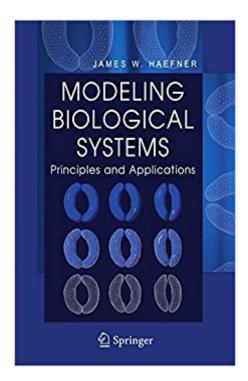


The book was found

Modeling Biological Systems:: Principles And Applications





Synopsis

I Principles 1 1 Models of Systems 3 1. 1 Systems. Models. and Modeling
3 1. 2 Uses of Scientific Models
Constraints on Model Structure
Exercises 15 2 The Modeling Process 17 2. 1 Models Are
Problems
18 2. 3 An Example: Population Doubling Time
Qualitative Model Formulation 32 3. 1 How to Eat an Elephant
2 Forrester Diagrams
and Disadvantages of Forrester Diagrams
Modeling Problems
3. 9 Exercises 53 4 Quantitative Model Formulation: I 4. 1 From Qualitative to Quantitative
Finite Difference Equations and Differential Equations 4. 2
Biological Feedback in Quantitative Models 4. 4 Example Model
4. 5 Exercises 5 Quantitative Model Formulation: I1 81
Biological Processes 89
5. 4 Examples 102 5. 5 Exercises
104 6 Numerical Techniques 107 6. 1 Mistakes Computers Make 107 .
6. 2 Numerical Integration 110 6. 3 Numerical
Instability and Stiff Equations 115

Book Information

Hardcover: 475 pages Publisher: Springer; 2nd edition (May 6, 2005) Language: English ISBN-10: 0387250115 ISBN-13: 978-0387250113 Product Dimensions: 6.1 x 1.1 x 9.2 inches Shipping Weight: 2.2 pounds (View shipping rates and policies) Average Customer Review: 4.0 out of 5 stars 5 customer reviews Best Sellers Rank: #1,643,305 in Books (See Top 100 in Books) #56 in Books > Science & Math > Mathematics > Applied > Biomathematics #393 in Books > Computers & Technology > Computer Science > Bioinformatics #479 in Books > Computers & Technology > History & Culture > History

Customer Reviews

This extensively revised second edition of Modeling Biological Systems: Principles and Applications describes the essentials of creating and analyzing mathematical and computer simulation models for advanced undergraduates and graduate students. It offers a comprehensive understanding of the underlying principle, as well as details and equations applicable to a wide variety of biological systems and disciplines. Students will acquire from this text the tools necessary to produce their own models. The text contains two major sections: Principles and Applications. The first section discusses the principles of biological systems with a thorough description of the essential modeling activities of formulation, implementation, validation, and analysis. These activities are illustrated by a set of example models taken from recent and classical literature, chosen for their breadth of coverage and current timeliness. The new edition updates extensively many of these topics, especially quantitative model formulation, validation and model discrimination using information theory measures and Bayesian probability, and stability analysis and non-dimensionalization.

Exactly as described.

This textbook, although listed in "Good" condition is like brand new and only minor highlights are visible on 2 pages.Excellent!!

This book is a complete dissapointment. It does not offer any real scientific physical models which then can be transformed in an algorithm and being simulated but is is merely a conglomerate of several statistical procedures commonly used in Biology for interpreting data (maybe copied by the author and collected from other books, as nothing that he presents is new!). This book does not offer any scientific, fundamental insight in how to really model and simulate properly complex biological systems, it is also written in a very unscientific, popular style. The mathematical level corresponds to High-School and as the author says in the preface: "The process of modeling biological systems is certainly not a science, but neither is it as unconstrained as the creation of a work of pure art that is evaluated solely on its esthetic content". I think that nonsense speaks for itself. This author should rather write novels instead of cobbling something together that gets the label "scientific" on the cover. The book is not trash, the author does have collected some of the simplest "models" there are to describe collections of data in statistical terms, but this has NOTHING to do with proper scientific numerical and mathematical modeling and even less with scientific Computing in the field of biological complex systems, e.g. how to simulate membranes, proteins using Quantum Chemistry or Molecular dynamics techniques. All in all I judge this book as a complete waste of money and as completely superfluous.

This book is great, it provides a extense presentation of concepts of modelling and various examples and applications.

Very fast to get it. The package is strong enough to protect the book.

Download to continue reading...

Modeling Dynamic Biological Systems (Modeling Dynamic Systems) Modeling Biological Systems: Principles and Applications Introduction to the Numerical Modeling of Groundwater and Geothermal Systems: Fundamentals of Mass, Energy and Solute Transport in Poroelastic Rocks (Multiphysics Modeling) Investigating Biological Systems Using Modeling: Strategies and Software Dynamic Modeling in the Health Sciences (Modeling Dynamic Systems) Real-Time Systems: Design Principles for Distributed Embedded Applications (Real-Time Systems Series) Structural Equation Modeling with Mplus: Basic Concepts, Applications, and Programming (Multivariate Applications) Series) An Introduction to Modeling of Transport Processes: Applications to Biomedical Systems (Cambridge Texts in Biomedical Engineering) Metal lons in Biological Systems: Volume 21: Applications of Magnetic Resonance to Paramagnetic Species Physical Chemistry: Principles and Applications in Biological Sciences (5th Edition) Principles and Techniques of Electron Microscopy: v. 1: Biological Applications Biological Systematics: Principles and Applications, 2nd Edition Physical Chemistry: Principles and Applications in Biological Sciences (4th Edition) Physical Chemistry: Principles and Applications in Biological Sciences Plus MasteringChemistry with Pearson eText -- Access Card Package (5th Edition) An Introduction to Systems Biology: Design Principles of Biological Circuits (Chapman & Hall/CRC Mathematical and Computational Biology) Atmospheric and Space Flight Dynamics: Modeling and Simulation with MATLAB® and

Simulink® (Modeling and Simulation in Science, Engineering and Technology) 4D Modeling and Estimation of Respiratory Motion for Radiation Therapy (Biological and Medical Physics, Biomedical Engineering) Biological Modeling and Simulation: A Survey of Practical Models, Algorithms, and Numerical Methods (Computational Molecular Biology) Modeling Agency Tips: Get Listed with Fashion Modeling Agencies and Find Your Dream Job 3ds Max Modeling for Games: Insider's Guide to Game Character, Vehicle, and Environment Modeling: Volume I

Contact Us

DMCA

Privacy

FAQ & Help