

1. Record Nr.	UNINA9910300101903321
Autore	Privault Nicolas
Titolo	Understanding Markov Chains : Examples and Applications / / by Nicolas Privault
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2018
ISBN	9789811306594 9811306591
Edizione	[2nd ed. 2018.]
Descrizione fisica	1 online resource (XVII, 372 p. 44 illus.)
Collana	Springer Undergraduate Mathematics Series, , 2197-4144
Disciplina	519.233
Soggetti	Probabilities Statistics Probability Theory Statistical Theory and Methods Statistics in Engineering, Physics, Computer Science, Chemistry and Earth Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Probability Background -- Gambling Problems -- Random Walks -- Discrete-Time Markov Chains -- First Step Analysis -- Classification of States -- Long-Run Behavior of Markov Chains -- Branching Processes -- Continuous-Time Markov Chains -- Discrete-Time Martingales -- Spatial Poisson Processes -- Reliability Theory.
Sommario/riassunto	This book provides an undergraduate-level introduction to discrete and continuous-time Markov chains and their applications, with a particular focus on the first step analysis technique and its applications to average hitting times and ruin probabilities. It also discusses classical topics such as recurrence and transience, stationary and limiting distributions, as well as branching processes. It first examines in detail two important examples (gambling processes and random walks) before presenting the general theory itself in the subsequent chapters. It also provides an introduction to discrete-time martingales and their relation to ruin probabilities and mean exit times, together with a chapter on spatial Poisson processes. The concepts presented are illustrated by examples, 138 exercises and 9 problems with their

solutions.
