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Nota di contenuto	Introduction -- Chemical Kinetics and Enzyme Dynamics -- Ordinary Differential Equations -- Epidemiology of Infectious Diseases -- Chemostats and Competition Among Species -- Bifurcation Theory -- Neuronal Oscillations -- Conservation Laws -- Neurofilaments Transport in Axon -- Diffusion and Chemotaxis -- Cancer -- Cancer Therapy -- Granulomas -- Bibliography -- Answers to Problems.
Sommario/riassunto	This book on mathematical modeling of biological processes includes a wide selection of biological topics that demonstrate the power of mathematics and computational codes in setting up biological processes with a rigorous and predictive framework. Topics include: enzyme dynamics, spread of disease, harvesting bacteria, competition among live species, neuronal oscillations, transport of neurofilaments in axon, cancer and cancer therapy, and granulomas. Complete with a description of the biological background and biological question that requires the use of mathematics, this book is developed for graduate students and advanced undergraduate students with only basic knowledge of ordinary differential equations and partial differential equations; background in biology is not required. Students will gain

knowledge on how to program with MATLAB without previous programming experience and how to use codes in order to test biological hypothesis.