The book gives a systematical presentation of stochastic approximation methods for models of American-type options with general pay-off functions for continuous time Markov log-price processes. Advanced methods combining backward recurrence algorithms for computing of option rewards and general results on convergence of stochastic time-space skeleton and tree approximations for option rewards are applied to a variety of models of multivariate modulated Markov log-price processes. The principal novelty of presented results is based on consideration of multivariate modulated Markov price processes and general pay-off functions, which can depend not only on price but also an additional stochastic modulating index component, and use of minimal conditions of smoothness for transition probabilities and pay-off functions, compactness conditions for log-price processes and rate of growth conditions for pay-off functions. The book also presents results of experimental studies and contains an extended bibliography of works in the area.

It is the second volume of the comprehensive two-volume monograph. The first volume presents stochastic methods for American-type options with general pay-off functions for discrete time modulated Markov log-price processes.

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