

Counting Processes and Survival Analysis, by Thomas R. Fleming

and David P. Harrington, John Wiley & Sons, Inc., Hoboken, New Jersey. 2005, ISBN 13978-0-471-769880-0 429pp., \$89.95

This book was published in 1991 and being republished in paperback in 2005. It successfully uses the martingale and the advanced probabilistic tools to study the survival data with censoring.

The collections of classical survival analysis techniques with censoring such as Kaplan-Meier estimators, Cox's proportional hazard model with covariates, censored data regression model and the maximum likelihood and partial maximum likelihood, weighted logrank statistics and their applications all treated with the dedicated mathematical descriptions. As stated in its introduction; "Stochastic integrals provide a single, elegant representation for censor data statistics arising from seemingly different problems and lead to a unified approach for studying both small sample and asymptotic properties of these statistics".

The book started with the description of the combining of the counting process and its hazard integrations with censorings to become a new stochastic process which is martingale. The martingale properties thus can be used to derive the other asymptotic statistical properties to either estimate the survival function, or for the testing of the two survival functions for their equivalency.

This book provides several medical study datum to serve an excellent demonstration of how to bridge the theory and the applications.

To be benefited from this book, the readers must familiar with the measure theoretical approach to the probability, which usually will not be touched by the applied statisticians. Although, at the end of the book, an attempt was tried to introduce these measure theoretical approach, this book is meant for the motivated readers, or highly trained mathematical statisticians. The book can be used as an excellent text book to introduce the theoretical mathematical statisticians in the applied field of survival analysis with censoring. If the readers can overcome these mathematical probabilistic jargons, this book provides a unique source for combining the theory and the application of the survival analysis with censored data.

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