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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.

Statistical Methods for Categorical Data Analysis *Emerald Group Publishing*

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://webpace.utexas.edu/dpowers/www/>

Discrete Data

Analysis with R

Visualization and Modeling Techniques for Categorical and Count Data *CRC Press*

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Introduction to the Statistical Analysis of Categorical Data *Springer Science & Business Media*

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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

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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, 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)

Learning Statistics with R *Lulu.com*

Categorical Data Analysis Using SAS, Third Edition *SAS Institute*

Statisticians and researchers will find this book, newly updated for SAS/STAT 12.1, to be a useful

discussion of categorical data analysis techniques as well as an invaluable aid in applying these methods with SAS.

Categorical Data Analysis by Example

John Wiley & Sons

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.

Longitudinal Categorical Data Analysis Springer

This is the first book in longitudinal categorical data analysis with parametric correlation models developed based on dynamic relationships among repeated categorical responses. This book is a natural generalization of the longitudinal binary data analysis to the multinomial data setup with more than two categories. Thus, unlike the existing books on cross-sectional categorical data analysis using log linear models, this book uses multinomial probability models both in cross-sectional and longitudinal setups. A theoretical foundation is provided for the analysis of univariate multinomial responses, by developing models systematically for the

cases with no covariates as well as categorical covariates, both in cross-sectional and longitudinal setups. In the longitudinal setup, both stationary and non-stationary covariates are considered. These models have also been extended to the bivariate multinomial setup along with suitable covariates. For the inferences, the book uses the generalized quasi-likelihood as well as the exact likelihood approaches. The book is technically rigorous, and, it also presents illustrations of the statistical analysis of various real life data involving univariate multinomial responses both in cross-sectional and longitudinal setups. This book is

written mainly for the graduate students and researchers in statistics and social sciences, among other applied statistics research areas. However, the rest of the book, specifically the chapters from 1 to 3, may also be used for a senior undergraduate course in statistics.

Foundations of Statistics for Data Scientists

With R and Python
CRC Press

Foundations of Statistics for Data Scientists: With R and Python is designed as a textbook for a one- or two-term introduction to mathematical statistics for students training to become data scientists. It is an in-depth presentation of the topics in

statistical science with which any data scientist should be familiar, including probability distributions, descriptive and inferential statistical methods, and linear modeling. The book assumes knowledge of basic calculus, so the presentation can focus on "why it works" as well as "how to do it." Compared to traditional "mathematical statistics" textbooks, however, the book has less emphasis on probability theory and more emphasis on using software to implement statistical methods and to conduct simulations to illustrate key concepts. All statistical analyses in the book use R software, with an appendix showing the

same analyses with Python. The book also introduces modern topics that do not normally appear in mathematical statistics texts but are highly relevant for data scientists, such as Bayesian inference, generalized linear models for non-normal responses (e.g., logistic regression and Poisson loglinear models), and regularized model fitting. The nearly 500 exercises are grouped into "Data Analysis and Applications" and "Methods and Concepts." Appendices introduce R and Python and contain solutions for odd-numbered exercises. The book's website has expanded R, Python, and Matlab appendices and all data sets from the examples and exercises.

**Applied Categorical
and Count Data
Analysis** *CRC Press*

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.

Regression Models for Categorical and Limited Dependent Variables *SAGE*

The linear regression model is the most commonly used statistical method in the social sciences. This book considers regression models that are appropriate when the dependent variable is censored, truncated, binary, ordinal, nominal, or count. I refer to these variables as categorical and limited dependent variables (hereafter CLDVs). Until recently, the greatest obstacle in using models for CLDVs was the lack of software that was flexible, stable, and easy to use. This

limitation no longer applies since these models can be estimated routinely with standard software. Now, the greatest impediment is the complexity of the models and the difficulty in interpreting the results. The difficulties arise because most models for CLDVs are nonlinear.

A Course in Categorical Data Analysis *CRC Press*

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.

International Encyclopedia of Statistical Science
Springer Science & Business Media

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.

Incomplete Categorical Data Design

Non-Randomized Response

Techniques for Sensitive Questions in Surveys *CRC Press*

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/.

Lectures on Categorical Data Analysis *Springer*

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.

**The Analysis of
Cross-Classified
Categorical Data**
*Springer Science &
Business Media*

A variety of biological and social science data come in the form of cross-classified tables of counts, commonly referred to as contingency tables. 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, especially in the multidimensional situation.

Categorical Variables in Developmental Research

Methods of Analysis *Elsevier*

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

The Statistical Analysis of Categorical Data *Springer Science & Business Media*

The aim of this book is to give an up to date account of the most commonly uses statist i cal 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 n:t0dels 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 mathematically precise as possible without going into mathematical details and leaving out most proofs.

Visualizing Categorical Data SAS Press

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

Cambridge University Press

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, 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.

Categorical Data Analysis and Multilevel Modeling Using R Sage Publications, Incorporated

Categorical Data Analysis and Multilevel Modeling Using R provides a practical guide to regression techniques for analyzing binary, ordinal, nominal, and count response variables using the R software. Author Xing Liu offers a unified

framework for both single-level and multilevel modeling of categorical and count response variables with both frequentist and Bayesian approaches. Each chapter demonstrates how to conduct the analysis using R, how to interpret the models, and how to present the results for publication. A companion website for this book contains datasets and R commands used in the book for students, and solutions for the end-of-chapter exercises on the instructor site.

Studyguide for an Introduction to Categorical Data Analysis by Agresti, Alan Cram101

Never HIGHLIGHT a Book Again Includes all testable terms, concepts, persons,

places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanies: 9780872893795. This item is printed on demand.

Categorical Data Analysis With Sas and Spss Applications

Psychology Press

This book covers the fundamental aspects of categorical data analysis with an emphasis on how to implement the models used in the book using SAS and SPSS. This is accomplished through the frequent use of examples, with relevant codes and

instructions, that are closely related to the problems in the text. Concepts are explained in detail so that students can reproduce similar results on their own. Beginning with chapter two, exercises at the end of each chapter further strengthen students' understanding of the concepts by requiring them to apply some of the ideas expressed in the text in a more advanced capacity. Most of these exercises require intensive use of PC-based statistical software. Numerous tables with results of analyses, including interpretations of the results, further strengthen students' understanding of the material. Categorical Data Analysis With SAS(R) and SPSS

Applications features:
 *detailed programs and outputs of all examples illustrated in the book using SAS(R) 8.02 and SPSS on the book's CD; *detailed coverage of topics often ignored in other books, such as one-way classification (ch. 3), the analysis of doubly classified data (ch. 11), and generalized estimating equations (ch. 12); and *coverage of SAS(R) PROC FREQ, GENMOD, LOGISTIC, PROBIT, and CATMOD, as well as SPSS PROC CROSSTABS, GENLOG, LOGLINEAR, PROBIT, LOGISTIC, NUMREG, and PLUM. This book is ideal for upper-level undergraduate or graduate-level courses on categorical data analysis taught in departments of biostatistics, statistics,

epidemiology, psychology, sociology, political science, and education. A prerequisite of one year of calculus and statistics is recommended. The book has been class tested by graduate students in the department of biometry and epidemiology at the Medical University of South Carolina.

Machine Learning with Python Cookbook

Practical Solutions from Preprocessing to Deep Learning
"O'Reilly Media, Inc."

This practical guide provides nearly 200 self-contained recipes to help you solve machine learning challenges you may encounter in your daily

work. If you're comfortable with Python and its libraries, including pandas and scikit-learn, you'll be able to address specific problems such as loading data, handling text or numerical data, model selection, and dimensionality reduction and many other topics. Each recipe includes code that you can copy and paste into a toy dataset to ensure that it actually works. From there, you can insert, combine, or adapt the code to help construct your application. Recipes also include a discussion that explains the solution and provides meaningful context. This cookbook takes you beyond theory and concepts by providing the nuts and bolts you need to construct

working machine learning applications. You'll find recipes for: Vectors, matrices, and arrays Handling numerical and categorical data, text, images, and dates and times Dimensionality reduction using feature extraction or feature selection Model evaluation and selection Linear and logical regression, trees and forests, and k-nearest neighbors Support vector machines (SVM), naïve Bayes, clustering, and neural networks Saving and loading trained models

Foundations of Linear and Generalized Linear Models *John Wiley & Sons*

A valuable overview of the most important ideas and results in

statistical modeling
Written by a highly-
experienced author,
Foundations of Linear
and Generalized Linear
Models is a clear and
comprehensive guide
to the key concepts
and results of
linear statistical
models. The book
presents a broad, in-
depth overview of the
most commonly
used statistical models
by discussing the
theory underlying the
models, R software
applications, and
examples with crafted
models to elucidate
key ideas and promote
practical
modelbuilding. The
book begins by
illustrating the
fundamentals of linear
models, such as how
the model-fitting
projects the data onto
a model vector
subspace and how
orthogonal
decompositions of the
data yield information
about the effects of
explanatory variables.
Subsequently, the book
covers the most
popular generalized
linear models, which
include binomial and
multinomial logistic
regression for
categorical data, and
Poisson and negative
binomial loglinear
models for count data.
Focusing on the
theoretical
underpinnings of these
models, Foundations
of Linear and
Generalized Linear
Models also features:
An introduction to
quasi-likelihood
methods that require
weaker distributional
assumptions, such as
generalized estimating
equation methods
An overview of linear
mixed models and

generalized linear mixed models with random effects for clustered correlated data, Bayesian modeling, and extensions to handle problematic cases such as high dimensional problems. Numerous examples that use R software for all text data analyses. More than 400 exercises for readers to practice and extend the theory, methods, and data analysis. A supplementary website with datasets for the examples and exercises. An invaluable textbook for upper-undergraduate and graduate-level students in statistics and biostatistics courses. *Foundations of Linear and Generalized Linear Models* is also an excellent reference for

practicing statisticians and biostatisticians, as well as anyone who is interested in learning about the most important statistical models for analyzing data.

Biostatistics and Computer-based Analysis of Health Data using Stata
Elsevier

This volume of the Biostatistics and Health Sciences Set focuses on statistics applied to clinical research. The use of Stata for data management and statistical modeling is illustrated using various examples. Many aspects of data processing and statistical analysis of cross-sectional and experimental medical data are covered, including regression models commonly

found in medical statistics. This practical book is primarily intended for health researchers with basic knowledge of statistical methodology. Assuming basic concepts, the authors focus on the practice of biostatistical methods essential to clinical research, epidemiology and analysis of biomedical data (including comparison of two groups, analysis of categorical data, ANOVA, linear and logistic regression, and survival analysis). The use of examples from clinical trials and epidemiological studies provide the basis for a series of practical exercises, which provide instruction and familiarize the reader with essential Stata packages and

commands. Provides detailed examples of the use of Stata for common biostatistical tasks in medical research. Features a work program structured around the four previous chapters and a series of practical exercises with commented corrections. Includes an appendix to help the reader familiarize themselves with additional packages and commands. Focuses on the practice of biostatistical methods that are essential to clinical research, epidemiology, and analysis of biomedical data.

**An Introduction to
Statistics and Data
Analysis Using
Stata®**

From Research Design to Final Report

SAGE

Publications

An Introduction to Statistics and Data Analysis Using Stata® by Lisa Daniels and Nicholas Minot provides a step-by-step introduction for statistics, data analysis, or research methods classes with Stata. Concise descriptions emphasize the concepts behind statistics for students rather than the derivations of the formulas. With real-world examples from a variety of disciplines and extensive detail on the commands in Stata, this text provides an integrated approach to research design, statistical analysis, and report writing for social science students.

Latent Class and Latent Transition Analysis

With Applications in the Social, Behavioral, and Health Sciences John Wiley & Sons

A modern, comprehensive treatment of latent class and latent transition analysis for categorical data. On a daily basis, researchers in the social, behavioral, and health sciences collect information and fit statistical models to the gathered empirical data with the goal of making significant advances in these fields. In many cases, it can be useful to identify latent, or unobserved, subgroups in a population, where individuals' subgroup membership

is inferred from their responses on a set of observed variables. Latent Class and Latent Transition Analysis provides a comprehensive and unified introduction to this topic through one-of-a-kind, step-by-step presentations and coverage of theoretical, technical, and practical issues in categorical latent variable modeling for both cross-sectional and longitudinal data. The book begins with an introduction to latent class and latent transition analysis for categorical data. Subsequent chapters delve into more in-depth material, featuring: A complete treatment of longitudinal latent class models Focused coverage of the conceptual underpinnings of interpretation and evaluation of a latent class solution Use of parameter restrictions and detection of identification problems Advanced topics such as multi-group analysis and the modeling and interpretation of interactions between covariates The authors present the topic in a style that is accessible yet rigorous. Each method is presented with both a theoretical background and the practical information that is useful for any data analyst. Empirical examples showcase the real-world applications of the discussed concepts and models, and each chapter concludes with a "Points to Remember" section that contains a

brief summary of key ideas. All of the analyses in the book are performed using Proc LCA and Proc LTA, the authors' own software packages that can be run within the SAS® environment. A related Website houses information on these freely available programs and the book's data sets, encouraging readers to reproduce the analyses and also try their own variations. Latent Class and Latent Transition Analysis is an excellent book for courses on categorical data analysis and latent variable models at the upper-undergraduate and graduate levels. It is also a valuable resource for researchers and practitioners in the social, behavioral, and

health sciences who conduct latent class and latent transition analysis in their everyday work.

An Introduction to Medical Statistics

Oxford University Press

Now in its Fourth Edition, *An Introduction to Medical Statistics* continues to be a 'must-have' textbook for anyone who needs a clear logical guide to the subject. Written in an easy-to-understand style and packed with real life examples, the text clearly explains the statistical principles used in the medical literature. Taking readers through the common statistical methods seen in published research and guidelines, the text focuses on how to interpret and analyse statistics for clinical

practice. Using extracts from real studies, the author illustrates how data can be employed correctly and incorrectly in medical research helping readers to evaluate the statistics they encounter and appropriately implement findings in clinical practice. End of chapter exercises, case studies and multiple choice questions help readers to apply their learning and develop their own interpretative skills. This thoroughly revised edition includes new chapters on meta-analysis, missing data, and survival analysis.

Categorical and Nonparametric Data Analysis

Choosing the Best Statistical

Technique

Featuring in-depth coverage of categorical and nonparametric statistics, this book provides a conceptual framework for choosing the most appropriate type of test in various research scenarios. Class tested at the University of Nevada, the book's clear explanations of the underlying assumptions, computer simulations, and Exploring the Concept boxes help reduce reader anxiety. Problems inspired by actual studies provide meaningful illustrations of the techniques. The underlying assumptions of each test and the factors that impact validity and statistical power are reviewed so readers can explain their assumptions and

how tests work in future publications. Numerous examples from psychology, education, and other social sciences demonstrate varied applications of the material. Basic statistics and probability are reviewed for those who need a refresher. Mathematical derivations are placed in optional appendices for those interested in this detailed coverage. Highlights include: Unique coverage of categorical and nonparametric statistics better prepares readers to select the best technique for their particular research project but some chapters can be omitted entirely if preferred. Step by step examples of each test

help readers see how the material is applied in a variety of disciplines. Although the book can be used with any program, examples of how to use the tests in SPSS & EXCEL foster conceptual understanding. Exploring the concept boxes integrated throughout prompt students to review key material and draw links between the concepts to deepen understanding. Problems in each chapter help readers test their understanding of the material. Emphasizes selecting tests that maximize power to help readers avoid "marginally" significant results. Website featuring datasets for the book's examples and problems, and for

the instructor Power Points, author's course syllabus, and answers to the even numbered problems. Chapters 1-3 cover basic concepts in probability, especially the binomial formula followed by two chapters that address the analysis of contingency tables. Chapters 6-8 address nonparametric tests involving at least one ordinal variable, including testing for nonparametric interaction effects, a topic omitted from other texts. The book then turns to situations that involve one metric variable. Chapter 9 reviews concepts that are foundational to CDA, including linear regression and generalized linear models. Chapters 10-11 cover logistic, ordinal, and Poisson regression. Chapters 12 and 13 review loglinear models and the General Estimating Equations (GEE) methodology for measuring outcomes from multiple time points. For a deeper understanding of how various CDA techniques work, chapter 14 covers estimation methods, such as Newton-Raphson and Fisher scoring. The book concludes with a summary of factors that need to be considered when choosing the best statistical technique. Intended for individual or combined graduate or advanced undergraduate courses in categorical and nonparametric data analysis, cross-classified data analysis, advanced

statistics and/or quantitative techniques taught in psychology, education, human development, sociology, political science, and other social and life sciences, the book also appeals to researchers in these disciplines. The nonparametric chapters can be deleted if preferred. Prerequisites include knowledge of t-tests and ANOVA.

Studyguide for an Introduction to Categorical Data Analysis by Agresti
Cram101

Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides

give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780471113386 .

R for Data Science

Import, Tidy, Transform, Visualize, and Model Data "O'Reilly Media, Inc."

"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"--

Introduction to Data Science

**Data Analysis and
Prediction
Algorithms with R**
CRC Press

Introduction to Data Science: Data Analysis and Prediction Algorithms with R introduces concepts and skills that can help you tackle real-world data analysis challenges. It covers concepts from probability, statistical inference, linear regression, and machine learning. It also helps you develop skills such as R programming, data wrangling, data visualization, predictive algorithm building, file organization with UNIX/Linux shell, version control with Git and GitHub, and reproducible document preparation. This book is a textbook for a first course in data science.

No previous knowledge of R is necessary, although some experience with programming may be helpful. The book is divided into six parts: R, data visualization, statistics with R, data wrangling, machine learning, and productivity tools. Each part has several chapters meant to be presented as one lecture. The author uses motivating case studies that realistically mimic a data scientist's experience. He starts by asking specific questions and answers these through data analysis so concepts are learned as a means to answering the questions. Examples of the case studies included are: US murder rates by state, self-reported student

heights, trends in world health and economics, the impact of vaccines on infectious disease rates, the financial crisis of 2007-2008, election forecasting, building a baseball team, image processing of hand-written digits, and movie recommendation systems. The statistical concepts used to answer the case study

questions are only briefly introduced, so complementing with a probability and statistics textbook is highly recommended for in-depth understanding of these concepts. If you read and understand the chapters and complete the exercises, you will be prepared to learn the more advanced concepts and skills needed to become an expert.