

Springer Series in Statistics

Jon Wakefield

Bayesian and Frequentist Regression Methods

Bayesian and Frequentist Regression Methods provides a modern account of both Bayesian and frequentist methods of regression analysis. Many texts cover one or the other of the approaches, but this is the most comprehensive combination of Bayesian and frequentist methods that exists in one place. The two philosophical approaches to regression methodology are featured here as complementary techniques, with theory and data analysis providing supplementary components of the discussion. In particular, methods are illustrated using a variety of data sets. The majority of the data sets are drawn from biostatistics but the techniques are generalizable to a wide range of other disciplines. While the philosophy behind each approach is discussed, the book is not ideological in nature and an emphasis is placed on practical application. It is shown that, in many situations, careful application of the respective approaches can lead to broadly similar conclusions. To use this text, the reader requires a basic understanding of calculus and linear algebra, and introductory courses in probability and statistical theory. The book is based on the author's experience teaching a graduate sequence in regression methods. The book website contains all of the code to reproduce all of the analyses and figures contained in the book.

Jon Wakefield is Professor in the Departments of Statistics and Biostatistics at the University of Washington. His interests lie in biostatistics, epidemiology and genetics and in links between frequentist and Bayesian methods. His work has been published extensively. He received his PhD from the University of Nottingham, and his honors include the Guy Medal in Bronze from the Royal Statistical Society, and he is a Fellow of the American Statistical Association. He has previously been the Chair of the Department of Statistics at the University of Washington.

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