

## **Probability and Stochastic Processes**

By lonut Florescu



Probability and Stochastic Processes By Ionut Florescu

A comprehensive and accessible presentation of probability and stochastic processes with emphasis on key theoretical concepts and real-world applications

With a sophisticated approach, *Probability and Stochastic Processes* successfully balances theory and applications in a pedagogical and accessible format. The book's primary focus is on key theoretical notions in probability to provide a foundation for understanding concepts and examples related to stochastic processes.

Organized into two main sections, the book begins by developing probability theory with topical coverage on probability measure; random variables; integration theory; product spaces, conditional distribution, and conditional expectations; and limit theorems. The second part explores stochastic processes and related concepts including the Poisson process, renewal processes, Markov chains, semi-Markov processes, martingales, and Brownian motion. Featuring a logical combination of traditional and complex theories as well as practices, *Probability and Stochastic Processes* also includes:

- Multiple examples from disciplines such as business, mathematical finance, and engineering
- Chapter-by-chapter exercises and examples to allow readers to test their comprehension of the presented material
- A rigorous treatment of all probability and stochastic processes concepts

An appropriate textbook for probability and stochastic processes courses at the upper-undergraduate and graduate level in mathematics, business, and electrical engineering, *Probability and Stochastic Processes* is also an ideal reference for researchers and practitioners in the fields of mathematics, engineering, and finance.

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#### **Editorial Review**

From the Back Cover

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**Ionut Florescu, PhD,** is Research Associate Professor of Financial Engineering and Director of the Hanlon Financial Systems Lab at Stevens Institute of Technology. His areas of research interest include stochastic volatility, stochastic partial differential equations, Monte Carlo methods, and numerical methods for stochastic processes. He is also the coauthor of *Handbook of Probability* and coeditor of *Handbook of Modeling High-Frequency Data in Finance*, both published by Wiley.

#### About the Author

**Ionut Florescu, PhD,** is Research Associate Professor of Financial Engineering and Director of the Hanlon Financial Systems Lab at Stevens Institute of Technology. His areas of research interest include stochastic volatility, stochastic partial differential equations, Monte Carlo methods, and numerical methods for stochastic processes. He is also the coauthor of *Handbook of Probability* and coeditor of *Handbook of Modeling High-Frequency Data in Finance*, both published by Wiley.

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