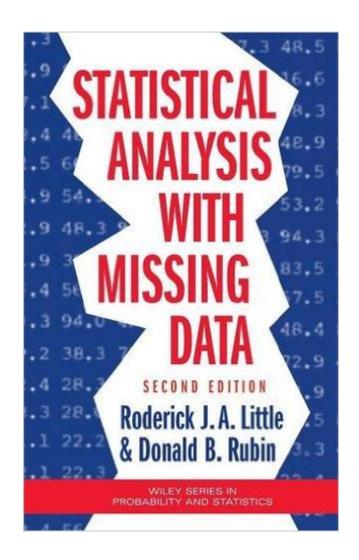
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# Statistical Analysis With Missing Data





### **Synopsis**

Praise for the First Edition of Statistical Analysis with Missing Data "An important contribution to the applied statistics literature.... I give the book high marks for unifying and making accessible much of the past and current work in this important area." â "William E. Strawderman, Rutgers University "This book...provide[s] interesting real-life examples, stimulating end-of-chapter exercises, and up-to-date references. It should be on every applied statisticianâ ™s bookshelf." â "The Statistician "The book should be studied in the statistical methods department in every statistical agency." â "Journal of Official Statistics Statistical analysis of data sets with missing values is a pervasive problem for which standard methods are of limited value. The first edition of Statistical Analysis with Missing Data has been a standard reference on missing-data methods. Now, reflecting extensive developments in Bayesian methods for simulating posterior distributions, this Second Edition by two acknowledged experts on the subject offers a thoroughly up-to-date, reorganized survey of current methodology for handling missing-data problems. Blending theory and application, authors Roderick Little and Donald Rubin review historical approaches to the subject and describe rigorous yet simple methods for multivariate analysis with missing values. They then provide a coherent theory for analysis of problems based on likelihoods derived from statistical models for the data and the missing-data mechanism and apply the theory to a wide range of important missing-data problems. The new edition now enlarges its coverage to include: Expanded coverage of Bayesian methodology, both theoretical and computational, and of multiple imputation Analysis of data with missing values where inferences are based on likelihoods derived from formal statistical models for the data-generating and missing-data mechanisms Applications of the approach in a variety of contexts including regression, factor analysis, contingency table analysis, time series, and sample survey inference Extensive references, examples, and exercises. Amstat News asked three review editors to rate their top five favorite books in the September 2003 issue. Statistical Analysis With Missing Data was among those chosen.

#### **Book Information**

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#### Customer Reviews

I'm working with data sets where up to 15% of measurements are unusable. If I'm going to get any results at all, I have to get them despite the lost values. This book provides a huge library of techniques for working around the holes, as well as techniques for filling them in. This is not a cut-and-paste text for programmers - it gives the basic theory and algorithms for each technique. Still, the presentation is quite readable and fairly easy to put into practice. The book's emphasis is on imputation - filling in values so that analysis can move forward. This is something to approach with real caution, though. The imputed (synthesized) values must not perturb the analysis, so the imputation must differ according to the analysis being performed. The authors present a variety of imputation techniques, as well as bootstrap, jacknife, and other techniques for measuring the quality of the results. The authors also dedicate chapters to approaches that work only with available data, and to cases where missing data can not simply be ignored. This is the most thorough and practical guide I know to handling missing data. In an ideal world, experiments would all produce usable results and surveys would all have every question answered. When you have to deal with reality, though, this is the book.

I have previously given great praise to this book under the pen name of statman13. To add to my previous reviews I should say that Little and Rubin continue to be the top researchers in this field and Don Rubin often consults with the FDA, the pharmaceutical industry and statistical review boards. He is an eloquent speaker and writer as is also his co-author Rod Little. The development of the model classifications MAR, MCAR and MNAR (or nonignorable missingness)is due to Rubin and is quite common these days in the thinking of researchers involved with missing data in their analyses. In the cases where the missing mechanism is not ignorable pattern mixture models, that Little had a major role in developing, are given. All this wonderful work is spelled out in this book. This second edition has added much discussion of Bayesian methods using the current computational advantages of Gibbs sampling. Also some specific techniques have software implementation in SAS or SPlus and this is pointe dout by the authors when it comes up. I think that

rather than searching through the index to find where sofware is mentioned it would be nice to have a section of the book devoted to it. oddly the software tool SOLAS that Rubin had a part in aiding the development does not appear to be mentioned in the book. Perhaps the authors will expand upon the discussion of software in the next edition. Also new to this edition is more detailed coverage of multiple imputation. Resampling techniques are also discussed in the context of getting sensible estimates of the standard deviation of the estimated parameters in the face of imputing some of the data.

This is a classic and should be part of your library if you are a serious statistician.

This is the standard reference for statistics of missing data. Anyone working in the field will find it indispensable. The new edition is updated to cover a number of recent developments in the field.

I love this book as one of fundamental books on missing data problem. For EM algorithm, we can refer other books. However, we always need to take missing data mechanisms into account, when we do analyze incomplete data. Now this honorable book has its second edition. It is fully revised and updated.

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