K. Borovkov, *Elements of Stochastic Modelling*, XIII+342 pages, World Scientific, New Jersey – London – Singapore – Hong Kong, 2003.

This is an introductory textbook on stochastic processes, for an undergraduate course that follows a calculus-based introductory course on probability theory. As a text for a second undergraduate course in stochastics, without measure theory, it may be viewed as a worthy competitor of S. M. Ross's well-known and deservedly popular book *Introduction to Probability Models* (Academic Press, New York, with several editions), and, on the long run, it even has a good chance to come out a winner.

Following an *Introduction*, pp. 1–8, on the nature of mathematical modelling, the second chapter *Basics of probability theory*, pp. 9–74, reviews necessary preliminaries, going in a nice descriptive manner from the St. Petersburg paradox to functionals of Brownian motion, as a prelude to a chapter on *Markov chains*, pp. 75–128, which in a technical sense serves as a foundation for the rest of the text. Then the chapter *Markov decision processes*, pp. 129–154, discusses first applications, focusing in part on discounted dynamic programming. The short fifth chapter *The exponential distribution and Poisson process*, pp. 155–170, then gives way to the one on *Jump Markov processes*, pp. 171–192, with various continuous-time inhomogeneous and birth-and-death processes, then to a traditional type of an exposition of the *Elements of queueing theory*, pp. 193–225, and finally to another short chapter on the *Elements of renewal theory*, pp. 227–236. Chapter 9 on the *Elements of time series*, pp. 237–273, is the only one with a statistical flavor, mostly on linear processes and filters, and the tenth and final chapter, *Elements of simulation*, pp. 275–305, gets as far as the Markov Chain Monte Carlo method.

Now then, given that most of us would agree that the curriculum of such a course is about right ($\pm\varepsilon$ depending on the personal taste of the instructor and the special needs of the audience), what does distinguish this book? The answer is very simple: its overall intelligence. It is a blend of the best traditions of honest scholarship and a no-nonsense modern style. The basic notions, problems and results are introduced through fine examples. Many of the results are exposed without formal rigorous proofs, but are always both rigorously stated and explained in an attractive and efficient manner. Most chapters suggest a carefully selected recommended literature, and all of Chapters 2–10 end with an excellent choice of theoretical and applied problems, complementing the material in an organic fashion, and an extra chapter *Answers to problems*, pp. 307–332, contains solutions, either just a numerical answer or a complete formal argument as needed, to all the problems. Lists of notations and abbreviations and an index also help the reader. Finally, a special feature is a large number of footnotes, in small print, that range from providing etymologies of the most frequently used technical terms to covering what this reviewer believes to be the minimal historical knowledge, at least for all the instructors, about the field of stochastics and its creators. A fine pedagogical touch and a good sense of proportion make the text extremely well balanced. A very intelligent book indeed.

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