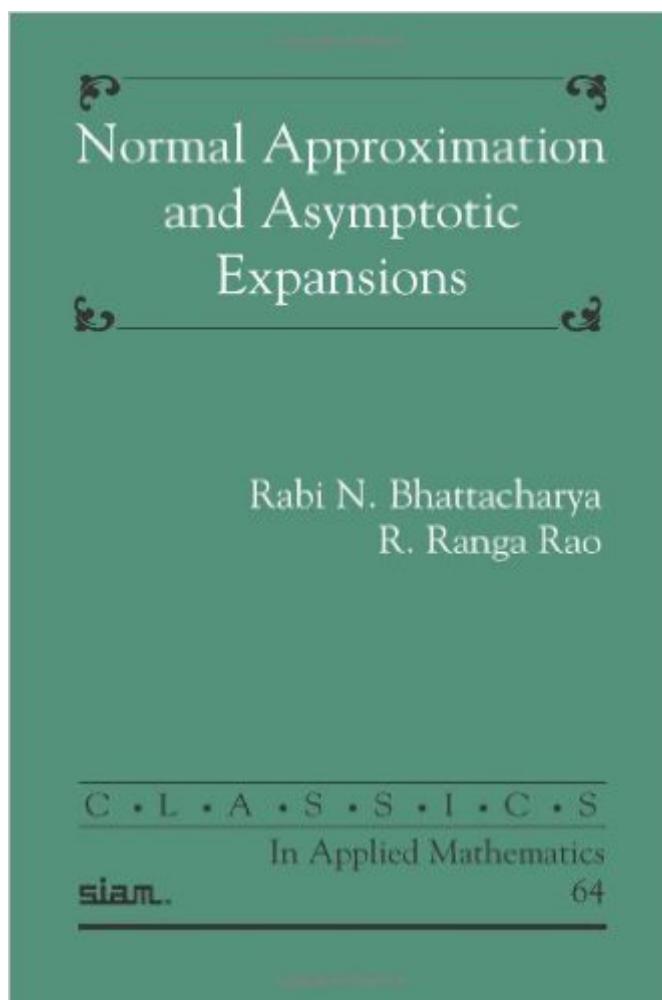


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Normal Approximation And Asymptotic Expansions (Classics In Applied Mathematics)



Synopsis

Although *Normal Approximation and Asymptotic Expansions* was first published in 1976, it has gained new significance and renewed interest among statisticians due to the developments of modern statistical techniques such as the bootstrap, the efficacy of which can be ascertained by asymptotic expansions. This also is the only book containing a detailed treatment of various refinements of the multivariate central limit theorem (CLT), including Berry-Essen-type error bounds for probabilities of general classes of functions and sets, and asymptotic expansions for both lattice and non-lattice distributions. With meticulous care, the authors develop necessary background on weak convergence theory, Fourier analysis, geometry of convex sets, and the relationship between lattice random vectors and discrete subgroups of \mathbb{R}^k . The formalism developed in the book has been used in the extension of the theory by Goetze and Hipp to sums of weakly dependent random vectors. This edition of the book includes a new chapter that provides an application of Stein's method of approximation to the multivariate CLT. Audience: The book is appropriate for graduate students of probability and statistics as well as researchers in these and other fields whose work involves the asymptotic theory of statistics. Contents: Preface to the Classics Edition; Preface; Chapter 1: Weak Convergence of Probability Measures and Uniformity Classes; Chapter 2: Fourier Transforms and Expansions of Characteristic Functions; Chapter 3: Bounds for Errors of Normal Approximation; Chapter 4: Asymptotic Expansions Nonlattice Distributions; Chapter 5: Asymptotic Expansions Lattice Distributions; Chapter 6: Two Recent Improvements; Chapter 7: An Application of Stein's Method; Appendix A.1: Random Vectors and Independence; Appendix A.2: Functions of Bounded Variation and Distribution Functions; Appendix A.3: Absolutely Continuous, Singular, and Discrete Probability Measures; Appendix A.4: The Euler-MacLaurin Sum Formula for Functions of Several Variables; References; Index.

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