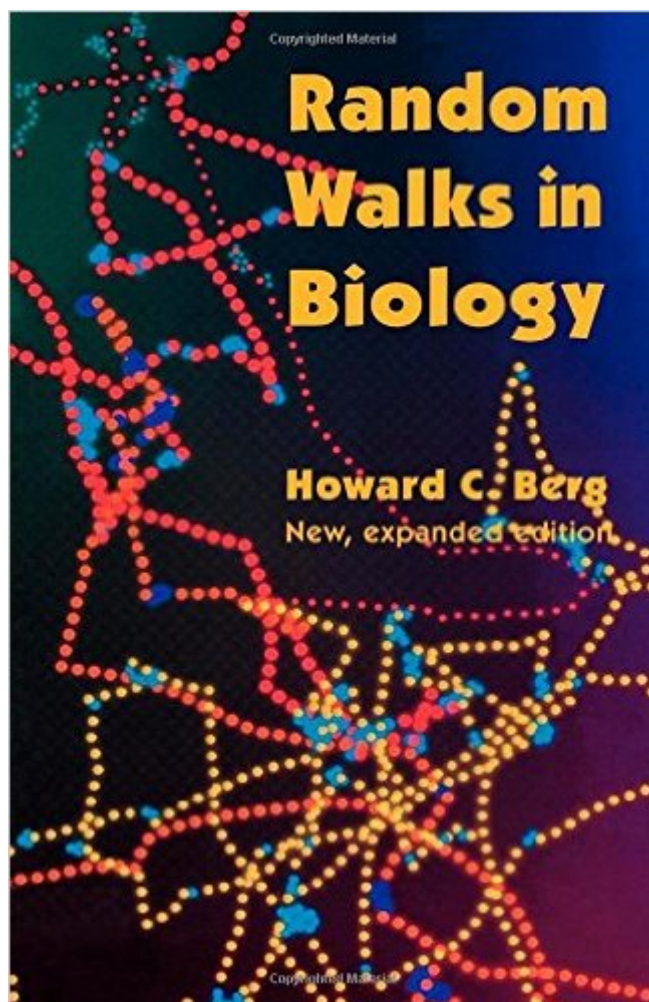


The book was found

# Random Walks In Biology



## Synopsis

This book is a lucid, straightforward introduction to the concepts and techniques of statistical physics that students of biology, biochemistry, and biophysics must know. It provides a sound basis for understanding random motions of molecules, subcellular particles, or cells, or of processes that depend on such motion or are markedly affected by it. Readers do not need to understand thermodynamics in order to acquire a knowledge of the physics involved in diffusion, sedimentation, electrophoresis, chromatography, and cell motility--subjects that become lively and immediate when the author discusses them in terms of random walks of individual particles.

## Book Information

Paperback: 152 pages

Publisher: Princeton University Press; Revised edition (September 7, 1993)

Language: English

ISBN-10: 0691000646

ISBN-13: 978-0691000640

Product Dimensions: 5.5 x 0.4 x 8.5 inches

Shipping Weight: 9.6 ounces (View shipping rates and policies)

Average Customer Review: 4.5 out of 5 stars Â Â See all reviews Â (10 customer reviews)

Best Sellers Rank: #437,277 in Books (See Top 100 in Books) #65 in Â Books > Science & Math >

Biological Sciences > Biophysics #272 in Â Books > Science & Math > Biological Sciences >

Biology > Molecular Biology #275 in Â Books > Science & Math > Physics > Mathematical Physics

## Customer Reviews

Random walks in Biology explains concepts of diffusion driven processes in a lucid, intuitive and didactic fashion. The approach lacks mathematical rigor, but abounds in examples to incite interest in one and all. For physicists, this book offers a delightful peek into biophysical processes where their mathematical skills and knowledge of random processes can be utilized and tested. For biologists and chemists, the book presents an erudite route to understanding how these random processes, diffusion and fluctuations influence function and design of biological contrusts.

I bought this book in 1995 to get an understanding of random walk phenomena. The random walk equations are mostly biologically based. That is equations that describe the motion of biological things. Type of things covered ( including but not limited to) Ficks equations Diffusion Drift drag Diffusion at Equilibrium Derivation of Boltzman equation Importance of

KT Mean Square Velocity  
Einstein-Smoluchowski relation  
Flagellar propulsion  
Motility of Escherichia Coli  
Probability Distributions (Gaussian, Binomial, Poisson) etc  
The book is a fairly easy read. You'll need at least high school to uni maths background. The maths is fairly practical stuff (translatable to s/w code)  
There are plenty of graphs and diagrams.

This book is a classic for good reasons: It describes random walk and diffusion in a way that makes it very intuitive, and focuses on cases that are important for applications. I keep looking up useful things like the formula for a disc-shaped absorber, the drag coefficient of an ellipsoid etc.

A wonderful book -- an exceptionally clear, well-written introduction to diffusion, random walks, and bacterial chemotaxis. I return to it often, have recommended it to many students, and have taught from it in various contexts. Not only is it a biophysical classic, it contains a lot of material that is invaluable to any student of physics or of biology -- things like the statistical properties of random walks, the consequences of run-and-tumble chemotaxis, and more.

This book intertwines the physics and the mathematics of basic diffusion phenomena within a biology setting in a very well balanced manner. As such, it may appeal to the biology/biochemistry/biophysics student interested in the role of diffusion phenomena in biology, including chemotaxis and bacterial motility. No doubt this little book has its value. Howard Berg is an authority in the subject, a member of learned societies, and teaches at Harvard. However, I found the book a little meagre for its price. You can find similar material intended for the same audience for free on the internet. Moreover---perhaps due to its age, most probably deliberately---, the text does not discuss the role of stochasticity in biology in general, an important topic in modern molecular and cell biology. Definitely does not worth the dollars. I read an exemplar from the local library---with much profit---, but would buy it only if its price were half the current price tag (\$32), at maximum.

[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)  
Random Walks in Biology More Random Walks in Science Random House Webster's Word Menu (Random House Newer Words Faster) Stairway Walks in San Francisco: The Joy of Urban Exploring A Book of Walks (Kindle Single) Man Walks into a Bar: Over 6,000 of the Most Hilarious Jokes, Funniest Insults and Gut-Busting One-Liners The Saga of the Aryan Race - Volume 3: Asho

Zarathushtra: The Saviour Walks Forth Walks, Tracks and Trails of New South Wales Biology  
Coloring Workbook: An Easier and Better Way to Learn Biology (Coloring Workbooks) Marine  
Biology for Dummies: The Best Marine Biology Colleges Volume 1 - Cell Biology and Genetics  
(Biology: the Unity & Diversity of Life) Cell Biology: With STUDENT CONSULT Access, 2e (Pollard,  
Cell Biology, with Student Consult Online Access) High Throughput Screening: Methods and  
Protocols (Methods in Molecular Biology) (Methods in Molecular Biology, 190) Neuropilin: From  
Nervous System to Vascular and Tumor Biology (Advances in Experimental Medicine and Biology)  
The Biology of Coral Reefs (Biology of Habitats) Molecular Cell Biology (Lodish, Molecular Cell  
Biology) Together for Kwanzaa (Random House Pictureback) Jack And The Leprechaun  
(Turtleback School & Library Binding Edition) (Random House Picturebacks) Instant Expert:  
Collecting Political Memorabilia (Instant Expert (Random House))

[Dmca](#)