#### Vincenzo Capasso David Bakstein

# An Introduction to Continuous-Time Stochastic Processes

Theory, Models, and Applications to Finance, Biology, and Medicine

Third Edition

🕲 Birkhäuser



## An Introduction to Continuous-Time Stochastic Processes: Theory, Models, and Applications to Finance, Biology, and Medicine (Hardback)

By Vincenzo Capasso, David Bakstein

BIRKHAUSER BOSTON INC, United States, 2015. Hardback. Condition: New. 3rd ed. 2015. Language: English . Brand New Book. This textbook, now in its third edition, offers a rigorous and selfcontained introduction to the theory of continuous-time stochastic processes, stochastic integrals, and stochastic differential equations. Expertly balancing theory and applications, the work features concrete examples of modeling real-world problems from biology, medicine, industrial applications, finance, and insurance using stochastic methods. No previous knowledge of stochastic processes is required. Key topics include: Markov processes Stochastic differential equations Arbitrage-free markets and financial derivatives Insurance risk Population dynamics, and epidemics Agent-based models New to the Third Edition: Infinitely divisible distributions Random measures Levy processes Fractional Brownian motion Ergodic theory Karhunen-Loeve expansion Additional applications Additional exercises Smoluchowski approximation of Langevin systems An Introduction to Continuous-Time Stochastic Processes, Third Edition will be of interest to a broad audience of students, pure and applied mathematicians, and researchers and practitioners in mathematical finance, biomathematics, biotechnology, and engineering. Suitable as a textbook for graduate or undergraduate courses, as well as European Masters courses (according to the twoyear-long second cycle of the Bologna Scheme ), the work may also be used for self-study or as a reference. Prerequisites include knowledge...



### Reviews

This publication could be worth a read through, and far better than other. This is certainly for all those who statte there was not a worth reading through. You may like just how the author compose this publication.

### -- Dr. Kayley Kovacek PhD

This ebook is definitely not effortless to get started on reading through but very fun to read through. it was actually writtern very perfectly and valuable. I discovered this ebook from my dad and i suggested this book to understand. -- Kaden Daugherty V