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A dictionary of scientific terms Feb 14 2021 Pronunciation, derivation, and definition of terms in biology, botany, zoology, anatomy, cytology, embryology, physiology.

Classics in Biology Oct 05 2022 This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

A Primer in Mathematical Models in Biology Sep 04 2022 A textbook on mathematical modelling techniques with powerful applications to biology, combining theoretical exposition with exercises and examples.

A Biologist's Guide to Mathematical Modeling in Ecology and Evolution Dec 27 2021 Thirty years ago, biologists could get by with a rudimentary grasp of mathematics and modeling. Not so today. In seeking to answer fundamental questions about how biological systems function and change over time, the modern biologist is as likely to rely on sophisticated mathematical and computer-based models as traditional fieldwork. In this book, Sarah Otto and Troy Day provide biology students with the tools necessary to both interpret models and to build their own. The book starts at an elementary level of mathematical modeling, assuming that the reader has had high school mathematics and first-year calculus. Otto and Day then gradually build in depth and complexity, from classic models in ecology and evolution to more intricate class-structured and probabilistic models. The authors provide primers with instructive exercises to introduce readers to the more advanced subjects of linear algebra and probability theory. Through examples, they describe how models have been used to understand such topics as the spread of HIV, chaos, the age structure of a country, speciation, and extinction. Ecologists and evolutionary biologists today need enough mathematical training to be able to assess the power and limits of biological models and to develop theories and models themselves. This innovative book will be an indispensable guide to the world of mathematical models for the next generation of biologists. A how-to guide for developing new mathematical models in biology Provides step-by-step recipes for constructing and analyzing models Interesting biological applications Explores classical models in ecology and evolution Questions at the end of every chapter Primers cover important mathematical topics Exercises with answers Appendixes summarize useful rules Labs and advanced material available

Life Study Sep 11 2020 This text provides coverage of Biology for GCSE, IGCSE, O Level and equivalent examinations.

Mathematical Models for Society and Biology Jul 22 2021 Mathematical Models for Society and Biology, 2e, is a useful resource for researchers, graduate students, and post-docs in the applied mathematics and life science fields. Mathematical modeling is one of the major subfields of mathematical biology. A mathematical model may be used to help explain a system, to study the effects of different components, and to make predictions about behavior. Mathematical Models for Society and Biology, 2e, draws on current issues to engagingly relate how to use mathematics to gain insight into problems in biology and contemporary society. For this new edition, author Edward Beltrami uses mathematical models that are simple, transparent, and verifiable. Also new to this edition is an introduction to mathematical notions that every quantitative scientist in the biological and social sciences should know. Additionally, each chapter now includes a detailed discussion on how to formulate a reasonable model to gain insight into the specific question that has been introduced. Offers 40% more content – 5 new chapters in addition to revisions to existing chapters Accessible for quick self study as well as a resource for courses in molecular biology, biochemistry, embryology and cell biology, medicine, ecology and evolution, bio-mathematics, and applied math in general Features expanded appendices with an extensive list of references, solutions to selected exercises in the book, and further discussion of various mathematical methods introduced in the book

The Penguin Dictionary of Biology Jun 01 2022

Mathematical Biology Oct 25 2021 Mathematical Biology is a richly illustrated textbook in an exciting and fast growing field. Providing an in-depth look at the practical use of math modeling, it features exercises throughout that are drawn from a variety of bioscientific disciplines - population biology, developmental biology, physiology, epidemiology, and evolution, among others. It maintains a consistent level throughout so that graduate students can use it to gain a foothold into this dynamic research area.

Mathematical Models in Biology Nov 06 2022 Mathematical Models in Biology is an introductory book for readers interested in biological applications of mathematics and modeling in biology. A favorite in the mathematical biology community, it shows how relatively simple mathematics can be applied to a variety of models to draw interesting conclusions. Connections are made between diverse biological examples linked by common mathematical themes. A variety of discrete and continuous ordinary and partial differential equation models are explored. Although great advances have taken place in many of the topics covered, the simple lessons contained in this book are still important and informative. Audience: the book does not assume too much background knowledge--essentially some calculus and high-school algebra. It was originally written with third- and fourth-year undergraduate mathematical-biology majors in mind; however, it was picked up by beginning graduate students as well as researchers in math (and some in biology) who wanted

to learn about this field.

Methods and Models in Mathematical Biology   May 20 2021 This book developed from classes in mathematical biology taught by the authors over several years at the Technische Universität München. The main themes are modeling principles, mathematical principles for the analysis of these models and model-based analysis of data. The key topics of modern biomathematics are covered: ecology, epidemiology, biochemistry, regulatory networks, neuronal networks and population genetics. A variety of mathematical methods are introduced, ranging from ordinary and partial differential equations to stochastic graph theory and branching processes. A special emphasis is placed on the interplay between stochastic and deterministic models.

An Introduction to Stochastic Processes with Applications to Biology   Aug 11 2020 Plenty of examples, diagrams, and figures take readers step-by-step through well-known classical biological models to ensure complete understanding of stochastic formulation. Probability, Markov Chains, discrete time branching processes, population genetics, and birth and death chains. For biologists and other professionals who want a comprehensive, easy-to-follow introduction to stochastic formulation as it pertains to biology.

Population Biology   Aug 23 2021 Population biology has been investigated quantitatively for many decades, resulting in a rich body of scientific literature. Ecologists often avoid this literature, put off by its apparently formidable mathematics. This textbook provides an introduction to the biology and ecology of populations by emphasizing the roles of simple mathematical models in explaining the growth and behavior of populations. The author only assumes acquaintance with elementary calculus, and provides tutorial explanations where needed to develop mathematical concepts. Examples, problems, extensive marginal notes and numerous graphs enhance the book's value to students in classes ranging from population biology and population ecology to mathematical biology and mathematical ecology. The book will also be useful as a supplement to introductory courses in ecology.

Oxford Textbook of Cancer Biology   Jun 20 2021 The study of the biology of tumours has grown to become markedly interdisciplinary, involving chemists, statisticians, epidemiologists, mathematicians, bioinformaticians, and computer scientists alongside biologists, geneticists, and clinicians. The Oxford Textbook of Cancer Biology brings together the most up-to-date developments from different branches of research into one coherent volume, providing a comprehensive and current account of this rapidly evolving field. Structured in eight sections, the book starts with a review of the development and biology of multi-cellular organisms, how they maintain a healthy homeostasis in an individual, and a description of the molecular basis of cancer development. The book then illustrates, as once cells become neoplastic, their signalling network is altered and pathological behaviour follows. It explores the changes that cancer cells can induce in nearby normal tissue, the new relationship established between them and the stroma, and the interaction between the immune system and tumour growth. The authors illustrate the contribution provided by high throughput techniques to map cancer at different levels, from genomic sequencing to cellular metabolic functions, and how information technology, with its vast amounts of data, is integrated with traditional cell biology to provide a global view of the disease. The effect of the different types of treatments on the biology of the neoplastic cells are explored to understand on the one side, why some treatments succeed, and on the other, how they can affect the biology of resistant and recurrent disease. The book concludes by summarizing what we know to date about cancer, and in what direction our understanding of cancer is moving. Edited by leading authorities in the field with an international team of contributors, this book is an essential resource for scholars and professionals working in the wide variety of sub-disciplines that make up today's cancer research and treatment community. It is written not only for consultation, but also for easy cover-to-cover reading.

The Order of Things   Jun 28 2019 When one defines "order" as a sorting of priorities, it becomes beautifully clear as to what Foucault is doing here. With virtuoso showmanship, he weaves an intensely complex history of thought. He dips into literature, art, economics and even biology in The Order of Things, possibly one of the most significant, yet most overlooked, works of the twentieth century. Eclipsed by his later work on power and discourse, nonetheless it was The Order of Things that established Foucault's reputation as an intellectual giant. Pirouetting around the outer edge of language, Foucault unsettles the surface of literary writing. In describing the limitations of our usual taxonomies, he opens the door onto a whole new system of thought, one ripe with what he calls "exotic charm". Intellectual pyrotechnics from the master of critical thinking, this book is crucial reading for those who wish to gain insight into that odd beast called Postmodernism, and a must for any fan of Foucault.

Fathers of Biology   Apr 18 2021 This book (hardcover) is part of the TREDITION CLASSICS. It contains classical literature works from over two thousand years. Most of these titles have been out of print and off the bookstore shelves for decades. The book series is intended to preserve the cultural legacy and to promote the timeless works of classical literature. Readers of a TREDITION CLASSICS book support the mission to save many of the amazing works of world literature from oblivion. With this series, tredition intends to make thousands of international literature classics available in printed format again - worldwide.

An Introduction to Mathematical Biology   Jan 16 2021 KEY BENEFIT: This reference introduces a variety of mathematical models for biological systems, and presents the mathematical theory and techniques useful in analyzing those models. Material is organized according to the mathematical theory rather than the biological application. Contains applications of mathematical theory to biological examples in each chapter. Focuses on deterministic mathematical models with an emphasis on predicting the qualitative solution behavior over time. Discusses classical mathematical models from population , including the Leslie matrix model, the Nicholson-Bailey model, and the Lotka-Volterra predator-prey model. Also discusses more recent models, such as a model for the Human Immunodeficiency Virus - HIV and a model for flour beetles. KEY MARKET: Readers seeking a solid background in the mathematics behind modeling in biology and exposure to a wide variety of mathematical models in biology.

Foundations of Biogeography   Dec 03 2019 Foundations of Biogeography provides facsimile reprints of seventy-two works that have proven fundamental to the development of the field. From classics by Georges-Louis LeClerc Compte de Buffon, Alexander von Humboldt, and Charles Darwin to equally seminal contributions by Ernst Mayr, Robert MacArthur, and E. O. Wilson, these papers and book excerpts not only reveal biogeography's historical roots but also trace its theoretical and empirical development. Selected and introduced by leading biogeographers, the articles cover a wide variety of taxonomic groups, habitat types, and geographic regions. Foundations of Biogeography will be an ideal introduction to the field for beginning students and an essential reference for established scholars of biogeography, ecology, and evolution. List of Contributors John C. Briggs, James H. Brown, Vicki A. Funk, Paul S. Giller, Nicholas J. Gotelli, Lawrence R. Heaney, Robert Hengeveld, Christopher J. Humphries, Mark V. Lomolino, Alan A. Myers, Brett R. Riddle, Dov F. Sax, Geerat J. Vermeij, Robert J. Whittaker

The Common Extremalities in Biology and Physics   Oct 13 2020 The Common Extremalities in Biology and Physics is the first unified systemic description of dissipative phenomena, taking place in biology, and non-dissipative (conservative) phenomena, which is more relevant to physics. Fully updated and revised, this new edition extends our understanding of nonlinear phenomena in biology and physics from the extreme / optimal perspective. The first book to provide understanding of physical phenomena from a biological perspective and biological phenomena from a physical perspective

Discusses emerging fields and analysis Provides examples

Biology for Beginners   Mar 18 2021

A Course in Mathematical Biology   Nov 25 2021 This is the only book that teaches all aspects of modern mathematical modeling and that is specifically designed to introduce undergraduate students to problem solving in the context of biology. Included is an integrated package of theoretical modeling and analysis tools, computational modeling techniques, and parameter estimation and model validation methods, with a focus on integrating analytical and computational tools in the modeling of biological processes. Divided into three parts, it covers basic analytical modeling techniques; introduces computational tools used in the modeling of biological problems; and includes various problems from epidemiology, ecology, and physiology. All chapters include realistic biological examples, including many exercises related to biological questions. In addition, 25 open-ended research projects are provided, suitable for students. An accompanying Web site contains solutions and a tutorial for the implementation of the computational modeling techniques. Calculations can be done in modern computing languages such as Maple, Mathematica, and MATLAB?.

Principles of Bone Biology   Jan 04 2020 Principles of Bone Biology provides the most comprehensive, authoritative reference on the study of bone biology and related diseases. It is the essential resource for anyone involved in the study of bone biology. Bone research in recent years has generated enormous attention, mainly because of the broad public health implications of osteoporosis and related bone disorders. Provides a "one-stop" shop. There is no need to search through many research journals or books to glean the information one wants...it is all in one source written by the experts in the field The essential resource for anyone involved in the study of bones and bone diseases Takes the reader from the basic elements of fundamental research to the most sophisticated concepts in therapeutics Readers can easily search and locate information quickly as it will be online with this new edition

Mathematical Methods in Biology   Jul 10 2020 A one-of-a-kind guide to using deterministic and probabilistic methods for solving problems in the biological sciences Highlighting the growing relevance of quantitative techniques in scientific research, Mathematical Methods in Biology provides an accessible presentation of the broad range of important mathematical methods for solving problems in the biological sciences. The book reveals the growing connections between mathematics and biology through clear explanations and specific, interesting problems from areas such as population dynamics, foraging theory, and life history theory. The authors begin with an introduction and review of mathematical tools that are employed in subsequent chapters, including biological modeling, calculus, differential equations, dimensionless variables, and descriptive statistics. The following chapters examine standard discrete and continuous models using matrix algebra as well as difference and differential equations. Finally, the book outlines probability, statistics, and stochastic methods as well as material on bootstrapping and stochastic differential equations, which is a unique approach that is not offered in other literature on the topic. In order to demonstrate the application of mathematical methods to the biological sciences, the authors provide focused examples from the field of theoretical ecology, which serve as an accessible context for study while also demonstrating mathematical skills that are applicable to many other areas in the life sciences. The book's algorithms are illustrated using MATLAB®, but can also be replicated using other software packages, including R, Mathematica®, and Maple; however, the text does not require any single computer algebra package. Each chapter contains numerous exercises and problems that range in difficulty, from the basic to more challenging, to assist readers with building their problem-solving skills. Selected solutions are included at the back of the book, and a related Web site features supplemental material for further study. Extensively class-tested to ensure an easy-to-follow format, Mathematical Methods in Biology is an excellent book for mathematics and biology courses at the upper-undergraduate and graduate levels. It also serves as a valuable reference for researchers and professionals working in the fields of biology, ecology, and biomathematics.

Introduction to Mathematical Biology   Feb 26 2022 Designed to explore the applications of mathematical techniques and methods related to biology, this text explores five areas: cell growth, enzymatic reactions, physiological tracers, biological fluid dynamics and diffusion. Topics essentially follow a course in elementary differential equations — some linear algebra and graph theory; requires only a knowledge of elementary calculus.

General Biology   Oct 01 2019

The Serengeti Rules   Jun 08 2020 Now the subject of an Emmy Award–winning film the New York Times calls "spellbinding" How does life work? How does nature produce the right numbers of zebras and lions on the African savanna, or fish in the ocean? How do our bodies produce the right numbers of cells in our organs and bloodstream? In The Serengeti Rules, award-winning biologist and author Sean Carroll tells the stories of the pioneering scientists who sought the answers to such simple yet profoundly important questions, and shows how their discoveries matter for our health and the health of the planet we depend upon. One of the most important revelations about the natural world is that everything is regulated—there are rules that regulate the amount of every molecule in our bodies and rules that govern the numbers of every animal and plant in the wild. And the most surprising revelation about the rules that regulate life at such different scales is that they are remarkably similar—there is a common underlying logic of life. Carroll recounts how our deep knowledge of the rules and logic of the human body has spurred the advent of revolutionary life-saving medicines, and makes the compelling case that it is now time to use the Serengeti Rules to heal our ailing planet. A bold and inspiring synthesis by one of our most accomplished biologists and gifted storytellers, The Serengeti Rules is the first book to illuminate how life works at vastly different scales. Read it and you will never look at the world the same way again.

American Addresses   Mar 06 2020 Excerpt from American Addresses: With a Lecture on the Study of Biology Did things so happen or did they not? This is a historical question, and one the answer to which must be sought in the same way as the solution of any other historical problem. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at www.forgottenbooks.com This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

Holistic Science   Jul 02 2022 The Institute of Ecology at the University of Georgia is recognized globally as an outstanding ecological research centre. The evolution of the Institute of Ecology paralleled the emergence of ecology as a major discipline along with the environmental awareness movement during the last half of the 20th century. Holistic Science: The Evolution of the Georgia Institute of Ecology (1940-2000) assists the reader in understanding not only the challenges, opportunities, and personalities that are bound with the history of the Georgia Institute of Ecology, but also the challenges and obstacles that are involved in establishing an effective interdisciplinary research programme within traditionally fragmented boundaries. Scholars and policy makers increasingly recognize that holistic approaches are needed to address major environmental issues and problems in the 21st century.

The Lives of a Cell   Jul 30 2019 A physician and cancer researcher shares his personal observations on the uniformity, diversity, interdependence, and strange powers of the earth's life forms

Finger Prints   Sep 23 2021

Mathematical Models in Biology   Nov 01 2019 This introductory textbook on mathematical biology focuses on discrete models across a variety of biological subdisciplines. Biological topics treated include linear and non-linear models of populations, Markov models of molecular evolution, phylogenetic tree construction, genetics, and infectious disease models. The coverage of models of molecular evolution and phylogenetic tree construction from DNA sequence data is unique among books at this level. Computer investigations with MATLAB are incorporated throughout, in both exercises and more extensive projects, to give readers hands-on experience with the mathematical models developed. MATLAB programs accompany the text. Mathematical tools, such as matrix algebra, eigenvector analysis, and basic probability, are motivated by biological models and given self-contained developments, so that mathematical prerequisites are minimal.

Foundations of Tropical Forest Biology   Dec 15 2020 This book presents a timely collection of pioneering work in the study of these diverse and fascinating ecosystems. It consists of facsimiles of papers chosen by world experts in tropical biology as the 'classics' in the field.

Mathematics in Industry   May 08 2020 In this book, a wide range of problems concerning recent achievements in the field of industrial and applied mathematics are presented. It provides new ideas and research for scientists developing and studying mathematical methods and algorithms, and researchers applying them for solving real-life problems. The importance of the computing infrastructure is unquestionable for the development of modern science. The main focus of the book is the application of mathematics to industry and science. It promotes basic research in mathematics leading to new methods and techniques useful to industry and science. The volume also considers strategy-making integration between scientists of applied mathematics and those working in applied informatics, which has potential for long-lasting integration and co-operation. The integration role is regarded here as a tool for consolidation and reinforcement of the research, education and training, and for the transfer of scientific and management knowledge. This volume operates as a medium for the exchange of information and ideas between mathematicians and other technical and scientific personnel. The book will be essential for the promotion of interdisciplinary collaboration between applied mathematics and science, engineering and technology. The main topics examined in this volume are: numerical methods and algorithms; control systems and applications; partial differential equations and real-life applications; the high performance of scientific computing; linear algebra applications; neurosciences; algorithms in industrial mathematics; equations of mathematical physics; and industrial applications of mechanics.

Essential Mathematical Biology   Mar 30 2022 This self-contained introduction to the fast-growing field of Mathematical Biology is written for students with a mathematical background. It sets the subject in a historical context and guides the reader towards questions of current research interest. A broad range of topics is covered including: Population dynamics, Infectious diseases, Population genetics and evolution, Dispersal, Molecular and cellular biology, Pattern formation, and Cancer modelling. Particular attention is paid to situations where the simple assumptions of homogenity made in early models break down and the process of mathematical modelling is seen in action.

Foundations of Tropical Forest Biology   Apr 30 2022 This book presents a timely collection of pioneering work in the study of these diverse and fascinating ecosystems. It consists of facsimiles of papers chosen by world experts in tropical biology as the 'classics' in the field.

Exploring the World of Biology   Aug 30 2019 This book in Master Books Exploring series is a fascinating look at life--from the smallest proteins and spores, to the complex life systems of humans and animals.

Mathematical Ideas in Biology   Nov 13 2020 "An introduction to some of the mathematical ideas which are useful to biologists, ... the ways in which biological problems can be expressed mathematically, and how the mathematical equations which arise in biological work can be solved ... This book is particularly concerned with non-statistical topics"--From publisher description.

The Principles of Biology   Apr 06 2020

Finger Prints   Feb 03 2020 A poignant story of danger, love, and trust, Finger Prints is a cherished classic from New York Times bestselling author Barbara Delinsky Once upon a time she was Robyn Hart, a dogged journalist covering an arson case who saw too much and wasn't afraid to expose it. But that courage nearly cost Robyn her life. Now under the safety of the Witness Protection program, she has a new identity—Carly Quinn—with a new job in a new city. As she struggles to make the best of her new life in Boston, the terror of the past still lingers, and Carly lives in fear that her enemies will find her. Though she tries to wall herself off from the world, one determined man breaks through her defenses—successful attorney Ryan Cornell. Though Carly yearns to give him her heart, she doesn't know if she can. While loving him offers a happiness she thought she'd lost forever, trusting him could cost her everything. Riveting, emotionally charged, and full of memorable characters, Finger Prints exemplifies the extraordinary storytelling that readers love from Delinsky.

Mathematical Biology II   Aug 03 2022 This richly illustrated third edition provides a thorough training in practical mathematical biology and shows how exciting mathematical challenges can arise from a genuinely interdisciplinary involvement with the biosciences. It has been extensively updated and extended to cover much of the growth of mathematical biology. From the reviews: ""This book, a classical text in mathematical biology, cleverly combines mathematical tools with subject area sciences."--SHORT BOOK REVIEWS

Essential Readings in Evolutionary Biology   Jan 28 2022 Traces scholarly thought from the nineteenth-century birth of evolutionary biology to the mapping of the human genome through forty-eight essays, arranged in chronological order, each preceded by a one-page essay that explains the significance of the chosen work.