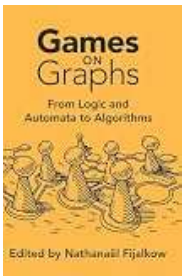
Science Collection



Games on Graphs: From Logic and Automata to Algorithms

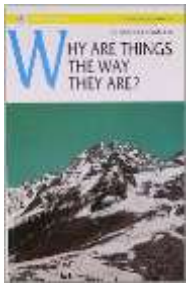
Editor: Nathanaël Fijalkow
Publisher: Cambridge University Press
Overview: This volume provides a comprehensive presentation of infinite duration games on graphs, covering fundamental results and state-of-the-art algorithms for constructing winning strategies. It spans classical parity and regular games, stochastic games, games with information constraints, and multiplayer settings, making it accessible to beginning graduate students in computer science and mathematics.
Acc. No: 103853
Call No: 518.1 GAM-G



Quantum Revolution I - The Breakthrough

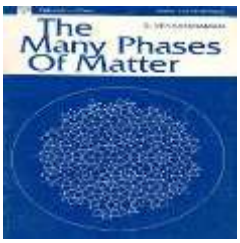
Author: G Venkataraman
Publisher: Universities Press
Overview: The discovery of quantum mechanics is often hailed as the greatest revolution in human thought. This volume, the first in a series of three, seeks to capture the drama of this supreme achievement.

Acc. No: 103882
Call No: 530.12 VEN-Q



Why are things the way they are?

Author: G Venkataraman
Publisher: Universities Press
Overview: This book uses basic calculations to help the student answer questions such as, “Why is the size of an atom roughly 10-8 cm and not 1 cm?” or “Why is the height of Mount Everest 10 km and not 100 km?” In short, “Why are things the way they are?” This book is an introduction to some methods of making rapid estimates and shows how estimated answers can be made in just a few steps.
Acc. No: 103883
Call No: 530 VEN-W



The Many Phases of Matter

Author: G Venkataraman
Publisher: Universities Press
Overview: This book is about phase transitions. It seeks to unfold the universal connecting link between diverse physical phenomena, all involving a change of state.

Acc. No: 103884
Call No: 530.4 VEN-T



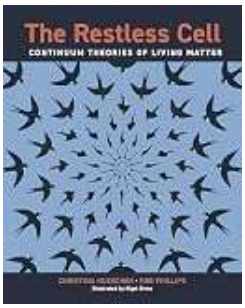
Through Two Doors at Once: The Elegant Experiment That Captures the Enigma of Our Quantum Reality

Author: Anil Ananthaswamy
Publisher: Penguin Random House
Overview: Anil Ananthaswamy tells the history of quantum mechanics through the lens of the double-slit experiment, from Thomas Young's 1801 demonstration of light's wave nature to the ongoing debates between Einstein, Bohr, and contemporary physicists. Traveling around the world and through two centuries of scientific inquiry, the book explores how this deceptively simple experiment continues to expose the deepest mysteries of reality.
Acc. No: 103885
Call No: 530.12 ANA-T



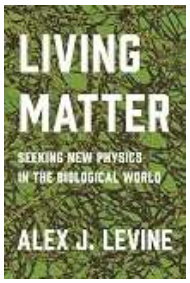
Systems Medicine: Physiological Circuits and the Dynamics of Disease

Author: Uri Alon
Publisher: CRC Press
Overview: Uri Alon, a founder of systems biology, builds a foundation for systems medicine by deriving why physiological circuits the communication networks between cells and organs are built the way they are and how their inherent fragilities explain specific diseases. The book covers hormone circuits, immune circuits, and aging, culminating in a "periodic table of diseases" and offering simple mathematical models to understand and treat conditions like diabetes, autoimmune disorders, and cancer.
Acc. No: 103801
Call No: 570.285 ALO-S



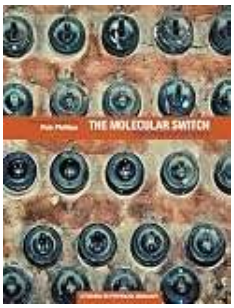
The Restless Cell: Continuum Theories of Living Matter

Author: Christina Hueschen and Rob Phillips
Publisher: Princeton University Press
Overview: This book provides a self-contained, quantitative introduction to how classical continuum field theories diffusion, elasticity, and hydrodynamics have been generalized to describe the complex behaviours of living, energy-consuming matter. Through biological case studies spanning developing embryos, giant algal cells, and herding wildebeest, it equips students and researchers in biological physics and quantitative biology with the theoretical framework of active matter.
Acc. No: 103867
Call No: 571.64 HUE-R



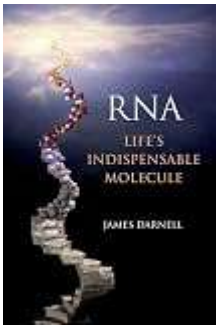
Living Matter: Seeking New Physics in the Biological World

Author: Alex J. Levine
Publisher: Princeton University Press
Overview: Leading biophysicist Alex J. Levine argues that understanding the intricate structures and dynamic behaviours of living organisms may demand a new physics one that accounts for the fundamental differences between living and non-living matter. From single proteins to the brain, he tours the most promising areas of biology where this scientific revolution might emerge.
Acc. No: 103868
Call No: 571.4 LEV-L



The Molecular Switch: Signaling and Allostery

Author: Rob Phillips
Publisher: Princeton University Press
Overview: Rob Phillips presents a unified biophysical framework showing how allostery the mechanism by which molecules switch between inactive and active conformations can be reformulated using equilibrium statistical mechanics and applied across diverse biological signalling systems. Through case studies ranging from ion channels and bacterial chemotaxis to haemoglobin and gene regulation, the book offers a quantitative model for understanding how cells carry out purposeful actions.
Acc. No: 103869
Call No: 571.74 PHI-M



RNA: Life's Indispensable Molecule

Author: James Darnell
Publisher: Cold Spring Harbor Laboratory Press
Overview: The book provides a comprehensive account of RNA research, tracing how scientists unravelled fundamental questions about the biochemical and genetic importance of RNA how mRNAs are generated and used to produce proteins, how noncoding and catalytic RNAs mediate key cellular processes, and how RNA molecules likely initiated life on Earth. Spanning from the early twentieth century to the present, the book conveys the intellectual context in which these questions arose and how key experiments were structured and answers obtained.
Acc. No: 103847
Call No: 572.88 DAR-R



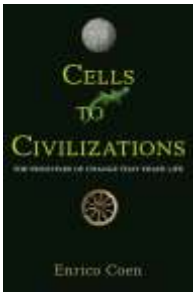
Genetics and the Origin of Species

Author: Theodosius Dobzhansky
Publisher: Columbia University Press
Overview: Dobzhansky's groundbreaking 1937 work established the modern evolutionary synthesis by uniting genetics with Darwinian natural selection, demonstrating that evolutionary change arises from mutations and chromosomal rearrangements acted upon by selection in populations. This reprint of the first edition, with an introduction by Stephen Jay Gould, presents the classic inquiry that defined the biological theory of evolution for the twentieth century.
Acc. No: 103866
Call No: 575 DOB-G



Evolutionary Community Ecology

Author: Mark A. McPeek
Publisher: Princeton University Press
Overview: Mark McPeek develops a unified framework for understanding how species interaction's structure ecological communities and drive the dynamics of natural selection, extending the analysis from local communities to regional metacommunities. Integrating evolutionary theory into community ecology, the book provides a new framework for predicting how communities are organized and how they may change over time.
Acc. No: 103871
Call No: 576.8 MCP-E



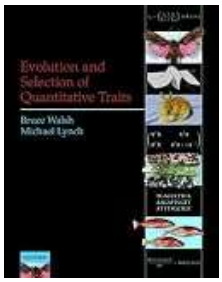
Cells to Civilizations: The Principles of Change That Shape Life

Author: Enrico Coen
Publisher: Princeton University Press
Overview: Enrico Coen offers the first unified account of how life transforms itself from the production of bacteria to the emergence of complex civilizations arguing that evolution, development, learning, and human culture all revolve around shared core principles. Through examples ranging from zebra development and seaweed adaptations to Lascaux cave paintings and Alan Turing's formulations, he demonstrates that these four great life transformations manifest the same fundamental recipe.
Acc. No: 103872
Call No: 576.8 COE-C



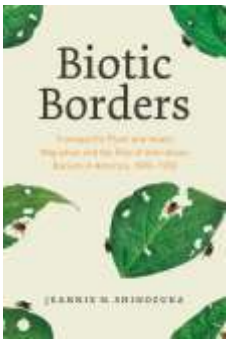
Reconceiving the Gene: Seymour Benzer's Adventures in Phage Genetics

Author: Frederic Lawrence Holmes
Publisher: Yale University Press
Overview: Frederic Lawrence Holmes reconstructs how physicist-turned-biologist Seymour Benzer mapped the fine structure of the gene in the rII region of phage T4 between 1954 and 1961, a landmark achievement that led geneticists from the classical gene into the molecular age. Drawing on Benzer's complete experimental records and correspondence, the book offers a detailed case study of scientific creativity and the daily workings of mid-twentieth-century molecular biology.
Acc. No: 103800
Call No: 576.5092 HOL-R



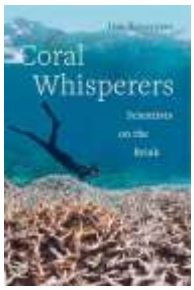
Evolution and Selection of Quantitative Traits

Author: Bruce Walsh, Michael Lynch
Publisher: Sinauer Associates
Overview: This comprehensive reference work presents a holistic treatment of quantitative genetics, bridging complex mathematical models of trait evolution with real-world data across agriculture, ecology, and human biology. As the second volume in a trilogy, it focuses specifically on the evolution of quantitative traits, emphasizing methods for detecting selection and examining its consequences.
Acc. No: 103799
Call No: 576.5 WAL-E



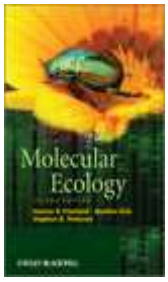
Biotic Borders: Transpacific Plant and Insect Migration and the Rise of Anti-Asian Racism in America, 1890–1950

Author: Jeannie N. Shinozuka
Publisher: The University of Chicago Press
Overview: Jeannie N. Shinozuka uncovers how the transpacific migration of plants and insects between 1890 and 1950 fuelled a "biological yellow peril" panic that shaped American imperialism and anti-Asian racism. By tracing how xenophobia inspired new categories of "native" and "invasive" species, she reveals the entangled histories of economic entomology, public health, and anti-immigration movements that defined Asian bodies as bio-invasions to be regulated or annihilated.
Acc. No: 103751
Call No: 577.18 SHI-B



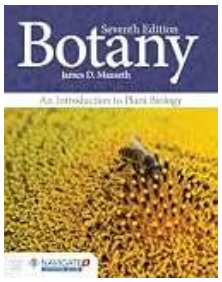
Coral Whisperers

Author: Irus Braverman
Publisher: University of California Press
Overview: Drawing on over one hundred interviews with leading scientists and conservation managers, Irus Braverman documents a community caught in an existential crisis, alternating between despair and hope as they race to save coral reef ecosystems from warming, acidifying, and polluted oceans. Corals emerge not only as signs of environmental catastrophe but also as catalysts for action.
Acc. No: 103755
Call No: 577.789 BRA-C



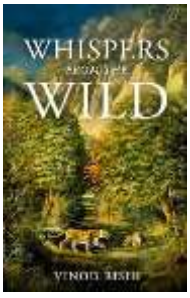
Molecular Ecology (4th ed.)

Author: Joanna R. Freeland, Heather Kirk, Stephen Petersen
Publisher: Wiley
Overview: Joanna Freeland provides an accessible introduction to molecular ecology, uniting examples from diverse taxonomic groups to explain how molecular biology and population genetics illuminate ecological and evolutionary processes. The book covers foundational genetics and molecular markers before moving to specific applications including phylogeography, behavioural ecology, and conservation genetics.
Acc. No: 103773, 103774
Call No: 577 FRE-M



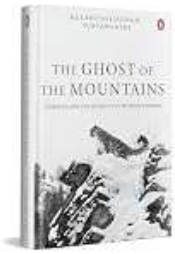
Botany: An Introduction to Plant Biology

Author: James D. Mauseth
Publisher: Jones and Bartlett Learning
Overview: The book sets the standard for foundational plant science, seamlessly connecting plant structure to function through high-quality art and approachable writing. Now in its modernized sixth edition, it covers structure, genetics, evolution, physiology, development, and ecology, while integrating the latest research on molecular biology, biotechnology, and plant taxonomy to keep students at the forefront of botanical science.
Acc. No: 103798
Call No: 580 MAU-B



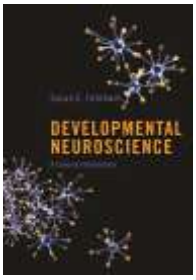
Whispers From the Wild

Author: Vinod Rishi
Publisher: White Falcon Publishing
Overview: Vinod Rishi draws on a lifetime of watching and learning from the untamed to present seventeen stories from the heart of the wilderness, revealing the unseen struggles of those who protect it. The book invites readers to listen to the quiet messages of nature and understand the delicate balance of the wild beyond the thrill of a tiger sighting.
Acc. No: 103900
Call No: 591.954 RIS-W



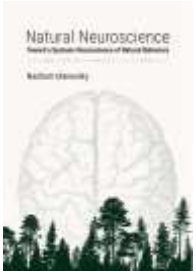
The Ghost of the Mountains: Unravelling the Secrets of the Snow Leopard

Author: Kulbhushansingh Suryawanshi
Publisher: Allen Lane
Overview: The author offers a personal account of his decades of work in the high Himalayas, from thrilling encounters with these elusive predators to his efforts in building community-based conservation models. The book reveals the mounting threats facing their fragile ecosystem development, armed conflict, and climate change while conveying a profound sense of wonder at this flagship species.
Acc. No: 103731, 103732
Call No: 599.75 SUR-G



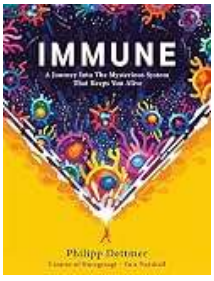
Developmental Neuroscience: A Concise Introduction

Author: Susan E. Fahrbach
Publisher: Princeton University Press
Overview: This concise textbook introduces developmental neuroscience the mechanisms by which complex nervous systems emerge during embryonic growth by examining a small number of key model systems and signalling pathways. Following the sequence of human brain development, it covers methods, animal models, neurogenesis, synapse formation, glial cells, and the brain basis of intellectual disabilities
Acc. No: 103870
Call No: 612.8 FAH-D



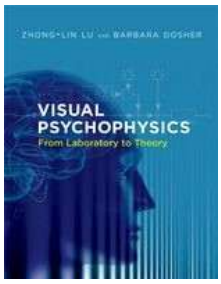
Natural Neuroscience: Toward a Systems Neuroscience of Natural Behaviors

Author: Nachum Ulanovsky
Publisher: Cold Spring Harbor Laboratory Press
Overview: Author presents a new approach to brain research that argues neuroscience must study the brain under naturalistic conditions during the animal's natural behaviours and in ecologically valid settings rather than relying solely on controlled laboratory experiments. The book surveys the conceptual, empirical, and technological advances enabling this shift, spanning sensory, cognitive, social, and behavioral neuroscience.
Acc. No: 103849
Call No: 612.82 ULA-N



Immune: A Journey into the Mysterious System that Keeps You Alive

Author: Philipp Dettmer
Publisher: Hodder & Stoughton
Overview: Philipp Dettmer, creator of the science YouTube channel Kurzgesagt, offers a gorgeously illustrated and deeply engaging exploration of the human immune system. Presented as a thrilling narrative of an epic, microscopic war, the book explains how our bodies defend against viruses, bacteria, and cancer, turning the complex science of immunology into an accessible adventure.
Acc. No: 103810
Call No: 616.079 DET-I



Visual Psychophysics: From Laboratory to Theory

Author: Zhong-Lin Lu, Barbara Dosher
Publisher: The MIT Press
Overview: A comprehensive textbook on visual psychophysics, bridging the gap between laboratory practice and theoretical understanding. The book covers setting up a vision lab, creating and displaying visual stimuli, experimental designs, signal-detection theory, and advanced data analysis techniques, complete with sample MATLAB programs using Psych toolbox.
Acc. No: 103768
Call No: 612.84 LUZ-V