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Nota di contenuto	Contents; Preface; I GENERAL CONCEPTS; 1 The Role of Modeling in Systems Biology; 2 Complexity and Robustness of Cellular Systems; 3 On Modules and Modularity; II MODELING APPROACHES; 4 Bayesian Inference of Biological Systems: The Logic of Biology; 5 Stoichiometric and Constraint-based Modeling; 6 Modeling Molecular Interaction Networks with Nonlinear Ordinary Differential Equations; 7 Qualitative Approaches to the Analysis of Genetic Regulatory Networks; 8 Stochastic Modeling of Intracellular Kinetics; 9 Kinetics in Spatially Extended Systems; III MODELS AND REALITY 10 Biological Data Acquisition for System Level Modeling-An Exercise in the Art of Compromise11 Methods to Identify Cellular Architecture and Dynamics from Experimental Data; 12 Using Control Theory to Study Biology*; 13 Synthetic Gene Regulatory Systems; 14 Multilevel Modeling in Systems Biology: From Cells to Whole Organs; IV COMPUTATIONAL MODELING; 15 Computational Constraints on Modeling in Systems

Biology; 16 Numerical Simulation for Biochemical Kinetics; 17 Software Infrastructure for Effective Communication and Reuse of Computational Models; A Software Tools for Biological Modeling  
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Sommario/riassunto

This is an introduction and overview of system modelling in biology that is accessible to researchers from different fields including biology, computer science, mathematics, statistics physics, and biochemistry.

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