Resnick, Sidney I.
Adventures in stochastic processes. (English) Zbl 0762.60002
Boston, MA: Birkhäuser. xii, 626 p. (1992).

Why a new book again on stochastic processes? There are so many good introductory texts on this topic that one can hardly hope to write a better or more attractive one. This book, however, convinced the reviewer that it is very likely that the Adventures will become a widely used, popular first year graduate text on stochastic processes. The book is flexible (helps the instructor to push the sophistication level up or down), the motivations of deep theories are clear, the examples and exercises are interesting.

The main topics discussed in the book are the following: discrete index sets and/or discrete state spaces (generating functions, branching processes, random walks, stopping times), Markov chains, renewal theory, point processes, continuous Markov chains, Brownian motion (Brownian bridge with statistical applications), the general random walk (Wiener- Hopf decompositions, applications to queueing models). Further applications include storage, genetics, economics, sociology. The book is a nice combination of rigorous proofs and plausibility arguments in a lively and imaginative presentation.

Reviewer: J.G.Székely (Bowling Green)

MSC:

60-01	Introductory exposition (textbooks, tutorial papers, etc.) pertaining to probability theory	Cited in **190** Documents
60Gxx	Stochastic processes	
60Jxx	Markov processes	
60Kxx	Special processes	

Keywords:

Wiener-Hopf decompositions; generating functions; branching processes; stopping times; Markov chains; renewal theory