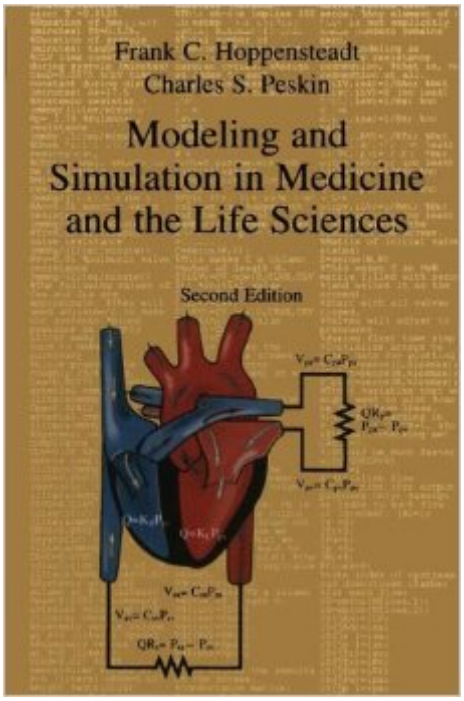
Modeling And Simulation In Medicine And The Life Sciences (Texts In Applied Mathematics)



Synopsis

The result of lectures given by the authors at New York University, the University of Utah, and Michigan State University, the material is written for students who have had only one term of calculus, but it contains material that can be used in modeling courses in applied mathematics at all levels through early graduate courses. Numerous exercises are given as well as solutions to selected exercises, so as to lead readers to discover interesting extensions of that material. Throughout, illustrations depict physiological processes, population biology phenomena, corresponding models, and the results of computer simulations. Topics covered range from population phenomena to demographics, genetics, epidemics and dispersal; in physiological processes, including the circulation, gas exchange in the lungs, control of cell volume, the renal counter-current multiplier mechanism, and muscle mechanics; to mechanisms of neural control. Each chapter is graded in difficulty, so a reading of the first parts of each provides an elementary introduction to the processes and their models.

Book Information

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Customer Reviews

Excellent text on modeling physiological systems. It wastes few words. A knowledge of algebra and elementary calculus is necessary but not more. A working knowledge of physiology is helpful but also not necessary. I would highly recommend this book to anyone studying medical engineering.

The samples use in the book to cover different topics like the cardiac system or the cell membrane potential in MATLAB are useful and well written. The book could be simplified in the way it is written to make it more accessible to students and non mathematicians. I liked the book in general since the samples were so complete.

This version of the book is good enough.Some of the words and letters are really hard to understand, especially the sub-print, so it can get frustrating when you need to study or do homework.Only buy if you need the book immediately.

Love the way this book is written. Easy to follow and understand. Nice explanations. Not exactly the kind of book I would see myself leisurely read, yet that’s exactly what I was doing!

Modeling, Simulation, and Control "The Handbook of Nanotechnology. Nanometer Structures: Theory, Modeling, and Simulation (SPIE Press Monograph Vol. PM129)"