Mathematical Biology (Biomathematics, Vol 19)
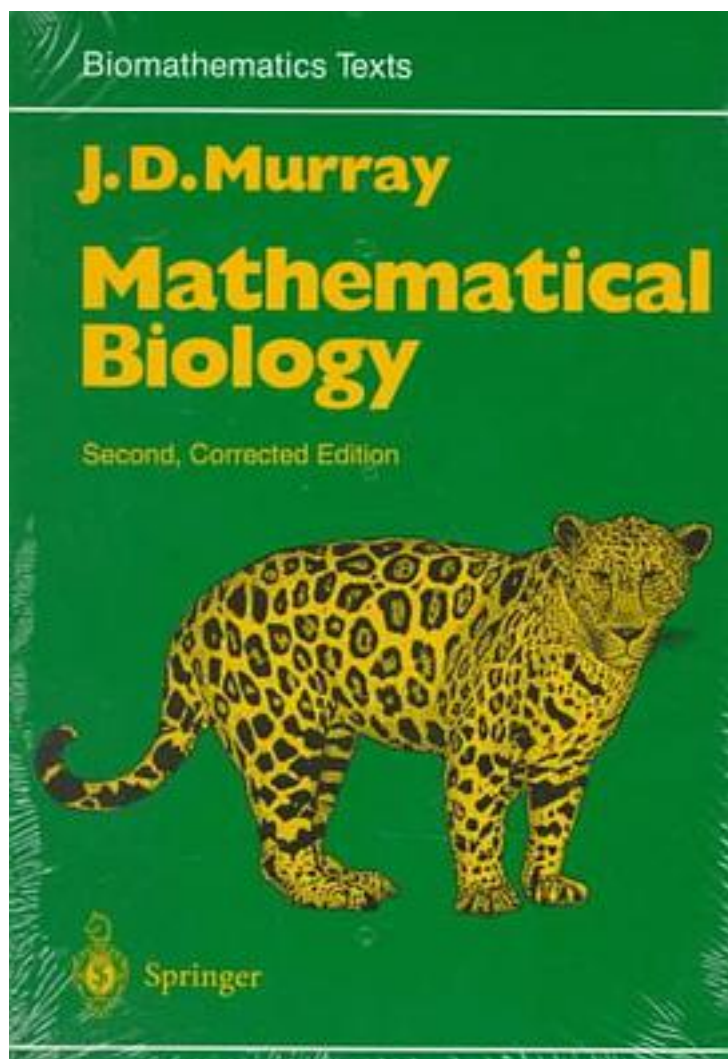

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The book is a textbook (with many exercises) giving an in-depth account of the practical use of mathematical modelling in the biomedical sciences. The mathematical level required is generally not high and the emphasis is on what is required to solve the real biological problem. The subject matter is drawn, e.g. from population biology, reaction kinetics, biological oscillators and switches, Belousov-Zhabotinskii reaction, reaction-diffusion theory, biological wave phenomena, central pattern generators, neural models, spread of epidemics, mechanochemical theory of biological pattern formation and importance in evolution. Most of the models are based on real biological problems and the predictions and explanations offered as a direct result of mathematical analysis of the models are important aspects of the book. The aim is to provide a thorough training in practical mathematical biology and to show how exciting and novel mathematical challenges arise from a genuine interdisciplinary involvement with the biosciences. The book also shows how mathematics can contribute to the science of the next 100 years and how physical scientists must get involved. It presents a broad view of the field of theoretical and mathematical biology and is a good starting place from which to start genuine interdisciplinary research.

作者介绍:

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