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Modelling Survival Data in Medical Research, Third Edition—David Collett 2014-12-11 Modelling Survival Data in Medical Research describes the modelling approach to the analysis of survival data using a wide range of examples from biomedical research. Well known for its nontechnical style, this third edition contains new chapters on frailty models and their applications, competing risks, non-proportional hazards, and dependent censoring. It also describes techniques for modeling the occurrence of multiple events and event history analysis. Earlier chapters are now expanded to include new material on a number of topics, including measures of predictive ability and flexible parametric models. Many new datasets and exercises are included to allow readers how features are used in modelling survival data. Bibliographic notes and suggestions for further reading are provided at the end of each chapter. Additional data sets are available in electronic format online. This book is an invaluable resource for statisticians in the pharmaceutical industry, professionals in medical research institutes, scientists and clinicians who are analyzing their own data, and students taking undergraduate or postgraduate courses in survival analysis.

Modelling Survival Data in Medical Research, Second Edition—David Collett 2003 Critically acclaimed and resoundingly popular in its first edition, Modelling Survival Data in Medical Research has been thoroughly revised and updated to reflect the many developments and advances—particularly in software—made in the field over the last 10 years. Now, more than ever, it provides an outstanding text for upper-level and graduate courses in survival analysis, biostatistics, and time-to-event analysis. The treatment begins with an introduction to survival analysis and a description of four studies that lead to survival data. Subsequent chapters then use these data sets and others to illustrate the various analytical techniques applicable to such data, including the Cox regression model, the Weibull proportional hazards model, and other models. The book features a detailed treatment of topics such as parametric models, accelerated failure time models, and analysis of interval-censored data. The author also focuses the software section on the use of SAS, summarising the methods used by the software to generate its output and examining that output in detail. Profusely illustrated with examples and written in the author's trademark easy-to-follow style, Modelling Survival Data in Medical Research, Second Edition is a thorough, practical guide to survival analysis that reflects current statistical practices.

Modelling Survival Data in Medical Research—David Collett 2015-05-04 Modelling Survival Data in Medical Research describes the modelling approach to the analysis of survival data using a wide range of examples from biomedical research. Well known for its nontechnical style, this third edition contains new chapters on frailty models and their applications, competing risks, non-proportional hazards, and dependent censoring.

Modelling Survival Data in Medical Research—D. Collett 1994 An introduction to modelling survival data in medical research. It demonstrates how widely available computer software can be used in survival analysis. It seeks to provide sufficient methodological development for the reader to understand assumptions upon which techniques are based, and to help the reader to adapt the methodology to deal with non-standard problems.

Modelling Survival Data in Medical Research, Second Edition—David Collett 2003

Modelling Survival Data: Extending the Cox Model—Terry M. Therneau 2013-11-11 This book is for statistical practitioners, particularly those who design and analyze studies for survival and event history data. Building on recent developments motivated by counting process and martingale theory, it shows the reader how to extend the Cox model to analyze multiple/correlated event data using marginal and random effects. The focus is on actual data examples, the analysis and interpretation of results, and computation. The book shows how these new methods can be implemented in SAS and S-Plus, including computer code, worked examples, and data sets.

Statistical Modelling of Survival Data with Random Effects—Il Do Ha 2018-01-26 This book provides a groundbreaking introduction to the likelihood inference for correlated survival data via the hierarchical (or h-) likelihood in order to obtain the (marginal) likelihood and to address the computational difficulties in inferences and extensions. The approach presented in the book overcomes shortcomings in the traditional likelihood-based methods for clustered survival data such as intractable integration. The text includes technical materials such as derivations and proofs in each chapter, as well as recently developed software programs in R ("frailtyHL"), while the real-world data examples together with an R package, "frailtyHL," in CRAN, provide readers with useful hands-on tools. Reviewing new developments since the introduction of the h-likelihood to survival analysis (methods for interval estimation of the individual frailty and for variable selection of the fixed effects in the general class of frailty models) and guiding future directions, the book is of interest to researchers in medical and genetics fields, graduate students, and PhD (bio) statisticians.

Analysis of Survival Data with Dependent Censoring—Takeshi Emura 2016-04-05 This book introduces readers to copula-based statistical methods for analyzing survival data involving dependent censoring. Primarily focusing on likelihood-based methods performed under copula models, it is the first book solely devoted to the problem of dependent censoring. The book demonstrates the advantages of the copula-based methods in the context of medical research, especially with regard to cancer patients' survival data. Needless to say, the statistical methods presented here can also be applied to many other branches of science, especially in reliability, where survival analysis plays an important role. The book can be used as a textbook for graduate coursework or a short course aimed at (bio-)statisticians. To deepen readers' understanding of copula-based approaches, the book provides an accessible introduction to basic survival analysis and explains the mathematical foundations of copula-based survival models.

Handbook of Survival Analysis—John P. Klein 2016-04-19 Handbook of Survival Analysis presents modern techniques and research problems in lifetime data analysis. This area of statistics deals with time-to-event data that is complicated by censoring and the dynamic nature of events occurring in time. With chapters written by leading researchers in the field, the handbook focuses on advances in survival analysis techniques, covering
classical and Bayesian approaches. It gives a complete overview of the current status of survival analysis and should inspire further research in the field. Accessible to a wide range of readers, this book provides: An introduction to various areas in survival analysis for graduate students and novices A reference to modern investigations into survival analysis for more established researchers A text or supplement for a second or advanced course in survival analysis A useful guide to statistical methods for analyzing survival data experiments for practicing statisticians.

Decision Modelling for Health Economic Evaluation-Andrew H. Briggs 2006 This is a practical guide to the use of modelling techniques, starting with the basics of constructing different forms of model, the population of the model with input parameter estimates, analysis of the results, and progression to the holistic view of models as a tool to inform future research exercises. Key techniques and approaches are discussed, and a comprehensive set of example exercises take the reader through how to conduct decision-analytic modelling. These exercises are supported with templates and solutions made available via the book website. – BOOK JACKET.

Survival and Event History Analysis-Odd Aalen 2008-09-16 The aim of this book is to bridge the gap between standard textbook models and a range of models where the dynamic structure of the data manifests itself fully. The common denominator of such models is stochastic integrals fit very nicely with censored data. Beginning with standard analyses such as Kaplan-Meier plots and Cox regression, the presentation progresses to the additive hazard model and recurrent event data. Stochastic processes are also used as natural models for individual frailty; they allow sensible interpretations of a number of surprising facts seen in population data. The stochastic process framework is naturally connected to causality. The authors show how dynamic path analyses can incorporate many modern causality ideas in a framework that takes the time aspect seriously. To make the material accessible to the reader, a large number of practical examples, mainly from medicine, are developed in detail. Stochastic processes are introduced in an intuitive and non-technical manner. The book is aimed at investigators who use event history methods and want a better understanding of the statistical concepts. It is suitable as a textbook for graduate courses in statistics and biostatistics.

Advances in Survival Analysis-Narayanaswamy Balakrishnan 2004-01-30 Handbook of Statistics: Advances in Survival Analysis covers all important topics in the area of Survival Analysis. Each topic has been covered by one or more chapters written by internationally renowned experts. Each chapter provides a comprehensive and up-to-date review of the topic. Several new illlustrative examples are also used to demonstrate the methodology developed. The book also includes an exhaustive list of important references in the area of Survival Analysis. Includes up-to-date reviews on many important topics Chapters written by many internationally renowned experts Some Chapters provide completely new methodologies and analyses Includes some new data and methods of analyzing them.

Analyzing Medical Data Using S-PLUS-Brian Everitt 2001-09-21 Each chapter consists of basic statistical theory, simple examples of S-PLUS code, plus more complex examples of S-PLUS code, and exercises. All data sets are taken from genuine medical investigations and will be available on a web site. The examples in the book contain extensive graphical analysis to highlight one of the prime features of S-PLUS. Written with few details of S-PLUS and less technical descriptions, the book concentrates solely on medical data sets, demonstrating the flexibility of S-PLUS and its huge advantages, particularly for applied medical statisticians.

Statistical Modelling of Survival Data with Random Effects-II Do Ha 2018-01-02 This book provides a groundbreaking introduction to the likelihood inference for correlated survival data via the hierarchical (or h-) likelihood in order to obtain the (marginal) likelihood and to address the computational difficulties in inferences and extensions. The approach presented in the book overcomes shortcomings in the traditional likelihood-based methods for clustered survival data such as intractable integration. The text includes technical materials such as derivations and proofs in each chapter, as well as recently developed software programs in R ("frailtyHL"), while the real-world data examples together with an R package, “frailtyHL” in CRAN, provide readers with useful hands-on tools. Reviewing new developments since the introduction of the h-likelihood to survival analysis (methods for interval estimation of the individual frailty and for variable selection of the fixed effects in the general class of frailty models) and guiding future directions, the book is of interest to researchers in medical and genetics fields, graduate students, and PhD (bio) statisticians.

Understanding and Using Advanced Statistics-Jeremy J. Foster 2006-01-10 The spread of sophisticated computer packages and the machinery on which to run them has meant that procedures which were previously only available to experienced researchers with access to expensive machines and research students can now be carried out in a few seconds by almost every student. Understanding and Using Advanced Statistics provides the basis for gaining an understanding of what these analytic procedures do, when they should be used, and what the results provided signify. This comprehensive textbook guides students and researchers through the transition from simple statistics to more complex procedures with accessible language and illustration.

The Oxford Handbook of Political Methodology-Janet M. Box-Steinflensmeier 2008 The Oxford Handbooks of Political Science are the essential guide to the state of political science today. With engaging contributions from major international scholars The Oxford Handbook of Political Methodology provides the key point of reference for anyone working throughout the discipline.

Modeling Survival Data Using Frailty Models-David D. Hanagal 2019-11-16 This book presents the basic concepts of survival analysis and frailty models, covering both fundamental and advanced topics. It focuses on applications of statistical tools in biology and medicine, highlighting the latest frailty-model methodologies and applications in these areas. After explaining the basic concepts of survival analysis, the book goes on to discuss shared, bivariate, and correlated frailty models and their applications. It also features datasets that have been analyzed using the R statistical package. Covering recent topics, not addressed elsewhere in the literature, this book is of immense use to scientists, researchers, students and teachers.

Evidence Synthesis for Decision Making in Healthcare-Alexander J. Sutton 2012-02-29 "In the evaluation of healthcare, rigorous methods of quantitative assessment are necessary to establish interventions that are beneficial, are superior to all alternatives and are cost-effective. Usually one study will not provide answers to these questions and it will be necessary to synthesize evidence from multiple sources. This book aims to outline a coherent approach to such evidence synthesis, for the purpose of decision making. Each chapter contains worked examples, exercises and solutions drawn from a variety of medical disciplines Evidence Synthesis for Decision Making intends to provide a practical guide to the appropriate methods for synthesizing evidence for use in analytical decision models. More specifically, it aims to provide a framework which models all the available data appropriately and efficiently in a format that can be incorporated directly into a decision model." –publisher website.

Methods and Applications of Statistics in the Life and Health Sciences-N. Balakrishnan 2010-01 "Data collection holds an essential part in dictating the future of health sciences and public health, as the compilation of statistics allows researchers and medical practitioners to monitor trends in health status, identify health problems, and evaluate the impact of health policies and programs. Methods and Applications of Statistics in the Life and Health Sciences serves as a single, one-of-a-kind resource on the wide range of statistical methods, techniques, and applications that are applied in modern life and health sciences in research. Specially designed to present encyclopedic content in an accessible and self-contained format, this book outlines thorough coverage of the underlying theory and standard applications to research in related disciplines such as biology, epidemiology, clinical trials, and public health. Uniquely combining established literature with cutting-edge research, this book contains classical works and more than twenty-five new articles and completely revised contributions from the acclaimed Encyclopedia of Statistical Sciences, Second Edition. The result is a compilation of more than eighty articles that explores classic methodology and new topics."- Publisher’s description.

Survival Analysis-John P. Klein 2005-03-10 Applied statisticians in many fields must frequently analyze time to event data. While the statistical tools presented in this book are applicable to data from medicine, biology, public health, epidemiology, engineering, economics, and demography, the focus here is on applications of the techniques to biology and medicine. The analysis of survival experiments is complicated by issues of censoring, where an individual’s life length is known to occur only in a certain period of time, and by truncation, where individuals enter the study only if they...
survive a sufficient length of time or individuals are included in the study only if the event has occurred by a given date. The use of counting process methodology has resulted in a substantial increase in the statistical theory to account for censoring and truncation in survival experiments. This book makes these complex methods more accessible to applied researchers without an advanced mathematical background. The authors present the essence of these techniques, as well as classical techniques not based on counting processes, and apply them to data. Practical suggestions for implementing the various methods are set off in a series of Practical Notes at the end of each section. Technical details of the derivation of the techniques are sketched in a series of Technical Notes. This book will be useful for investigators who need to analyze censored or truncated life time data, and as a textbook for a graduate course in survival analysis. The prerequisite is a standard course in statistical methodology.

Joint Modeling of Longitudinal and Survival Data With R-Peter Philipson 2012

Modelling Survival Data Using Frailty Models-David D. Hanagal 2011

This book covers-survival analysis, shared frailty models and bivariate frailty models, parametric distributions and regression models; nonparametric Kaplan-Meier estimation and Cox’s proportional hazard model; estimation procedures such as EM, CUSUM, Lévy processes.

Statistical Modelling of Survival Data with Random Effects-II Do Ha 2018-12-11 This book provides a groundbreaking introduction to the likelihood inference for correlated survival data via the hierarchical (or h-) likelihood in order to obtain the (marginal) likelihood and to address the computational difficulties in extensions. The approach presented in the book overcomes shortcomings in the traditional likelihood-based methods for clustered survival data such as intractable integration. The text includes technical materials such as derivations and proofs in each chapter, as well as recently developed software programs in R (“frailtyHL”), while the real-world data examples together with an R package, “frailtyHL” in CRAN, provide readers with useful hands-on tools. Reviewing new developments since the introduction of the h-likelihood to survival analysis (methods for interval estimation of the individual frailty and for variable selection of the fixed effects in the general class of frailty models) and guiding future directions, the book is of interest to researchers in medical and genetics fields, graduate students, and PhD (bio) statisticians.

Psychiatry: An evidence-based text-Bassant Puri 2009-11-27 Succinct, user-friendly, thoroughly referenced and prepared by leading experts in the field, this book is the only single textbook you will need to succeed in the Royal College of Psychiatrists’ MRCPsych and other related higher examinations. Chapters follow the structure and syllabus of the examination ensuring that you receive the necessary essential information to pass and indeed succeed. Approachable and succinct text with colour illustrations and key summary points further help to clarify complex concepts and provide you with useful revision tools. The evidence-based approach used throughout is important to help you relate theory and research to the clinical practice. The book is carefully structured and sequenced to building upon the basic sciences underpinning psychiatry, through to an in-depth description of pharmacological and psychological treatments used.

Analysis of Multivariate Survival Data-Philip Hougard 2012-09-27 Survival data or more general time-to-event data occur in many areas, including medicine, biology, engineering, economics, and demography, but previously standard methods have requested that all time variables are univariate and independent. This book extends the field by allowing for multivariate times. As the field is rather new, the concepts and the possible types of data are described in detail. Four different approaches to the analysis of such data are presented from an applied point of view.

Bayesian Survival Analysis-Joseph G. Ibrahim 2001-06-26 Survival analysis arises in many fields of study including medicine, biology, engineering, public health, epidemiology, and economics. This book provides a comprehensive treatment of Bayesian survival analysis. It presents a balance between theory and applications, and for each class of models discussed, detailed examples and analyses from case studies are presented whenever possible. The applications are all from the health sciences, including cancer, AIDS, and the environment.

Longitudinal Data Analysis-Jason Newson 2013-06-19 This book provides accessible treatment to state-of-the-art approaches to analyzing longitudinal studies. Comprehensive coverage of the most popular analysis tools allows readers to pick and choose the techniques that best fit their research. The analyses are illustrated with examples from major longitudinal data sets including practical information about their content and design. Illustrations from popular software packages offer tips on how to interpret the results. Each chapter features suggested readings for additional study and a list of articles that further illustrate how to implement the analysis and report the results. Syntax examples for several software packages for each of the chapter examples are provided at www.psypress.com/longitudinal-data-analysis. Although many of the examples address health or social science questions related to aging, readers from other disciplines will find the analyses relevant to their work. In addition to demonstrating statistical analysis of longitudinal data, the book shows how to interpret and analyze the results within the context of the research design. The methods covered in this book are applicable to a range of applied problems including short- to long-term longitudinal studies using a range of sample sizes. The book provides non-technical, practical introductions to the concepts and issues relevant to longitudinal analysis. Topics include use of publicly available data sets, weighting and adjusting for complex sampling designs with longitudinal studies, missing data and attrition, measurement issues related to longitudinal research, the use of ANOVA and regression for average change over time, mediation analysis, growth curve models, basic and advanced structural equation models, and survival analysis. An ideal supplement for graduate level courses on data analysis and/or longitudinal modeling taught in psychology, gerontology, public health, human development, sociology, social work, and other behavioral, social, and health sciences, this multidisciplinary book will also appeal to researchers in these fields.

The Statistical Analysis of Recurrent Events-Richard J. Cook 2007-08-02 This book presents models and statistical methods for the analysis of recurrent event data. The authors provide broad, detailed coverage of the major approaches to analysis, while emphasizing the modeling assumptions that they are based on. More general intensity-based models are also considered, as well as simpler models that focus on rate or mean functions. Parametric, nonparametric and semiparametric methodologies are all covered, with procedures for estimation, testing and model checking.

Applied Survival Analysis-David W. Hosmer 1999-01-21 A Practical, Up-To-Date Guide To Modern Methods In The Analysis Of Time To Event Data. The rapid proliferation of powerful and affordable statistical software packages over the past decade has inspired the development of an array of valuable new methods for analyzing survival time data. Yet there continues to be a paucity of statistical modeling guides geared to the concerns of health-related researchers who study time to event data. This book helps bridge this important gap in the literature. Applied Survival Analysis is a comprehensive introduction to regression modeling for time to event data used in epidemiological, biostatistical, and other health-related research. Unlike other texts on the subject, it focuses almost exclusively on practical applications rather than mathematical theory and offers clear, accessible presentations of modern modeling techniques supplemented with real-world examples and case studies. While the authors emphasize the proportional hazards model, descriptive methods and parametric models are also considered in some detail. Key topics covered include: * Variable selection. * Identification of the scale of continuous covariates. * The role of interactions in the model. * Interpretation of a fitted model. * Assessment of fit and model assumptions. * Regression diagnostics. * Recurrent event models, frailty models, and additive models. * Commercially available statistical software and getting the most out of it. Applied Survival Analysis is an ideal introduction for graduate students in biostatistics and epidemiology, as well as researchers in health-related fields.

Mathematical and Statistical Applications in Life Sciences and Engineering-Avishek Adhikari 2017-12-06 The book includes articles from eminent international scientists discussing a wide spectrum of topics of current importance in mathematics and statistics and their applications. It presents state-of-the-art material along with a clear and detailed review of the relevant topics and issues concerned. The topics discussed include message transmission, coding problem, control of stochastic structures and information dynamics, image denoising, life testing and reliability, survival and frailty models, analysis of drought periods, prediction of genomic profiles, competing risks, environmental applications and chronic disease control. It is a valuable resource for researchers and practitioners in the relevant areas of mathematics and statistics.

Survival Analysis and Maximum Likelihood Techniques as Applied to Physiological Modelling-Undersea and Hyperbaric Medical Society. Workshop 2002

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Regression Modeling Strategies-Frank E. Harrell, Jr. 2015-08-14 This highly anticipated second edition features new chapters and sections, 225 new references, and comprehensive R software. In keeping with the previous edition, this book is about the art and science of data analysis and predictive modelling, which entails choosing and using multiple tools. Instead of presenting isolated techniques, this text emphasises problem solving strategies that address the many issues arising when developing multi-variable models using real data and not standard textbook examples. Regression Modelling Strategies presents full-scale case studies of non-trivial data-sets instead of over-simplified illustrations of each method. These case studies use freely available R functions that make the multiple imputation, model building, validation and interpretation tasks described in the book relatively easy to do. Most of the methods in this text apply to all regression models, but special emphasis is given to multiple regression using generalised least squares for longitudinal data, the binary logistic model, models for ordinal responses, parametric survival regression models and the Cox semi parametric survival model. A new emphasis is given to the robust analysis of continuous dependent variables using ordinal regression. As in the first edition, this text is intended for Masters' or PhD level graduate students who have had a general introductory probability and statistics course and who are well versed in ordinary multiple regression and intermediate algebra. The book will also serve as a reference for data analysts and statistical methodologists, as it contains an up-to-date survey and bibliography of modern statistical modelling techniques.

Biopharmaceutical Applied Statistics Symposium-Karl E. Peace 2018-08-20 This BASS book Series publishes selected high-quality papers reflecting recent advances in the design and biostatistical analysis of biopharmaceutical experiments – particularly biopharmaceutical clinical trials. The papers were selected from invited presentations at the Biopharmaceutical Applied Statistics Symposium (BASS), which was founded by the first Editor in 1994 and has since become the premier international conference in biopharmaceutical statistics. The primary aims of the BASS are: 1) to raise funding to support graduate students in biostatistics programs, and 2) to provide an opportunity for professionals engaged in pharmaceutical drug research and development to share insights into solving the problems they encounter;The BASS book series is initially divided into three volumes addressing: 1) Design of Clinical Trials; 2) Biostatistical Analysis of Clinical Trials; and 3) Pharmaceutical Applications. This book is the first of the three volume book series. The topics covered include: A Statistical Approach to Clinical Trial Simulations, Comparison of Statistical Analysis Methods Using Modeling and Simulation for Optimal Protocol Design, Adaptive Trial Design in Clinical Research, Best Practices and Recommendations for Trial Simulations in the Context of Designing Adaptive Clinical Trials, Designing and Analyzing Recurrent Event Data Trials, Bayesian Methodologies for Response-Adaptive Allocation, Addressing High Placebo Response in Neuroscience Clinical Trials, Phase I Cancer Clinical Trial Design: Single and Combination Agents, Sample Size and Power for the Mixed Linear Model, Crossover Designs in Clinical Trials, Data Monitoring: Structure for Clinical Trials and Sequential Monitoring Procedures, Design and Data Analysis for Multiregional Clinical Trials – Theory and Practice, Adaptive Group-Sequential Multi-regional Outcome Studies in Vaccines, Development and Validation of Patient-reported Outcomes, Interim Analysis of Survival Trials: Group Sequential Analyses, and Conditional Power – A Non-proportional Hazards Perspective.

Modelling Survival Data Flexibly Using Multi-parameter Regression-Kevin Burke 2020 In this case study, I describe my development of multi-parameter regression (MPR) as a flexible way of modeling survival data along with an application to lung cancer data (using the “mpr” package in the R programming language). I cover both the use of MPR as a data analysis research method and the thought process which led me to its development—the latter could be thought of as a method for developing a method! Therefore, the case study should appeal both to those interested in applying statistical methods and those interested in developing them (and everybody in between). If you have ever analyzed survival data, then you have almost certainly used Cox’s proportional hazards (PH) model—but did you consider why this particular model should be used or what makes hazards proportional? More generally, critical assessment of the statistical models you use should never be overlooked; these models shape your research findings. In the context of this case study, the MPR method provides a vehicle for relaxing the PH assumption, but can be used in other contexts to create flexible models. Although these more flexible/complex models get closer to reality, you should always remember that all models are wrong. This is a key learning shared in this case study, which comes more about naturally when you critically assess models (be they established or not) as standard practice.

Modelling Multivariate Survival Data Using Semiparametric Models-Gerhard Tutz 2017-01-27 This dissertation, “Modelling Multivariate Survival Data Using Semiparametric Models” by Gerhard Tutz, was submitted to the University of Hong Kong (Pokfulam, Hong Kong) and is being sold pursuant to Creative Commons: Attribution 3.0 Hong Kong License. The content of this dissertation has not been altered in any way. We have altered the formatting in order to facilitate the ease of printing and reading of the dissertation. All rights not granted by the above license are retained by the author. DOI: 10.5353/hk4257528 Subjects: Survival analysis (Biometry) Multivariate analysis Medicine - Research - Statistical methods.

Modelling Discrete Time-to-Event Data-Geir Tosteson 2016-06-14 This book focuses on statistical methods for the analysis of discrete failure times. Failure time analysis is one of the most important fields in statistical research, with applications affecting a wide range of disciplines, in particular, demography, econometrics, epidemiology and clinical research. Although there are a large variety of statistical methods for failure time analysis, many techniques have been developed for survival data that are measured on a continuous scale. In empirical studies, however, failure times are often discrete, either because they have been measured in intervals (e.g., quarterly or yearly) or because they have been rounded or grouped. The book covers well-established methods like life-table analysis and discrete hazard regression models, but also introduces state-of-the-art techniques for model evaluation, nonparametric estimation and variable selection. Throughout the methods are illustrated by real life applications, and relationships to survival analysis in continuous time are explained. Each section includes a set of exercises on the respective topics. Various functions and tools for the analysis of discrete survival data are collected in the R package discSurv that accompanies the book.

Survival Analysis for Epidemiologic and Medical Research-Steve Selvin 2008-03-03 This practical guide to survival data and its analysis for readers with a minimal background in statistics shows why the analytic methods work and how to effectively analyze and interpret epidemiologic and medical survival data with the help of modern computer systems. The introduction presents a review of a variety of statistical methods that are not only key elements of survival analysis but are also central to statistical analysis in general. Techniques such as statistical tests, transformations, confidence intervals, and analytic modeling are presented in the context of survival data but are, in fact, statistical tools that apply to understanding the analysis of many kinds of data. Similarly, discussions of such statistical concepts as bias, confounding, independence, and interaction are presented in the context of survival analysis and also are basic components of a broad range of applications. These topics make up essentially a ‘second-year’, one-semester biostatistics course in survival analysis concepts and techniques for non-statisticians.

Nineteenth Annual Symposium on Computer Applications in Medical Care-Reed M. Gardner 1995