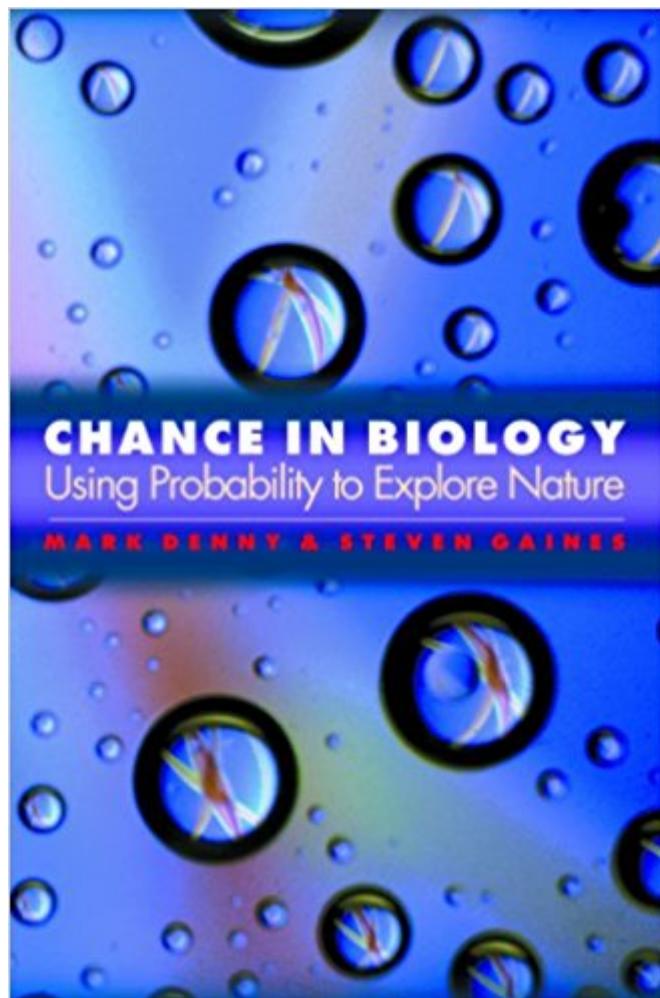


The book was found

Chance In Biology: Using Probability To Explore Nature



Synopsis

Life is a chancy proposition: from the movement of molecules to the age at which we die, chance plays a key role in the natural world. Traditionally, biologists have viewed the inevitable "noise" of life as an unfortunate complication. The authors of this book, however, treat random processes as a benefit. In this introduction to chance in biology, Mark Denny and Steven Gaines help readers to apply the probability theory needed to make sense of chance events--using examples from ocean waves to spiderwebs, in fields ranging from molecular mechanics to evolution. Through the application of probability theory, Denny and Gaines make predictions about how plants and animals work in a stochastic universe. Is it possible to pack a variety of ion channels into a cell membrane and have each operate at near-peak flow? Why are our arteries rubbery? The concept of a random walk provides the necessary insight. Is there an absolute upper limit to human life span? Could the sound of a cocktail party burst your eardrums? The statistics of extremes allows us to make the appropriate calculations. How long must you wait to see the detail in a moonlit landscape? Can you hear the noise of individual molecules? The authors provide answers to these and many other questions. After an introduction to the basic statistical methods to be used in this book, the authors emphasize the application of probability theory to biology rather than the details of the theory itself. Readers with an introductory background in calculus will be able to follow the reasoning, and sets of problems, together with their solutions, are offered to reinforce concepts. The use of real-world examples, numerous illustrations, and chapter summaries--all presented with clarity and wit--make for a highly accessible text. By relating the theory of probability to the understanding of form and function in living things, the authors seek to pique the reader's curiosity about statistics and provide a new perspective on the role of chance in biology.

Book Information

File Size: 3419 KB

Print Length: 300 pages

Publisher: Princeton University Press; 1 edition (October 23, 2011)

Publication Date: October 23, 2011

Sold by: Digital Services LLC

Language: English

ASIN: B006QNPI4S

Text-to-Speech: Enabled

X-Ray: Not Enabled

Word Wise: Enabled

Lending: Not Enabled

Enhanced Typesetting: Not Enabled

Best Sellers Rank: #1,071,914 Paid in Kindle Store (See Top 100 Paid in Kindle Store) #78

in Books > Science & Math > Mathematics > Applied > Biomathematics #983 in Kindle Store >

Kindle eBooks > Nonfiction > Science > Mathematics > Applied > Probability & Statistics #1580

in Kindle Store > Kindle eBooks > Nonfiction > Science > Biological Sciences > Biology

Customer Reviews

Chance in Biology is one of the best science books I have ever read (and I have read quite a few of them). This book applies probability theory (along with other topics in math and physics) to biological phenomena. A big PLUS for this book is that the authors intentionally wrote the book to be accessible to an educated but nonspecialized audience. I really enjoyed the authors' discussion of random walks applied to 'genetic drift' (the likelihood that offsprings' genomes will be different than their parents') and a surprising application of probability theory to elastic materials found in nature. I also enjoyed their chapter on the probability of extreme phenomena -- which is an obviously useful topic that gets short shrift in many probability and statistics books I have seen. They even use baseball statistics in that chapter! Another interesting part of this book was the discussion and the practice problems dealing with Bayes' Theorem. The concepts discussed in this book is something that all health care officials and lawyers should familiarize themselves with. Some caveats about the book:(a) The reader should be familiar with the 1st year of college calculus. While it is possible that someone with only an understanding of algebra can get a lot out of the book, the calculus would help. I should note that you do not need to know a lot of calculus and someone who is 'mathophobic' could still get a lot out of the book.(b) This book does not deal too much with inferential statistics. This book focuses in on probability, which is the cornerstone of statistics. However, when it does touch upon inferential statistics, it does a superb job.

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

Chance in Biology: Using Probability to Explore Nature 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) Eat & Explore Ohio Cookbook & Travel Guide (Eat & Explore State Cookbook) Let's Explore the Australian Outback: Australia Travel Guide for Kids (Children's Explore the World Books) Elementary Stochastic Calculus With Finance in View (Advanced Series on Statistical Science & Applied Probability, Vol 6) (Advanced Series on

Statistical Science and Applied Probability) Trace Your Roots with DNA: Using Genetic Tests to Explore Your Family Tree Chance in Biology How to Start a Business Analyst Career: The handbook to apply business analysis techniques, select requirements training, and explore job roles ... career (Business Analyst Career Guide) Minecraft: Minecraft Seeds: 50 Outstanding Minecraft Seeds You Must Explore (Newbie To Professional Book 4) MCPE Seeds: Top 50 Ultimate Minecraft Pocket Edition Seeds You Must Explore! For Versions 0.14.0, 0.13.0 Pics Included (Minecraft Pocket Edition Seeds, ... Seeds Free, Free Minecraft Books,) 1St Grade Geography: Continents of the World: First Grade Books (Children's Explore the World Books) The Atmel AVR Microcontroller: MEGA and XMEGA in Assembly and C (Explore Our New Electronic Tech 1st Editions) The Atmel AVR Microcontroller: MEGA and XMEGA in Assembly and C (with Student CD-ROM) (Explore Our New Electronic Tech 1st Editions) Martha Stewart's Favorite Crafts for Kids: 175 Projects for Kids of All Ages to Create, Build, Design, Explore, and Share The Food and Cooking of Russia & Poland: Explore the rich and varied cuisine of Eastern Europe in more than 150 classic step-by-step recipes illustrated with over 740 photographs Drawing for Architects: How to Explore Concepts The Case of Beasts: Explore the Film Wizardry of Fantastic Beasts and Where to Find Them Let's Explore Mars (Solar System): Planets Book for Kids (Children's Astronomy & Space Books) The Healing Power of Meditation: Leading Experts on Buddhism, Psychology, and Medicine Explore the Health Benefits of Contemplative Practice An Introduction to Drugs and the Neuroscience of Behavior (Explore Our New Psychology 1st Editions)

[Dmca](#)