Meyn, S. P.; **Tweedie, R. L.**
Markov chains and stochastic stability. (English) Zbl 0925.60001
Communications and Control Engineering Series. Berlin: Springer-Verlag. xvi, 550 p. (1993).

Publisher's description: Markov Chains and Stochastic Stability is part of the Communications and Control Engineering Series (CCES) edited by Professors B.W. Dickinson, E.D. Sontag, M. Thoma, A. Fettweis, J.L. Massey and J.W. Modestino. The area of Markov chain theory and application has matured over the past 20 years into something more accessible and complete. It is of increasing interest and importance. This publication deals with the action of Markov chains on general state spaces. It discusses the theories and the use to be gained, concentrating on the areas of engineering, operations research and control theory. Throughout, the theme of stochastic stability and the search for practical methods of verifying such stability, provide a new and powerful technique. This does not only affect applications but also the development of the theory itself. The impact of the theory on specific models is discussed in detail, in order to provide examples as well as to demonstrate the importance of these models. Markov Chains and Stochastic Stability can be used as a textbook on applied Markov chain theory, provided that one concentrates on the main aspects only. It is also of benefit to graduate students with a standard background in countable space stochastic models. Finally, the book can serve as a research resource and active tool for practitioners.

MSC:

60-01 Introductory exposition (textbooks, tutorial papers, etc.) pertaining to probability theory
60J27 Continuous-time Markov processes on discrete state spaces
93E15 Stochastic stability in control theory
60J10 Markov chains (discrete-time Markov processes on discrete state spaces)