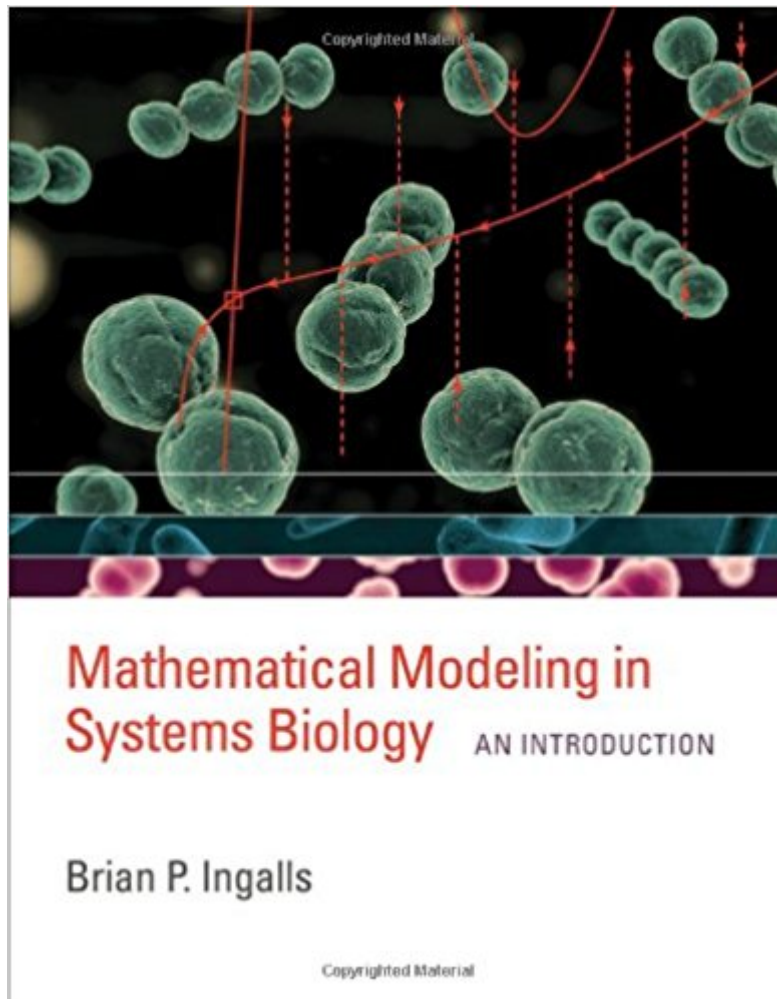


The book was found

# Mathematical Modeling In Systems Biology: An Introduction (MIT Press)



## Synopsis

Systems techniques are integral to current research in molecular cell biology, and system-level investigations are often accompanied by mathematical models. These models serve as working hypotheses: they help us to understand and predict the behavior of complex systems. This book offers an introduction to mathematical concepts and techniques needed for the construction and interpretation of models in molecular systems biology. It is accessible to upper-level undergraduate or graduate students in life science or engineering who have some familiarity with calculus, and will be a useful reference for researchers at all levels. The first four chapters cover the basics of mathematical modeling in molecular systems biology. The last four chapters address specific biological domains, treating modeling of metabolic networks, of signal transduction pathways, of gene regulatory networks, and of electrophysiology and neuronal action potentials. Chapters 3--8 end with optional sections that address more specialized modeling topics. Exercises, solvable with pen-and-paper calculations, appear throughout the text to encourage interaction with the mathematical techniques. More involved end-of-chapter problem sets require computational software. Appendixes provide a review of basic concepts of molecular biology, additional mathematical background material, and tutorials for two computational software packages (XPPAUT and MATLAB) that can be used for model simulation and analysis.

## Book Information

Series: MIT Press

Hardcover: 424 pages

Publisher: The MIT Press; 1 edition (July 5, 2013)

Language: English

ISBN-10: 0262018888

ISBN-13: 978-0262018883

Product Dimensions: 7 x 0.7 x 9 inches

Shipping Weight: 1.8 pounds (View shipping rates and policies)

Average Customer Review: 4.7 out of 5 stars [See all reviews](#) (3 customer reviews)

Best Sellers Rank: #325,425 in Books (See Top 100 in Books) #30 in [Books > Science & Math > Chemistry > Molecular Chemistry](#) #81 in [Books > Textbooks > Medicine & Health Sciences > Medicine > Basic Sciences > Microbiology](#) #330 in [Books > Medical Books > Basic Sciences > Microbiology](#)

## Customer Reviews

it is very good.fast and excellent

Very helpful.

I have read a lot of books on this subject, and this is the one I'd most recommend. I know no other book with such a wealth of important applications, so clearly and elegantly explained. This book brings the reader right up to the level of current research and shows, explicitly, how the calculations are actually done.

[Download to continue reading...](#)

Biology: The Ultimate Self Teaching Guide - Introduction to the Wonderful World of Biology - 3rd Edition (Biology, Biology Guide, Biology For Beginners, Biology For Dummies, Biology Books)  
Mathematical Modeling in Systems Biology: An Introduction (MIT Press) Mathematical Modeling of Collective Behavior in Socio-Economic and Life Sciences (Modeling and Simulation in Science, Engineering and Technology) A Course in Mathematical Modeling (Mathematical Association of America Textbooks) Introduction to the Numerical Modeling of Groundwater and Geothermal Systems: Fundamentals of Mass, Energy and Solute Transport in Poroelastic Rocks (Multiphysics Modeling) Financial Modeling (MIT Press) Case Studies in Mathematical Modeling: Ecology, Physiology, and Cell Biology Geochemical Modeling of Groundwater, Vadose and Geothermal Systems (Multiphysics Modeling) Principles of Cyber-Physical Systems (MIT Press)  
Zeitmanagement mit Microsoft Office Outlook, 8. Auflage (einschl. Outlook 2010): Die Zeit im Griff mit der meistgenutzten BÃfÃ rosoftware - Strategien, Tipps ... (Versionen 2003 - 2010) (German Edition) An Introduction to Mathematical Modeling (Dover Books on Computer Science) The Mathematical Olympiad Handbook: An Introduction to Problem Solving Based on the First 32 British Mathematical Olympiads 1965-1996 (Oxford Science Publications) Game Sound: An Introduction to the History, Theory, and Practice of Video Game Music and Sound Design (MIT Press) Introduction to Computation and Programming Using Python (MIT Press) Introduction to Computation and Programming Using Python: With Application to Understanding Data (MIT Press) A Practical Guide to SysML, Third Edition: The Systems Modeling Language (The MK/OMG Press) Systems Engineering with SysML/UML: Modeling, Analysis, Design (The MK/OMG Press) Algorithms in Bioinformatics: A Practical Introduction (Chapman & Hall/CRC Mathematical and Computational Biology) Mathematical Biology: I. An Introduction (Interdisciplinary Applied Mathematics) (Pt. 1) Signaling at the Cell Surface in the Circulatory and Ventilatory Systems (Biomathematical and Biomechanical Modeling of the Circulatory and Ventilatory Systems, Vol. 3)

