

1. Record Nr.	UNINA9910840905003321
Autore	Sennott Linn I. <1943->
Titolo	Stochastic dynamic programming and the control of queueing systems [[electronic resource] /] / Linn I. Sennott
Pubbl/distr/stampa	New York, : John Wiley Sons, c1999
ISBN	1-282-30800-9 9786612308000 0-470-31703-5 0-470-31787-6
Descrizione fisica	1 online resource (354 p.)
Collana	Wiley series in probability and statistics. Applied probability and statistics section
Disciplina	519.703 519.82
Soggetti	Stochastic programming Dynamic programming Queueing theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"A Wiley-Interscience publication."
Nota di bibliografia	Includes bibliographical references (p. 316-323) and index.
Nota di contenuto	Stochastic Dynamic Programming and the Control of Queueing Systems; Contents; Preface; 1. Introduction; 1.1. Examples; 1.2. Aspects of Control; 1.3. Goals and Summary of Chapters; Bibliographic Notes; Problems; 2. Optimization Criteria; 2.1. Basic Notation; 2.2. Policies; 2.3. Conditional Cost Distributions; 2.4. Optimization Criteria; 2.5. Approximating Sequence Method; Bibliographic Notes; Problems; 3. Finite Horizon Optimization; 3.1. Finite Horizon Optimality Equation; 3.2. ASM for the Finite Horizon; 3.3. When Does FH(, n) Hold?; 3.4. A Queueing Example; Bibliographic Notes; Problems 4. Infinite Horizon Discounted Cost Optimization 4.1 Infinite Horizon Discounted Cost Optimality Equation; 4.2 Solutions to the Optimality Equation; 4.3 Convergence of Finite Horizon Value Functions; 4.4 Characterization of Optimal Policies; 4.5 Analytic Properties of the Value Function; 4.6 ASM for the Infinite Horizon Discounted Case; 4.7 When Does DC() HOLD?; Bibliographic Notes; Problems; 5. An inventory Model; 5.1. Formulation of the MDC; 5.2. Optimality

Equations; 5.3. An Approximating Sequence; 5.4. Numerical Results; Bibliographic Notes; Problems

6 Average Cost Optimization for Finite State Spaces 6.1. A Fundamental Relationship for S Countable; 6.2. An Optimal Stationary Policy Exists; 6.3. An Average Cost Optimality Equation; 6.4. ACOE for Constant Minimum Average Cost; 6.5. Solutions to the ACOE; 6.6 Method of Calculation; 6.7. An Example; Bibliographic Notes; Problems; 7. Average Cost Optimization Theory for Countable State Spaces; 7.1. Counterexamples; 7.2. The (SEN) Assumptions; 7.3. An Example; 7.4. Average Cost Optimality Inequality; 7.5. Sufficient Conditions for the (SEN) Assumptions; 7.6. Examples

7.7. Weakening the (SEN) Assumptions Bibliographic Notes; Problems; 8. Computation of Average Cost Optimal Policies for Infinite State Spaces; 8.1. The (AC) Assumptions; 8.2. Verification of the Assumptions; 8.3. Examples; *8.4. Another Example; 8.5. Service Rate Control Queue; 8.6. Routing to Parallel Queues; 8.7. Weakening the (AC) Assumptions; Bibliographic Notes; Problems; 9. Optimization Under Actions at Selected Epochs; 9.1. Single- and Multiple-Sample Models; 9.2. Properties of an MS Distribution; 9.3. Service Control of the Single-Server Queue

9.4. Arrival Control of the Single-Server Queue 9.5. Average Cost Optimization of Example 9.3.1; 9.6. Average Cost Optimization of Example 9.3.2; 9.7. Computation Under Deterministic Service Times; 9.8. Computation Under Geometric Service Times; Bibliographic Notes; Problems; 10. Average Cost Optimization of Continuous Time Processes; 10.1. Exponential Distributions and the Poisson Process; 10.2. Continuous Time Markov Decision Chains; 10.3. Average Cost Optimization of a CTMDC; 10.4. Service Rate Control of the M/M/1 Queue,; 10.5. MW/K Queue with Dynamic Service Pool

10.6. Control of a Polling System

Sommario/riassunto

A path-breaking account of Markov decision processes-theory and computation This book's clear presentation of theory, numerous chapter-end problems, and development of a unified method for the computation of optimal policies in both discrete and continuous time make it an excellent course text for graduate students and advanced undergraduates. Its comprehensive coverage of important recent advances in stochastic dynamic programming makes it a valuable working resource for operations research professionals, management scientists, engineers, and others. Stochastic Dynamic Programmi
