonstrate the enhanced capabilities of JMP, including projects, Graph Builder, Query Builder, and Formula Depot.

jmp multivariate analysis: Practical Data Analysis with JMP Robert Carver, SAS Institute, 2010 *Practical Data Analysis with JMP* uses the powerful interactive and visual approach of JMP to introduce readers to the logic and methods of statistical thinking and data analysis. The book can stand on its own or be used to supplement a standard introduction-to-statistics textbook.

jmp multivariate analysis: Douglas Montgomery's Introduction to Statistical Quality Control Brenda S. Ramirez, M.S., Jose G. Ramirez, Ph.D., 2018-10-04 Master Statistical Quality Control using JMP ! Using examples from the popular textbook by Douglas Montgomery, *Introduction to Statistical Quality Control: A JMP Companion* demonstrates the powerful Statistical Quality Control (SQC) tools found in JMP. Geared toward students and practitioners of SQC who are using these techniques to monitor and improve products and processes, this companion provides step-by-step instructions on how to use JMP to generate the output and solutions found in Montgomery's book.

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jmp multivariate analysis: JMP for Mixed Models Ruth Hummel, Elizabeth A. Claassen, Russell D. Wolfinger, 2021-06-09 Discover the power of mixed models with JMP and JMP Pro. Mixed models are now the mainstream method of choice for analyzing experimental data. Why? They are arguably the most straightforward and powerful way to handle correlated observations in designed experiments. Reaching well beyond standard linear models, mixed models enable you to make accurate and precise inferences about your experiments and to gain deeper understanding of sources of signal and noise in the system under study. Well-formed fixed and random effects generalize well and help you make the best data-driven decisions. JMP for Mixed Models brings together two of the strongest traditions in SAS software: mixed models and JMP. JMP's groundbreaking philosophy of tight integration of statistics with dynamic graphics is an ideal milieu within which to learn and apply mixed models, also known as hierarchical linear or multilevel models. If you are a scientist or engineer, the methods described herein can revolutionize how you analyze experimental data without the need to write code. Inside you'll find a rich collection of examples and a step-by-step approach to mixed model mastery. Topics include: Learning how to appropriately recognize, set up, and interpret fixed and random effects Extending analysis of variance (ANOVA) and linear regression to numerous mixed model designs Understanding how degrees of freedom work using Skeleton ANOVA Analyzing randomized block, split-plot, longitudinal, and repeated measures designs Introducing more advanced methods such as spatial covariance and generalized linear mixed models Simulating mixed models to assess power and other important sampling characteristics Providing a solid framework for understanding statistical modeling in general Improving perspective on modern dilemmas around Bayesian methods, p-values, and causal inference

jmp multivariate analysis: Analysis of Repeated Measures Martin J. Crowder, David J. Hand, 2017-10-24 Repeated measures data arise when the same characteristic is measured on each case or subject at several times or under several conditions. There is a multitude of techniques available for analysing such data and in the past this has led to some confusion. This book describes the whole spectrum of approaches, beginning with very simple and crude methods, working through intermediate techniques commonly used by consultant statisticians, and concluding with more recent and advanced methods. Those covered include multiple testing, response feature analysis, univariate analysis of variance approaches, multivariate analysis of variance approaches, regression models, two-stage line models, approaches to categorical data and techniques for analysing crossover designs. The theory is illustrated with examples, using real data brought to the authors during their work as statistical consultants.

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- Detailed discussions on sampling distributions, statistical estimation of population parameters, hypothesis testing, reliability theory, statistical quality control including Phase I and Phase II control charts, and process capability indices
- A clear presentation of nonparametric methods and simple and multiple linear regression methods, as well as a brief discussion on logistic regression method
- Comprehensive guidance on the design of experiments, including randomized block designs, one- and two-way layout designs, Latin square designs, random effects and mixed effects models, factorial and fractional factorial designs, and response surface methodology
- A companion website containing data sets for Minitab and Microsoft Office Excel, as well as JMP® routines and results

Assuming no background in probability and statistics, *Statistics and Probability with Applications for Engineers and Scientists* features a unique, yet tried-and-true, approach that is ideal for all undergraduate students as well as statistical practitioners who analyze and illustrate real-world data in engineering and the natural sciences.

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Montgomery's textbook, and Design and Analysis of Experiments by Douglas Montgomery: A Supplement for Using JMP, users will be able to fit the design to the problem, instead of fitting the problem to the design. This book is part of the SAS Press program.

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jmp multivariate analysis: SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics Daniel J. Denis, 2018-09-25 Enables readers to start doing actual data analysis fast for a truly hands-on learning experience This concise and very easy-to-use primer introduces readers to a host of computational tools useful for making sense out of data, whether that data come from the social, behavioral, or natural sciences. The book places great emphasis on both data analysis and drawing conclusions from empirical observations. It also provides formulas where needed in many places, while always remaining focused on concepts rather than mathematical abstraction. SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics offers a variety of popular statistical analyses and data management tasks using SPSS that readers can immediately apply as needed for their own research, and emphasizes many helpful computational tools used in the discovery of empirical patterns. The book begins with a review of essential statistical principles before introducing readers to SPSS. The book then goes on to offer chapters on: Exploratory Data Analysis, Basic Statistics, and Visual Displays; Data Management in SPSS; Inferential Tests on Correlations, Counts, and Means; Power Analysis and Estimating Sample Size; Analysis of Variance - Fixed and Random Effects; Repeated Measures ANOVA; Simple and Multiple Linear Regression; Logistic Regression; Multivariate Analysis of Variance (MANOVA) and Discriminant Analysis; Principal Components Analysis; Exploratory Factor Analysis; and Non-Parametric Tests. This helpful resource allows readers to: Understand data analysis in practice rather than delving too deeply into abstract mathematical concepts Make use of computational tools used by data analysis professionals. Focus on real-world application to apply concepts from the book to actual research Assuming only minimal, prior knowledge of statistics, SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics is an excellent "how-to" book for undergraduate and graduate students alike. This book is also a welcome resource for researchers and professionals who require a quick, go-to source for performing essential statistical analyses and data management tasks.

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jmp multivariate analysis: Discovering Partial Least Squares with JMP Ian Cox, Marie Gaudard, 2013-10-01 Partial Least Squares (PLS) is a flexible statistical modeling technique that

applies to data of any shape. It models relationships between inputs and outputs even when there are more predictors than observations. Using JMP statistical discovery software from SAS, *Discovering Partial Least Squares with JMP* explores PLS and positions it within the more general context of multivariate analysis. Ian Cox and Marie Gaudard use a “learning through doing” style. This approach, coupled with the interactivity that JMP itself provides, allows you to actively engage with the content. Four complete case studies are presented, accompanied by data tables that are available for download. The detailed “how to” steps, together with the interpretation of the results, help to make this book unique. *Discovering Partial Least Squares with JMP* is of interest to professionals engaged in continuing development, as well as to students and instructors in a formal academic setting. The content aligns well with topics covered in introductory courses on: psychometrics, customer relationship management, market research, consumer research, environmental studies, and chemometrics. The book can also function as a supplement to courses in multivariate statistics and to courses on statistical methods in biology, ecology, chemistry, and genomics. While the book is helpful and instructive to those who are using JMP, a knowledge of JMP is not required, and little or no prior statistical knowledge is necessary. By working through the introductory chapters and the case studies, you gain a deeper understanding of PLS and learn how to use JMP to perform PLS analyses in real-world situations. This book motivates current and potential users of JMP to extend their analytical repertoire by embracing PLS. Dynamically interacting with JMP, you will develop confidence as you explore underlying concepts and work through the examples. The authors provide background and guidance to support and empower you on this journey. This book is part of the SAS Press program.

jmp multivariate analysis: Preparing Data for Analysis with JMP Robert Carver, 2017-05-01
 Access and clean up data easily using JMP®! Data acquisition and preparation commonly consume approximately 75% of the effort and time of total data analysis. JMP provides many visual, intuitive, and even innovative data-preparation capabilities that enable you to make the most of your organization's data. *Preparing Data for Analysis with JMP®* is organized within a framework of statistical investigations and model-building and illustrates the new data-handling features in JMP, such as the Query Builder. Useful to students and programmers with little or no JMP experience, or those looking to learn the new data-management features and techniques, it uses a practical approach to getting started with plenty of examples. Using step-by-step demonstrations and screenshots, this book walks you through the most commonly used data-management techniques that also include lots of tips on how to avoid common problems. With this book, you will learn how to: Manage database operations using the JMP Query Builder Get data into JMP from other formats, such as Excel, csv, SAS, HTML, JSON, and the web Identify and avoid problems with the help of JMP's visual and automated data-exploration tools Consolidate data from multiple sources with Query Builder for tables Deal with common issues and repairs that include the following tasks: reshaping tables (stack/unstack) managing missing data with techniques such as imputation and Principal Components Analysis cleaning and correcting dirty data computing new variables transforming variables for modelling reconciling time and date Subset and filter your data Save data tables for exchange with other platforms

jmp multivariate analysis: Total Least Squares and Errors-in-Variables Modeling S. van Huffel, P. Lemmerling, 2013-03-14 In response to a growing interest in Total Least Squares (TLS) and Errors-In-Variables (EIV) modeling by researchers and practitioners, well-known experts from several disciplines were invited to prepare an overview paper and present it at the third international workshop on TLS and EIV modeling held in Leuven, Belgium, August 27-29, 2001. These invited papers, representing two-thirds of the book, together with a selection of other presented contributions yield a complete overview of the main scientific achievements since 1996 in TLS and Errors-In-Variables modeling. In this way, the book nicely completes two earlier books on TLS (SIAM 1991 and 1997). Not only computational issues, but also statistical, numerical, algebraic properties are described, as well as many new generalizations and applications. Being aware of the growing interest in these techniques, it is a strong belief that this book will aid and stimulate users

to apply the new techniques and models correctly to their own practical problems.

jmp multivariate analysis: Business Statistics for Competitive Advantage with Excel and JMP Cynthia Fraser,

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investigator misconduct, snapshot comparisons to more easily identify new or modified data, and other novel visual and analytical techniques to enhance safety and quality reviews. Further discussion highlights recent regulatory guidance documents on risk-based approaches, addresses the requirements for CDISC data, and describes methods to supplement analyses with data captured external to the study database. Given the interactive, dynamic, and graphical nature of JMP Clinical, any individual from the clinical trial team - including clinicians, statisticians, data managers, programmers, regulatory associates, and monitors - can make use of this book and the numerous examples contained within to streamline, accelerate, and enrich their reviews of clinical trial data. The analytical methods described in Risk-Based Monitoring and Fraud Detection in Clinical Trials Using JMP and SAS enable the clinical trial team to take a proactive approach to data quality and safety to streamline clinical development activities and address shortcomings while the study is ongoing. This book is part of the SAS Press

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