

This practical guide to biosimulation provides the hands-on experience needed to devise, design, and analyze simulations of biophysical processes for applications in biological and biomedical sciences. Through real-world case studies and worked examples, students will develop and apply basic operations through to advanced concepts, covering a wide range of biophysical topics, including chemical kinetics and thermodynamics, transport phenomena, and cellular electrophysiology. Each chapter is built around case studies in a given application area, with simulations of real biological systems developed to analyze and interpret data. Open-ended project-based exercises are provided at the end of each chapter, and with all data and computer codes available online students can quickly and easily run, manipulate, explore, and expand on the examples inside. This hands-on guide is ideal for use on senior undergraduate/graduate courses, and also as a self-study guide for anyone who needs to develop computational models of biological systems.

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Computer code for all the examples in the book

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