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Analyzing Categorical Data Nov 20 2021 Categorical data arise often in many fields, including biometrics, economics, management, manufacturing, marketing, psychology, and sociology. This book provides an introduction to the analysis of such data. The coverage is broad, using the loglinear Poisson regression model and logistic binomial regression models as the primary engines for methodology. Topics covered include count regression models, such as Poisson, negative binomial, zero-inflated, and zero-truncated models; loglinear models for two-dimensional and multidimensional contingency tables, including for square tables and tables with ordered categories; and regression models for two-category (binary) and multiple-category target variables, such as logistic and proportional odds models. All methods are illustrated with analyses of real data examples, many from recent subject area journal articles. These analyses are highlighted in the text, and are more detailed than is typical, providing discussion of the context and background of the problem, model checking, and scientific implications. More than 200 exercises are provided, many also based on recent subject area literature. Data sets and computer code are available at a web site devoted to the text. Adopters of this book may request a solutions manual from: textbook@springer-ny.com. From the reviews: "Jeff Simonoff's book is at the top of the heap of categorical data analysis textbooks...The examples are superb. Student reactions in a class I taught from this text were uniformly positive, particularly because of the examples and exercises. Additional materials related to the book, particularly code for S-Plus, SAS, and R, useful for analysis of examples, can be found at the author's Web site at New York University. I liked this book for this reason, and recommend it to you for pedagogical purposes." (Stanley Wasserman, *The American Statistician*, August 2006, Vol. 60, No. 3) "The book has various noteworthy features. The examples used are from a variety of topics, including medicine, economics, sports, mining, weather, as well as social aspects like needle-exchange programs. The examples motivate the theory and also illustrate nuances of data analytical procedures. The book also incorporates several newer methods for analyzing categorical data, including zero-inflated Poisson models, robust analysis of binomial and poisson models, sandwich estimators, multinomial smoothing, ordinal agreement tables...this is definitely a good reference book for any researcher working with categorical data." *Technometrics*, May 2004 "This guide provides a practical approach to the appropriate analysis of categorical data and would be a suitable purchase for individuals with varying levels of statistical understanding." *Paediatric and Perinatal Epidemiology*, 2004, 18 "This book gives a fresh approach to the topic of categorical data analysis. The presentation of the statistical methods exploits the connection to regression modeling with a focus on practical features rather than formal theory...There is much to learn from this book. Aside from the ordinary materials such as association diagrams, Mantel-Haenszel estimators, or overdispersion, the reader will also find some less-often presented but interesting and stimulating topics...[T]his is an excellent book, giving an up-to-date introduction to the wide field of analyzing categorical data." *Biometrics*, September 2004 "...It is of great help to data analysts, practitioners and researchers who deal with categorical data and need to get a necessary insight into the methods of analysis as well as practical guidelines for solving problems." *International Journal of General Systems*, August 2004 "The author has succeeded in writing a useful and readable textbook combining most of general theory and practice of count data." *Kwantitatieve Methoden* "The book especially stresses how to analyze and interpret data...In fact, the highly detailed multi-page descriptions of analysis and interpretation make the book stand out." *Mathematical Geology*, February 2005 "Overall, this is a competent and detailed text that I would recommend to anyone dealing with the analysis of categorical data." *Journal of the Royal Statistical Society* "This important work allows for clear analogies between the well-known linear models for Gaussian data and categorical data problems. ... Jeffrey Simonoff's *Analyzing Categorical Data* provides an introduction to many of the important ideas and methods for understanding counted data and tables of counts. ... Some readers will find Simonoff's style very much to their liking due to reliance on extended real data examples to illuminate ideas. ... I think the extensive examples will appeal to most students." (Sanford Weisberg, *SIAM Review*, Vol. 47 (4), 2005) "It is clear that the focus of Simonoff's book is different from other books on categorical data analysis. ... As an introductory textbook, the book is comprehensive enough since all basic topics in categorical data analysis are discussed. ... I think Simonoff's book is a valuable addition to the literature because it discusses important models for counts" (Jeroen K. Vermunt, *Statistics in Medicine*, Vol. 24, 2005) "The author based this book on his notes for a class with a very diverse pool of students. The material is presented in such a way that a very heterogeneous group of students could grasp it. All methods are illustrated with analyses of real data examples. The author provides a detailed discussion of the context and background of the problem. ... The book is very interesting and can be warmly recommended to people working with categorical data." (*EMS - European Mathematical Society Newsletter*, December, 2004) "Categorical data arise often in many fields This book provides an introduction to the analysis of such data. ... All methods are illustrated with analyses of real data examples, many from recent subject-area journal articles. These analyses are highlighted in the text and are more detailed than is typical More than 200 exercises are provided,

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Categorical Data Analysis for the Behavioral and Social Sciences Apr 13 2021 Featuring a practical approach with numerous examples, the second edition of *Categorical Data Analysis for the Behavioral and Social Sciences* focuses on helping the reader develop a conceptual understanding of categorical methods, making it a much more accessible text than others on the market. The authors cover common categorical analysis methods and emphasize specific research questions that can be addressed by each analytic procedure, including how to obtain results using SPSS, SAS, and R, so that readers are able to address the research questions they wish to answer. Each chapter begins with a 'Look Ahead' section to highlight key content. This is followed by an in-depth focus and explanation of the relationship between the initial research question, the use of software to perform the analyses, and how to interpret the output substantively. Included at the end of each chapter are a range of software examples and questions to test knowledge. New to the Second Edition: The addition of R syntax for all analyses and an update of SPSS and SAS syntax. The addition of a new chapter on GLMMs. Clarification of concepts and ideas that graduate students found confusing, including revised problems at the end of the chapters. Written for those without an extensive mathematical background, this book is ideal for a graduate course in categorical data analysis taught in departments of psychology, educational psychology, human development and family studies, sociology, public health, and business. Researchers in these disciplines interested in applying these procedures will also appreciate this book's accessible approach.

Categorical Data Analysis Using SAS, Third Edition Nov 28 2019 Statisticians and researchers will find *Categorical Data Analysis Using SAS, Third Edition*, by Maura Stokes, Charles Davis, and Gary Koch, to be a useful discussion of categorical data analysis techniques as well as an invaluable aid in applying these methods with SAS. Practical examples from a broad range of applications illustrate the use of the `FREQ`, `LOGISTIC`, `GENMOD`, `NPARIWAY`, and `CATMOD` procedures in a variety of analyses. Topics discussed include assessing association in contingency tables and sets of tables, logistic regression and conditional logistic regression, weighted least squares modeling, repeated measurements analyses, loglinear models, generalized estimating equations, and bioassay analysis. The third edition updates the use of SAS/STAT software to SAS/STAT 12.1 and incorporates ODS Graphics. Many additional SAS statements and options are employed, and graphs such as effect plots, odds ratio plots, regression diagnostic plots, and agreement plots are discussed. The material has also been revised and reorganized to reflect the evolution of categorical data analysis strategies. Additional techniques include such topics as exact Poisson regression, partial proportional odds models, Newcombe confidence intervals, incidence density ratios, and so on. SAS Products and Releases: Base SAS: 9.3_M1, 9.3, 9.21_M3, 9.21_M2, 9.21_M1, 9.21, 9.2, 9.1.3, 9.1.2, 9.1, 9.0 SAS/STAT: 9.3_M1, 9.3, 9.22, 9.21_M1, 9.21, 9.2, 9.1.3, 9.1.2, 9.1, 9.0 Operating Systems: All

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class with a very diverse pool of students. The material is presented in such a way that a very heterogeneous group of students could grasp it. All methods are illustrated with analyses of real data examples. The author provides a detailed discussion of the context and background of the problem. ... The book is very interesting and can be warmly recommended to people working with categorical data." (EMS - European Mathematical Society Newsletter, December, 2004) "Categorical data arise often in many fields This book provides an introduction to the analysis of such data. ... All methods are illustrated with analyses of real data examples, many from recent subject-area journal articles. These analyses are highlighted in the text and are more detailed than is typical More than 200 exercises are provided, including many based on recent subject-area literature. Data sets and computer code are available at a Web site devoted to this text." (T. Postelnicu, Zentralblatt MATH, Vol. 1028, 2003) "This book grew out of notes prepared by the author for classes in categorical data analysis. The presentation is fresh and compelling to read. Regression ideas are used to motivate the modelling presented. The book focuses on applying methods to real problems; many of these will be novel to readers of statistics texts All chapters end with a section providing references to books or articles for the inquiring reader." (C.M. O'Brien, Short Book Reviews, Vol. 23 (3), 2003)

Analysis of Categorical Data with R Aug 30 2022 Learn How to Properly Analyze Categorical Data Analysis of Categorical Data with R presents a modern account of categorical data analysis using the popular R software. It covers recent techniques of model building and assessment for binary, multcategory, and count response variables and discusses fundamentals, such as odds ratio and probability estimation. The authors give detailed advice and guidelines on which procedures to use and why to use them. The Use of R as Both a Data Analysis Method and a Learning Tool Requiring no prior experience with R, the text offers an introduction to the essential features and functions of R. It incorporates numerous examples from medicine, psychology, sports, ecology, and other areas, along with extensive R code and output. The authors use data simulation in R to help readers understand the underlying assumptions of a procedure and then to evaluate the procedure's performance. They also present many graphical demonstrations of the features and properties of various analysis methods. Web Resource The data sets and R programs from each example are available at www.chrisbilder.com/categorical. The programs include code used to create every plot and piece of output. Many of these programs contain code to demonstrate additional features or to perform more detailed analyses than what is in the text. Designed to be used in tandem with the book, the website also uniquely provides videos of the authors teaching a course on the subject. These videos include live, in-class recordings, which instructors may find useful in a blended or flipped classroom setting. The videos are also suitable as a substitute for a short course.

An Introduction to Categorical Data Analysis Jun 27 2022 Praise for the First Edition "This is a superb text from which to teach categorical data analysis, at a variety of levels. . . [t]his book can be very highly recommended." —Short Book Reviews "Of great interest to potential readers is the variety of fields that are represented in the examples: health care, financial, government, product marketing, and sports, to name a few." —Journal of Quality Technology "Alan Agresti has written another brilliant account of the analysis of categorical data." —The Statistician The use of statistical methods for categorical data is ever increasing in today's world. *An Introduction to Categorical Data Analysis, Second Edition* provides an applied introduction to the most important methods for analyzing categorical data. This new edition summarizes methods that have long played a prominent role in data analysis, such as chi-squared tests, and also places special emphasis on logistic regression and other modeling techniques for univariate and correlated multivariate categorical responses. This Second Edition features: Two new chapters on the methods for clustered data, with an emphasis on generalized estimating equations (GEE) and random effects models A unified perspective based on generalized linear models An emphasis on logistic regression modeling An appendix that demonstrates the use of SAS(r) for all methods An entertaining historical perspective on the development of the methods Specialized methods for ordinal data, small samples, multcategory data, and matched pairs More than 100 analyses of real data sets and nearly 300 exercises Written in an applied, nontechnical style, the book illustrates methods using a wide variety of real data, including medical clinical trials, drug use by teenagers, basketball shooting, horseshoe crab mating, environmental opinions, correlates of happiness, and much more. *An Introduction to Categorical Data Analysis, Second Edition* is an invaluable tool for social, behavioral, and biomedical scientists, as well as researchers in public health, marketing, education, biological and agricultural sciences, and industrial quality control.

Statistics in a Nutshell Jul 17 2021 A clear and concise introduction and reference for anyone new to the subject of statistics.

Graphical Tools for the Exploration of Multivariate Categorical Data Feb 09 2021

Applied Categorical Data Analysis and Translational Research Apr 01 2020 An updated treatment of categorical data analysis in the biomedical sciences that now explores applications to translational research Thoroughly updated with the latest advances in the field, *Applied Categorical Data Analysis and Translational Research, Second Edition* maintains the accessible style of its predecessor while also exploring the importance of translational research as it relates to basic scientific findings within clinical practice. With its easy-to-follow style, updated coverage of major methodologies, and broadened scope of coverage, this new edition provides an accessible guide to statistical methods involving categorical data and the steps to their application in problem solving in the biomedical sciences. Delving even further into the applied direction, this update offers many real-world examples from biomedicine, epidemiology, and public health along with detailed case studies taken straight from modern research in these fields. Additional features of the Second Edition include: A new chapter on the relationship between translational research and categorical data, focusing on design study, bioassay, and Phase I and Phase II clinical trials A new chapter on categorical data and diagnostic medicine, with coverage of the diagnostic process, prevalence surveys, the ROC function and ROC curve, and important statistical considerations A revised chapter on logistic regression models featuring an updated treatment of simple and multiple regression analysis An added section on quantal bioassays Each chapter features updated and new exercise sets along with numerous graphs that demonstrate the highly visual nature of the topic. A related Web site features the book's examples as well as additional data sets that can be worked with using SAS® software. The only book of its kind to provide balanced coverage of methods for both categorical data and translational research, *Applied Categorical Data Analysis and Translational Research, Second Edition* is an excellent book for courses on applied statistics and biostatistics at the upper-undergraduate and graduate levels. It is also a valuable reference for researchers and practitioners in the biomedical and public health fields.

Visualizing Categorical Data Sep 26 2019 Graphical methods for quantitative data are well developed and widely used. However, until now with this comprehensive treatment, few graphical methods existed for categorical data. In this innovative book, the author presents many aspects of the relationships among variables, the adequacy of a fitted model, and possibly unusual features of the data that can best be seen and appreciated in an informative graphical display.

Regression for Categorical Data Dec 30 2019 This book introduces basic and advanced concepts of categorical regression with a focus on the structuring constituents of regression, including regularization techniques to structure predictors. In addition to standard methods such as the logit and probit model and extensions to multivariate settings, the author presents more recent developments in flexible and high-

dimensional regression, which allow weakening of assumptions on the structuring of the predictor and yield fits that are closer to the data. A generalized linear model is used as a unifying framework whenever possible in particular parametric models that are treated within this framework. Many topics not normally included in books on categorical data analysis are treated here, such as nonparametric regression; selection of predictors by regularized estimation procedures; ternative models like the hurdle model and zero-inflated regression models for count data; and non-standard tree-based ensemble methods. The book is accompanied by an R package that contains data sets and code for all the examples.

An Introduction to Categorical Data Analysis Sep 30 2022 A valuable new edition of a standard reference The use of statistical methods for categorical data has increased dramatically, particularly for applications in the biomedical and social sciences. An Introduction to Categorical Data Analysis, Third Edition summarizes these methods and shows readers how to use them using software. Readers will find a unified generalized linear models approach that connects logistic regression and loglinear models for discrete data with normal regression for continuous data. Adding to the value in the new edition is:

- Illustrations of the use of R software to perform all the analyses in the book
- A new chapter on alternative methods for categorical data, including smoothing and regularization methods (such as the lasso), classification methods such as linear discriminant analysis and classification trees, and cluster analysis
- New sections in many chapters introducing the Bayesian approach for the methods of that chapter
- More than 70 analyses of data sets to illustrate application of the methods, and about 200 exercises, many containing other data sets
- An appendix showing how to use SAS, Stata, and SPSS, and an appendix with short solutions to most odd-numbered exercises

Written in an applied, nontechnical style, this book illustrates the methods using a wide variety of real data, including medical clinical trials, environmental questions, drug use by teenagers, horseshoe crab mating, basketball shooting, correlates of happiness, and much more. An Introduction to Categorical Data Analysis, Third Edition is an invaluable tool for statisticians and biostatisticians as well as methodologists in the social and behavioral sciences, medicine and public health, marketing, education, and the biological and agricultural sciences.

Categorical Variables in Developmental Research Aug 18 2021 Categorical Variables in Developmental Research provides developmental researchers with the basic tools for understanding how to utilize categorical variables in their data analysis. Covering the measurement of individual differences in growth rates, the measurement of stage transitions, latent class and log-linear models, chi-square, and more, the book provides a means for developmental researchers to make use of categorical data. Measurement and repeated observations of categorical data Catastrophe theory Latent class and log-linear models Applications

Analysis of Ordinal Categorical Data Sep 18 2021 Statistical science's first coordinated manual of methods for analyzing ordered categorical data, now fully revised and updated, continues to present applications and case studies in fields as diverse as sociology, public health, ecology, marketing, and pharmacy. Analysis of Ordinal Categorical Data, Second Edition provides an introduction to basic descriptive and inferential methods for categorical data, giving thorough coverage of new developments and recent methods. Special emphasis is placed on interpretation and application of methods including an integrated comparison of the available strategies for analyzing ordinal data. Practitioners of statistics in government, industry (particularly pharmaceutical), and academia will want this new edition.

R for Data Science Aug 25 2019 Learn how to use R to turn raw data into insight, knowledge, and understanding. This book introduces you to R, RStudio, and the tidyverse, a collection of R packages designed to work together to make data science fast, fluent, and fun. Suitable for readers with no previous programming experience, R for Data Science is designed to get you doing data science as quickly as possible. Authors Hadley Wickham and Garrett Grolemund guide you through the steps of importing, wrangling, exploring, and modeling your data and communicating the results. You'll get a complete, big-picture understanding of the data science cycle, along with basic tools you need to manage the details. Each section of the book is paired with exercises to help you practice what you've learned along the way. You'll learn how to: Wrangle—transform your datasets into a form convenient for analysis Program—learn powerful R tools for solving data problems with greater clarity and ease Explore—examine your data, generate hypotheses, and quickly test them Model—provide a low-dimensional summary that captures true "signals" in your dataset Communicate—learn R Markdown for integrating prose, code, and results

The Analysis of Categorical Data Using GLIM Aug 06 2020 This book shows how to apply log linear and logistic models to categorical data using GLIM. Each model is illustrated by a numerical example. All of the necessary programs in the GLIM macro language are supplied, as well as all data for the examples. The material has been the contents of a course for social science students, but would also be useful for applied statistics courses in such varied fields as medicine, geography, economics, biology,... It should also be extremely useful for research workers in these and other fields where such models are applied, since it provides a step by step explanation of how to analyse such data using these models. Almost all of the GLIM macro programs are new and have not previously appeared in the literature. Nor have many of the logistic/log linear models been applied using GLIM before.

Categorical Data Analysis by Example Jul 05 2020 Introduces the key concepts in the analysis of categorical data with illustrative examples and accompanying R code This book is aimed at all those who wish to discover how to analyze categorical data without getting immersed in complicated mathematics and without needing to wade through a large amount of prose. It is aimed at researchers with their own data ready to be analyzed and at students who would like an approachable alternative view of the subject. Each new topic in categorical data analysis is illustrated with an example that readers can apply to their own sets of data. In many cases, R code is given and excerpts from the resulting output are presented. In the context of log-linear models for cross-tabulations, two specialties of the house have been included: the use of cobweb diagrams to get visual information concerning significant interactions, and a procedure for detecting outlier category combinations. The R code used for these is available and may be freely adapted. In addition, this book: Uses an example to illustrate each new topic in categorical data Provides a clear explanation of an important subject Is understandable to most readers with minimal statistical and mathematical backgrounds Contains examples that are accompanied by R code and resulting output Includes starred sections that provide more background details for interested readers Categorical Data Analysis by Example is a reference for students in statistics and researchers in other disciplines, especially the social sciences, who use categorical data. This book is also a reference for practitioners in market research, medicine, and other fields.

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included: the use of cobweb diagrams to get visual information concerning significant interactions, and a procedure for detecting outlier category combinations. The R code used for these is available and may be freely adapted. In addition, this book: Uses an example to illustrate each new topic in categorical data Provides a clear explanation of an important subject Is understandable to most readers with minimal statistical and mathematical backgrounds Contains examples that are accompanied by R code and resulting output Includes starred sections that provide more background details for interested readers

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A Course in Categorical Data Analysis Oct 20 2021 Categorical data-comprising counts of individuals, objects, or entities in different categories-emerge frequently from many areas of study, including medicine, sociology, geology, and education. They provide important statistical information that can lead to real-life conclusions and the discovery of fresh knowledge. Therefore, the ability to manipulate, understand, and interpret categorical data becomes of interest-if not essential-to professionals and students in a broad range of disciplines. Although t-tests, linear regression, and analysis of variance are useful, valid methods for analysis of measurement data, categorical data requires a different methodology and techniques typically not encountered in introductory statistics courses. Developed from long experience in teaching categorical analysis to a multidisciplinary mix of undergraduate and graduate students, A Course in Categorical Data Analysis presents the easiest, most straightforward ways of extracting real-life conclusions from contingency tables. The author uses a Fisherian approach to categorical data analysis and incorporates numerous examples and real data sets. Although he offers S-PLUS routines through the Internet, readers do not need full knowledge of a statistical software package. In this unique text, the author chooses methods and an approach that nurtures intuitive thinking. He trains his readers to focus not on finding a model that fits the data, but on using different models that may lead to meaningful conclusions. The book offers some simple, innovative techniques not highlighted in other texts that help make the book accessible to a broad, interdisciplinary audience. A Course in Categorical Data Analysis enables readers to quickly use its offering of tools for drawing scientific, medical, or real-life conclusions from categorical data sets.

Statistical Methods for Categorical Data Analysis Jan 29 2020 This book provides a comprehensive introduction to methods and models for categorical data analysis and their applications in social science research. Companion website also available, at <https://webspace.utexas.edu/dpowers/www/>

Introduction to the Statistical Analysis of Categorical Data May 03 2020 to the Statistical Analysis of Categorical Data With 16 Figures and 121 Tables , Springer Prof. Erling B. Andersen University of Copenhagen Department of Statistics 6 Studiestræde DK-1455 Copenhagen Denmark ISBN 978-3-540-62399-1 CataJoging-in-Publication Data applied for Oie Oeutsche Bibliothek - CIP-Einheitsaufnahme Andersen, Erling B. : Introduction to the statistical analysis of categorical data analysis: with 121 tables I Erling B. Andersen. -Berlin; Heidelberg; New York; Bucelona; Buda pest; Hong Kong; London; Milan; Paris; Santa Clara; Singapore; Tokyo: Springer, 1997 ISBN 978-3-540~2399-1 ISBN 978-3~2-59123-5 (eBook) DOI10. 1007/978-3~2-59123-5 This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilm or in any other way, and storage in data banks. Ouplication of this publication or parts thereof IS permitted only under the provisions of !he German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer-Verlag. Violations are liable for prosecution under !he German Copyright Law. O Springer-Verlag Berlin Heidelberg 1997 Originally published by Springer-Verlag Berlin Heidelberg New York in 1997 The use of general descriptive names, registered names, trademarks, etc. in this publi cation does not imply, even in !he absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and !herefore free for general use.

Lectures on Categorical Data Analysis Nov 01 2022 This book offers a relatively self-contained presentation of the fundamental results in categorical data analysis, which plays a central role among the statistical techniques applied in the social, political and behavioral sciences, as well as in marketing and medical and biological research. The methods applied are mainly aimed at understanding the structure of associations among variables and the effects of other variables on these interactions. A great advantage of studying categorical data analysis is that many concepts in statistics become transparent when discussed in a categorical data context, and, in many places, the book takes this opportunity to comment on general principles and methods in statistics, addressing not only the “how” but also the “why.” Assuming minimal background in calculus, linear algebra, probability theory and statistics, the book is designed to be used in upper-undergraduate and graduate-level courses in the field and in more general statistical methodology courses, as well as a self-study resource for researchers and professionals. The book covers such key issues as: higher order interactions among categorical variables; the use of the delta-method to correctly determine asymptotic standard errors for complex quantities reported in surveys; the fundamentals of the main theories of causal analysis based on observational data; the usefulness of the odds ratio as a measure of association; and a detailed discussion of log-linear models, including graphical models. The book contains over 200 problems, many of which may also be used as starting points for undergraduate research projects. The material can be used by students toward a variety of goals, depending on the degree of theory or application desired.

Categorical Data Analysis Using SAS, Third Edition Jun 23 2019 Statisticians and researchers will find Categorical Data Analysis Using SAS, Third Edition, by Maura Stokes, Charles Davis, and Gary Koch, to be a useful discussion of categorical data analysis techniques as well as an invaluable aid in applying these methods with SAS. Practical examples from a broad range of applications illustrate the use of the FREQ, LOGISTIC, GENMOD, NPAR1WAY, and CATMOD procedures in a variety of analyses. Topics discussed include assessing association in contingency tables and sets of tables, logistic regression and conditional logistic regression, weighted least squares modeling, repeated measurements analyses, loglinear models, generalized estimating equations, and bioassay analysis. The third edition updates the use of SAS/STAT software to SAS/STAT 12.1 and incorporates ODS Graphics. Many additional SAS statements and options are employed, and graphs such as effect plots, odds ratio plots, regression diagnostic plots, and agreement plots are discussed. The material has also been revised and reorganized to reflect the evolution of categorical data analysis strategies. Additional techniques include such topics as exact Poisson regression, partial proportional odds models, Newcombe confidence intervals, incidence density ratios, and so on. This book is part of the SAS Press program.

Applied Categorical and Count Data Analysis Mar 01 2020 Developed from the authors’ graduate-level biostatistics course, Applied Categorical and Count Data Analysis explains how to perform the statistical analysis of discrete data, including categorical and count outcomes. The authors describe the basic ideas underlying each concept, model, and approach to give readers a good grasp of the fundamentals of the methodology without using rigorous mathematical arguments. The text covers classic concepts and popular topics, such as contingency tables, logistic models, and Poisson regression models, along with modern areas that include models for zero-modified count outcomes, parametric and semiparametric longitudinal data analysis, reliability analysis, and methods for dealing with missing values. R, SAS, SPSS, and Stata programming codes are provided for all the examples, enabling readers to immediately experiment with the data in the examples and even adapt or extend the codes to fit data

from their own studies. Designed for a one-semester course for graduate and senior undergraduate students in biostatistics, this self-contained text is also suitable as a self-learning guide for biomedical and psychosocial researchers. It will help readers analyze data with discrete variables in a wide range of biomedical and psychosocial research fields.

Visualization of Categorical Data May 15 2021 A unique and timely monograph, *Visualization of Categorical Data* contains a useful balance of theoretical and practical material on this important new area. Top researchers in the field present the book's four main topics: visualization, correspondence analysis, biplots and multidimensional scaling, and contingency table models. This volume discusses how surveys, which are employed in many different research areas, generate categorical data. It will be of great interest to anyone involved in collecting or analyzing categorical data. * Correspondence Analysis * Homogeneity Analysis * Loglinear and Association Models * Latent Class Analysis * Multidimensional Scaling * Cluster Analysis * Ideal Point Discriminant Analysis * CHAID * Formal Concept Analysis * Graphical Models

A Course in Categorical Data Analysis Dec 22 2021 Categorical data-comprising counts of individuals, objects, or entities in different categories-emerge frequently from many areas of study, including medicine, sociology, geology, and education. They provide important statistical information that can lead to real-life conclusions and the discovery of fresh knowledge. Therefore, the ability to manipulate, understand, and interpret categorical data becomes of interest-if not essential-to professionals and students in a broad range of disciplines. Although t-tests, linear regression, and analysis of variance are useful, valid methods for analysis of measurement data, categorical data requires a different methodology and techniques typically not encountered in introductory statistics courses. Developed from long experience in teaching categorical analysis to a multidisciplinary mix of undergraduate and graduate students, *A Course in Categorical Data Analysis* presents the easiest, most straightforward ways of extracting real-life conclusions from contingency tables. The author uses a Fisherian approach to categorical data analysis and incorporates numerous examples and real data sets. Although he offers S-PLUS routines through the Internet, readers do not need full knowledge of a statistical software package. In this unique text, the author chooses methods and an approach that nurtures intuitive thinking. He trains his readers to focus not on finding a model that fits the data, but on using different models that may lead to meaningful conclusions. The book offers some simple, innovative techniques not highlighted in other texts that help make the book accessible to a broad, interdisciplinary audience. *A Course in Categorical Data Analysis* enables readers to quickly use its offering of tools for drawing scientific, medical, or real-life conclusions from categorical data sets.

Statistical Analysis of Categorical Data Feb 21 2022 Accessible, up-to-date coverage of a broad range of modern and traditional methods. The ability to understand and analyze categorical, or count, data is crucial to the success of statisticians in a wide variety of fields, including biomedicine, ecology, the social sciences, marketing, and many more. *Statistical Analysis of Categorical Data* provides thorough, clear, up-to-date explanations of all important methods of categorical data analysis at a level accessible to anyone with a solid undergraduate knowledge of statistics. Featuring a liberal use of real-world examples as well as a regression-based approach familiar to most students, this book reviews pertinent statistical theory, including advanced topics such as Score statistics and the transformed central limit theorem. It presents the distribution theory of Poisson as well as multinomial variables, and it points out the connections between them. Complete with numerous illustrations and exercises, this book covers the full range of topics necessary to develop a well-rounded understanding of modern categorical data analysis, including: * Logistic regression and log-linear models. * Exact conditional methods. * Generalized linear and additive models. * Smoothing count data with practical implementations in S-plus software. * Thorough description and analysis of five important computer packages. Supported by an ftp site, which describes the facilities important to a statistician wanting to analyze and report on categorical data, *Statistical Analysis of Categorical Data* is an excellent resource for students, practicing statisticians, and researchers with a special interest in count data.

Bayesian Models for Categorical Data May 27 2022 The use of Bayesian methods for the analysis of data has grown substantially in areas as diverse as applied statistics, psychology, economics and medical science. *Bayesian Methods for Categorical Data* sets out to demystify modern Bayesian methods, making them accessible to students and researchers alike. Emphasizing the use of statistical computing and applied data analysis, this book provides a comprehensive introduction to Bayesian methods of categorical outcomes. * Reviews recent Bayesian methodology for categorical outcomes (binary, count and multinomial data). * Considers missing data models techniques and non-standard models (ZIP and negative binomial). * Evaluates time series and spatio-temporal models for discrete data. * Features discussion of univariate and multivariate techniques. * Provides a set of downloadable worked examples with documented WinBUGS code, available from an ftp site. The author's previous 2 bestselling titles provided a comprehensive introduction to the theory and application of Bayesian models. *Bayesian Models for Categorical Data* continues to build upon this foundation by developing their application to categorical, or discrete data - one of the most common types of data available. The author's clear and logical approach makes the book accessible to a wide range of students and practitioners, including those dealing with categorical data in medicine, sociology, psychology and epidemiology.

Encyclopedia of Research Design Nov 08 2020 "Comprising more than 500 entries, the *Encyclopedia of Research Design* explains how to make decisions about research design, undertake research projects in an ethical manner, interpret and draw valid inferences from data, and evaluate experiment design strategies and results. Two additional features carry this encyclopedia far above other works in the field: bibliographic entries devoted to significant articles in the history of research design and reviews of contemporary tools, such as software and statistical procedures, used to analyze results. It covers the spectrum of research design strategies, from material presented in introductory classes to topics necessary in graduate research; it addresses cross- and multidisciplinary research needs, with many examples drawn from the social and behavioral sciences, neurosciences, and biomedical and life sciences; it provides summaries of advantages and disadvantages of often-used strategies; and it uses hundreds of sample tables, figures, and equations based on real-life cases."--Publisher's description.

Statistical Analysis of Longitudinal Categorical Data in the Social and Behavioral Sciences Sep 06 2020 A comprehensive resource for analyzing a variety of categorical data, this book emphasizes the application of many recent advances of longitudinal categorical statistical methods. Each chapter provides basic methodology, helpful applications, examples using data from all fields of the social sciences, computer tutorials, and exercises. Written for social scientists and students, no advanced mathematical training is required. Step-by-step command files are given for both the CDAS and the SPSS software programs.

Statistics For Dummies Oct 27 2019 The fun and easy way to get down to business with statistics Stymied by statistics? No fear? this friendly guide offers clear, practical explanations of statistical ideas, techniques, formulas, and calculations, with lots of examples that show you how these concepts apply to your everyday life. *Statistics For Dummies* shows you how to interpret and critique graphs and charts, determine the odds with probability, guesstimate with confidence using confidence intervals, set up and carry out a hypothesis test, compute statistical formulas, and more. Tracks to a typical first semester

statistics course Updated examples resonate with today's students Explanations mirror teaching methods and classroom protocol Packed with practical advice and real-world problems, *Statistics For Dummies* gives you everything you need to analyze and interpret data for improved classroom or on-the-job performance.

The Analysis of Cross-Classified Categorical Data Jul 25 2019 Until recent years the statistical and computational techniques available for the analysis of cross-classified data were quite limited. This book presents some of the recent work on the statistical analysis of cross-classified data using longlinear models.

The Statistical Analysis of Categorical Data Jan 23 2022 The aim of this book is to give an up to date account of the most commonly used statistical models for categorical data. The emphasis is on the connection between theory and applications to real data sets. The book only covers models for categorical data. Various models for mixed continuous and categorical data are thus excluded. The book is written as a textbook, although many methods and results are quite recent. This should imply, that the book can be used for a graduate course in categorical data analysis. With this aim in mind chapters 3 to 12 are concluded with a set of exercises. In many cases, the data sets are those data sets, which were not included in the examples of the book, although they at one point in time were regarded as potential candidates for an example. A certain amount of general knowledge of statistical theory is necessary to fully benefit from the book. A summary of the basic statistical concepts deemed necessary prerequisites is given in chapter 2. The mathematical level is only moderately high, but the account in chapter 3 of basic properties of exponential families and the parametric multinomial distribution is made as mathematical precise as possible without going into mathematical details and leaving out most proofs.

Categorical Data Analysis for the Behavioral and Social Sciences Apr 25 2022 Featuring a practical approach with numerous examples, the second edition of *Categorical Data Analysis for the Behavioral and Social Sciences* focuses on helping the reader develop a conceptual understanding of categorical methods, making it a much more accessible text than others on the market. The authors cover common categorical analysis methods and emphasize specific research questions that can be addressed by each analytic procedure, including how to obtain results using SPSS, SAS, and R, so that readers are able to address the research questions they wish to answer. Each chapter begins with a "Look Ahead" section to highlight key content. This is followed by an in-depth focus and explanation of the relationship between the initial research question, the use of software to perform the analyses, and how to interpret the output substantively. Included at the end of each chapter are a range of software examples and questions to test knowledge. New to the second edition: The addition of R syntax for all analyses and an update of SPSS and SAS syntax. The addition of a new chapter on GLMMs. Clarification of concepts and ideas that graduate students found confusing, including revised problems at the end of the chapters. Written for those without an extensive mathematical background, this book is ideal for a graduate course in categorical data analysis taught in departments of psychology, educational psychology, human development and family studies, sociology, public health, and business. Researchers in these disciplines interested in applying these procedures will also appreciate this book's accessible approach.

International Encyclopedia of Statistical Science Jun 03 2020 The goal of this book is multidimensional: a) to help reviving Statistics education in many parts in the world where it is in crisis. For the first time authors from many developing countries have an opportunity to write together with the most prominent world authorities. The editor has spent several years searching for the most reputable statisticians all over the world. International contributors are either presidents of the local statistical societies, or head of the Statistics department at the main university, or the most distinguished statisticians in their countries. b) to enable any non-statistician to obtain quick and yet comprehensive and highly understandable view on certain statistical term, method or application c) to enable all the researchers, managers and practitioners to refresh their knowledge in Statistics, especially in certain controversial fields. d) to revive interest in statistics among students, since they will see its usefulness and relevance in almost all branches of Science.

New Developments in Categorical Data Analysis for the Social and Behavioral Sciences Mar 13 2021 Categorical data are quantified as either nominal variables--distinguishing different groups, for example, based on socio-economic status, education, and political persuasion--or ordinal variables--distinguishing levels of interest, such as the preferred politician or the preferred type of punishment for committing burglary. This new book is a collection of up-to-date studies on modern categorical data analysis methods, emphasizing their application to relevant and interesting data sets. This volume concentrates on latent class analysis and item response theory. These methods use latent variables to explain the relationships among observed categorical variables. Latent class analysis yields the classification of a group of respondents according to their pattern of scores on the categorical variables. This provides insight into the mechanisms producing the data and allows the estimation of factor structures and regression models conditional on the latent class structure. Item response theory leads to the identification of one or more ordinal or interval scales. In psychological and educational testing these scales are used for individual measurement of abilities and personality traits. The focus of this volume is applied. After a method is explained, the potential of the method for analyzing categorical data is illustrated by means of a real data example to show how it can be used effectively for solving a real data problem. These methods are accessible to researchers not trained explicitly in applied statistics. This volume appeals to researchers and advanced students in the social and behavioral sciences, including social, developmental, organizational, clinical and health psychologists, sociologists, educational and marketing researchers, and political scientists. In addition, it is of interest to those who collect data on categorical variables and are faced with the problem of how to analyze such variables--among themselves or in relation to metric variables.

Regression for Categorical Data Mar 25 2022 This book introduces basic and advanced concepts of categorical regression with a focus on the structuring constituents of regression, including regularization techniques to structure predictors. In addition to standard methods such as the logit and probit model and extensions to multivariate settings, the author presents more recent developments in flexible and high-dimensional regression, which allow weakening of assumptions on the structuring of the predictor and yield fits that are closer to the data. A generalized linear model is used as a unifying framework whenever possible in particular parametric models that are treated within this framework. Many topics not normally included in books on categorical data analysis are treated here, such as nonparametric regression; selection of predictors by regularized estimation procedures; alternative models like the hurdle model and zero-inflated regression models for count data; and non-standard tree-based ensemble methods, which provide excellent tools for prediction and the handling of both nominal and ordered categorical predictors. The book is accompanied an R package that contains data sets and code for all the examples.

Incomplete Categorical Data Design Jan 11 2021 Respondents to survey questions involving sensitive information, such as sexual behavior, illegal drug usage, tax evasion, and income, may refuse to answer the questions or provide untruthful answers to protect their privacy. This creates a challenge in drawing valid inferences from potentially inaccurate data. Addressing this difficulty, non-randomized response approaches enable sample survey practitioners and applied statisticians to protect the privacy of respondents and properly analyze the gathered data. *Incomplete Categorical Data Design: Non-Randomized*

Response Techniques for Sensitive Questions in Surveys is the first book on non-randomized response designs and statistical analysis methods. The techniques covered integrate the strengths of existing approaches, including randomized response models, incomplete categorical data design, the EM algorithm, the bootstrap method, and the data augmentation algorithm. A self-contained, systematic introduction, the book shows you how to draw valid statistical inferences from survey data with sensitive characteristics. It guides you in applying the non-randomized response approach in surveys and new non-randomized response designs. All R codes for the examples are available at www.saasweb.hku.hk/staff/gltian/.

Categorical Data Analysis Oct 08 2020 These four volumes provide a collection of key publications on categorical data analysis, carefully put together so that the reader can easily navigate, understand and put in context the major concepts and methods of analysing categorical data. The major work opens with a series of papers that address general issues in CDA, and progresses with publications which follow a logical movement from the statistics for analysing a single categorical variable, to those for studying the relationships between two and more categorical variables, and to categorical variables in some of more advanced methods, such as latent class analysis. Edited and introduced by a leading voice in the field, this collection helpfully includes both theoretical and applied items on its theme, in order to help the reader understand the methods and use them in empirical research. Volume 1: Basic Concepts and Principles Volume 2: Statistical Methods for Analysing Associations Volume 3: Log-Linear and Logistic Regression Models Volume 4: Advanced and Graphical Statistical Methods

Categorical Data Analysis Jul 29 2022 Praise for the Second Edition "A must-have book for anyone expecting to do research and/or applications in categorical data analysis." —Statistics in Medicine "It is a total delight reading this book." —Pharmaceutical Research "If you do any analysis of categorical data, this is an essential desktop reference." —Technometrics The use of statistical methods for analyzing categorical data has increased dramatically, particularly in the biomedical, social sciences, and financial industries. Responding to new developments, this book offers a comprehensive treatment of the most important methods for categorical data analysis. Categorical Data Analysis, Third Edition summarizes the latest methods for univariate and correlated multivariate categorical responses. Readers will find a unified generalized linear models approach that connects logistic regression and Poisson and negative binomial loglinear models for discrete data with normal regression for continuous data. This edition also features: An emphasis on logistic and probit regression methods for binary, ordinal, and nominal responses for independent observations and for clustered data with marginal models and random effects models Two new chapters on alternative methods for binary response data, including smoothing and regularization methods, classification methods such as linear discriminant analysis and classification trees, and cluster analysis New sections introducing the Bayesian approach for methods in that chapter More than 100 analyses of data sets and over 600 exercises Notes at the end of each chapter that provide references to recent research and topics not covered in the text, linked to a bibliography of more than 1,200 sources A supplementary website showing how to use R and SAS; for all examples in the text, with information also about SPSS and Stata and with exercise solutions Categorical Data Analysis, Third Edition is an invaluable tool for statisticians and methodologists, such as biostatisticians and researchers in the social and behavioral sciences, medicine and public health, marketing, education, finance, biological and agricultural sciences, and industrial quality control.