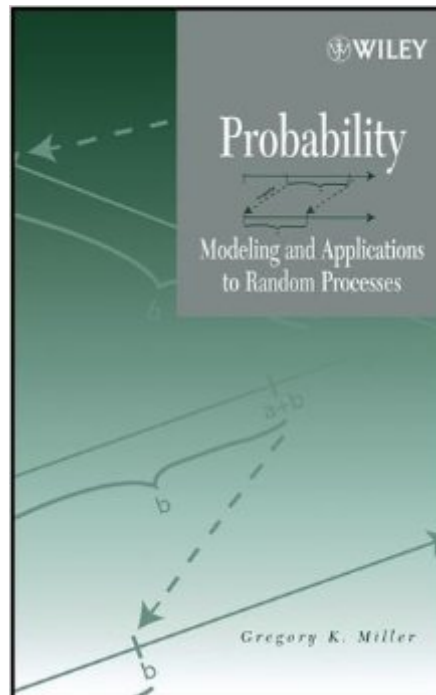# Probability: Modeling And Applications To Random Processes

## Synopsis

Improve Your Probability of Mastering This Topic  This book takes an innovative approach to calculus-based probability theory, considering it within a framework for creating models of random phenomena. The author focuses on the synthesis of stochastic models concurrent with the development of distribution theory while also introducing the reader to basic statistical inference. In this way, the major stochastic processes are blended with coverage of probability laws, random variables, and distribution theory, equipping the reader to be a true problem solver and critical thinker.  Deliberately conversational in tone, Probability is written for students in junior- or senior-level probability courses majoring in mathematics, statistics, computer science, or engineering. The book offers a lucid and mathematicallysound introduction to how probability is used to model random behavior in the natural world. The text contains the following chapters: * Modeling * Sets and Functions * Probability Laws I: Building on the Axioms * Probability Laws II: Results of Conditioning * Random Variables and Stochastic Processes * Discrete Random Variables and Applications in Stochastic Processes * Continuous Random Variables and Applications in Stochastic Processes * Covariance and Correlation Among Random Variables Included exercises cover a wealth of additional concepts, such as conditional independence, Simpson's paradox, acceptance sampling, geometric probability, simulation, exponential families of distributions, Jensen's inequality, and many non-standard probability distributions.

## Book Information

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## Customer Reviews

Much of the material here is well covered in other texts on probability. But Miller gives more emphasis on the modelling aspect. For this, the book has examples of some rather obscure probability distributions, that other, more standard texts tend to omit. Which is one attraction of the book.But the main value of the book might be when we get past the introductory material about simple probability concepts. And where we deal with actually trying to model a given random process. For you as a researcher, what you deal with might not be in any of the textbooks. So how can you find an existing distribution, or, more to the point, make up one, that fits your data? A lot of books are frustratingly useless on this aspect. But Miller at least has some material that is informative.

This book is a great read. The book explains probability at a very accessible level. And the questions at the end of the chapter will really gauge your understanding. I have the author of the book as a professor and the book reads just like he talks. Very interesting and very passionate about his subject. I recommend this text book to anyone trying to learn probability.

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