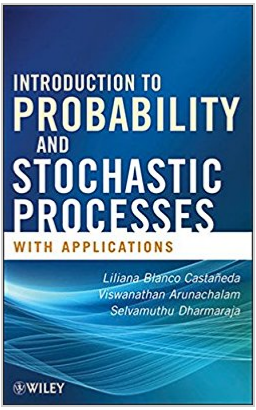

Introduction to Probability and Stochastic Processes with Applications

By Liliana Blanco Casta?eda, Viswanathan Arunachalam, Selvamuthu Dharmaraja

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An easily accessible, real-world approach to probability and stochastic processes

Introduction to Probability and Stochastic Processes with Applications presents a clear, easy-to-understand treatment of probability and stochastic processes, providing readers with a solid foundation they can build upon throughout their careers. With an emphasis on applications in engineering, applied sciences, business and finance, statistics, mathematics, and operations research, the book features numerous real-world examples that illustrate how random phenomena occur in nature and how to use probabilistic techniques to accurately model these phenomena.

The authors discuss a broad range of topics, from the basic concepts of probability to advanced topics for further study, including Itô integrals, martingales, and sigma algebras. Additional topical coverage includes:

- Distributions of discrete and continuous random variables frequently used in applications
- Random vectors, conditional probability, expectation, and multivariate normal distributions
- The laws of large numbers, limit theorems, and convergence of sequences of random variables
- Stochastic processes and related applications, particularly in queueing systems
- Financial mathematics, including pricing methods such as risk-neutral valuation and the Black-Scholes formula

Extensive appendices containing a review of the requisite mathematics and tables of standard distributions for use in applications are provided, and plentiful exercises, problems, and solutions are found throughout. Also, a related website features additional exercises with solutions and supplementary material for classroom use. *Introduction to Probability and Stochastic Processes with Applications* is an ideal book for probability courses at the upper-undergraduate level. The book is also a valuable reference for researchers and practitioners in the fields of engineering, operations research, and computer science who conduct data analysis to make decisions in their everyday work.

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Editorial Review

Review

“A great strength of this book is the enormous number of detailed examples and the exercises at the end of each chapter, many of which include solutions. The writing style is very clear, because the authors brought their experiences in teaching for several years to its writing. . .In summary, the first eight chapters provide an excellent introduction to and quick overview of probability theory, with many examples.” (*Interfaces*, 1 September 2013)

“The choice of material and the presentation make this book an excellent first introduction into probability theory and stochastic processes from upper undergraduate level onwards in all the areas mentioned above. It may also serve math students at the very initial stages of their studies as a stepping stone to get a sound grasp of some basic concepts of probability.” (*Contemporary Physics*, 13 August 2012)

From the Back Cover

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