Classical Competing Risks

Martin J. Crowder
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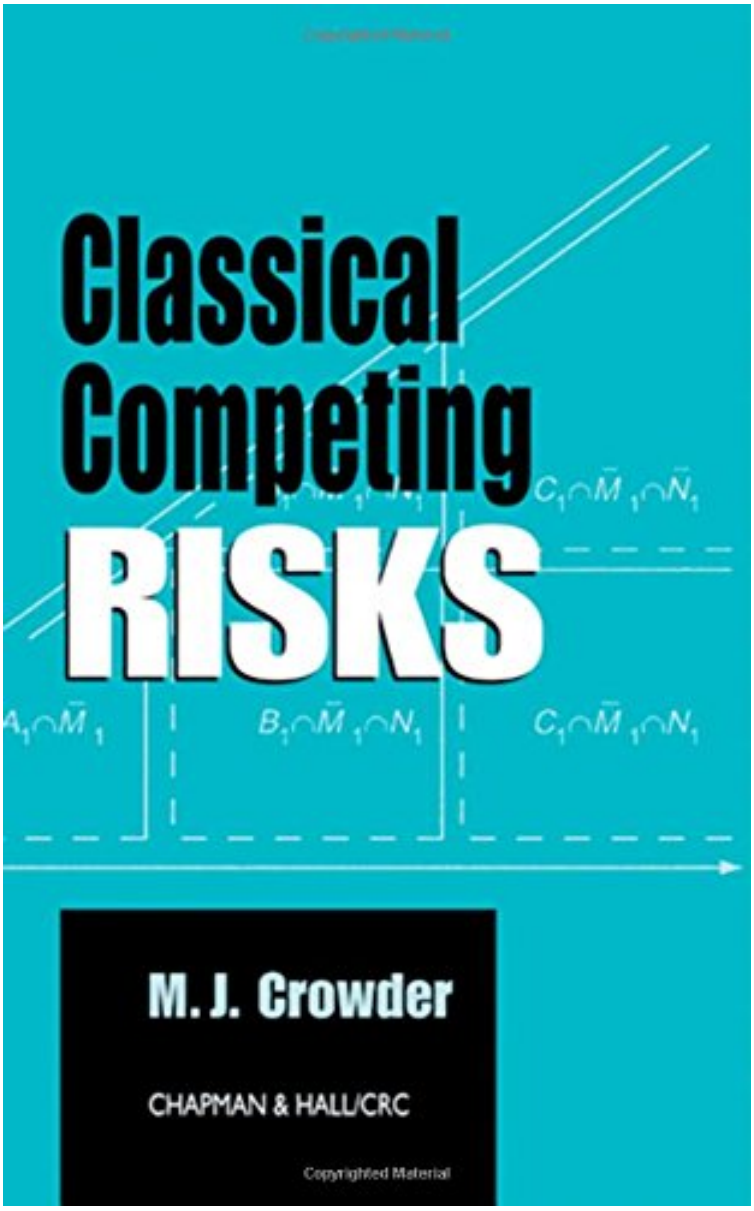

#2021933 in Books Chapman and Hall/CRC 2001-05-11Original language:EnglishPDF # 1 9.25 x 6.25 x .50l, .90 #File Name: 1584881755200 pages | File size: 78.Mb

Martin J. Crowder : Classical Competing Risks before purchasing it in order to gage whether or not it would be worth my time, and all praised Classical Competing Risks:

28 of 28 people found the following review helpful. first good book on this topic since David and Moeschberger in 1978By Michael R. ChernickCrowder has written an up-to-date text on an important problem in health science and

medical research. The first good monograph on this subject was by David and Moeschberger in 1978 and no text devoted to this topic had been written until now. People get sick or die or hardware fails due to one of several possible causes. In the competing risks model these causes are all given probabilities of occurrence over time and "compete" to be the first to occur and thus cause the event.The mathematics of competing risks is very much the same as the mathematics of survival analysis but instead of a single time to event curve there are many. For data analysis, one must be able to get data that includes not only the time of occurrence of the failure but also which of a list of possible causes the event is attributed to (the list of "competing" risks).Crowder's text is introductory and reviews a lot of the basics of survival analysis and likelihood inference. Hazard functions and survival curves are introduced as are sub-survival curves and sub-hazard functions. The nonparametric Kaplan-Meier approach to survival analysis is presented as is the semiparametric Cox proportional hazards model. The important issue of parameter identifiability is given its proper place of importance.The first seven chapters are written at an elementary to intermediate level that should be understandable to the undergraduate or graduate student taking this course. However, Chapter 8 deals with the modern and powerful counting process (martingale) approach to survival analysis and is more difficult to read. Chapter 8 has more of the flavor of an advanced probability topic and is suitable for graduate students who have taken that first advanced probability course.

If something can fail, it can often fail in one of several ways and sometimes in more than one way at a time. There is always some cause of failure, and almost always, more than one possible cause. In one sense, then, survival analysis is a lost cause. The methods of Competing Risks have often been neglected in the survival analysis literature. Written by a leading statistician, Classical Competing Risks thoroughly examines the probability framework and statistical analysis of data of Competing Risks. The author explores both the theory of the subject and the practicalities of fitting the models to data. In a coherent, self-contained, and sequential account, the treatment moves from the bare bones of the Competing Risks setup and the associated likelihood functions through survival analysis using hazard functions. It examines discrete failure times and the difficulties of identifiability, and concludes with an introduction to the counting-process approach and the associated martingale theory.With a dearth of modern treatments on the subject and the importance of its methods, this book fills a long-standing gap in the literature with a carefully organized exposition, real data sets, numerous examples, and clear, readable prose. If you work with lifetime data, Classical Competing Risks presents a modern, comprehensive overview of the methodology and theory you need.

"an excellent self-contained treatment of competing risksthe chapter on identifiability issues collects results, which are not much discussed in other books on survival analysisthe book is fun to read" - Short Book s of the ISI "Classical Competing Risks is self-contained and well written at a level accessible to graduate students and applied statisticians alike." - Journal of the American Statistical Association "best described as a highly focused, extremely compact, introductionThe reviewed reliability concepts span hazard functions, maximum likelihood estimation of reliability model parameters, multivariate survival distributions, partial likelihood functions, and reliability model checking. This succinct and comprehensive tour of reliability is an important side benefit of the bookThe author's writing style keeps the dryness of the mathematics from overwhelming the book. He maintains an honest appreciation of the limits of what he can achieve in a relatively small space. He sprinkles various personal comments and asides that, although not simplifying the mathematics, at least prevent the book from seeming strictly a core text. a well-organized, enriching encouragement to learn more about a subject deserving of more widespread appreciation in the reliability community. - Joseph D. Conklin, U.S. Census Bureau in Technometrics, August 2002