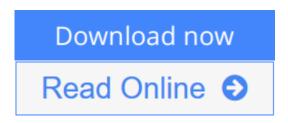


### Essentials of Probability Theory for Statisticians (Chapman & Hall/CRC Texts in Statistical Science)

By Michael A. Proschan, Pamela A. Shaw



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Essentials of Probability Theory for Statisticians provides graduate students with a rigorous treatment of probability theory, with an emphasis on results central to theoretical statistics. It presents classical probability theory motivated with illustrative examples in biostatistics, such as outlier tests, monitoring clinical trials, and using adaptive methods to make design changes based on accumulating data. The authors explain different methods of proofs and show how they are useful for establishing classic probability results.

After building a foundation in probability, the text intersperses examples that make seemingly esoteric mathematical constructs more intuitive. These examples elucidate essential elements in definitions and conditions in theorems. In addition, counterexamples further clarify nuances in meaning and expose common fallacies in logic.

This text encourages students in statistics and biostatistics to think carefully about probability. It gives them the rigorous foundation necessary to provide valid proofs and avoid paradoxes and nonsensical conclusions.



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#### Review

"This book has tremendous potential for usage in statistics and biostatistics departments where the Ph.D. students would not necessarily have taken a measure theory course but would need a rigorous treatment of probability for their dissertation research and publications in statistical and biostatistics journals ... The authors are commended for providing this valuable book for students in statistics and biostatistics. The illustrative biostatistics examples (throughout chapter 10 but especially in chapter 11) provide motivating rewards for students."

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#### About the Author

**Michael A. Proschan** is a mathematical statistician in the Biostatistics Research Branch at the U.S. National Institute of Allergy and Infectious Diseases (NIAID). A fellow of the American Statistical Association, Dr. Proschan has published more than 100 articles in numerous peer-reviewed journals. His research interests include monitoring clinical trials, adaptive methods, permutation tests, and probability. He earned a PhD in statistics from Florida State University.

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