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Essential Biology 3 6 Ahl 7 6 ***2022-12-07***

GRAHAM CARLEE

Applications of Membrane Computing in Systems and Synthetic Biology John Wiley & Sons
In step with our growing lifespan, dementia is becoming a widespread handicap to the health and well-being of individuals and a burden on human society world-wide. The increasing prevalence of this tragic condition has stimulated an explosion of scientific research in the last ten years, which resulted in numerous profound insights and technical innovations. This timely volume presents both an overall and a detailed overview of the current worldwide knowledge about the neuroscientific basis of dementia. Leading authorities in their fields provide a far-reaching synthesis of all topics in dementia research, including pathogenesis of dementia, neuroimaging of the earliest alterations, potential biological and genetic markers for Alzheimer`s Disease and new therapeutic strategies. Each chapter discusses clinical implications and areas of controversy, highlights the wide range of current and future therapeutic possibilities and indicates promising directions for further research...
Feedback Systems Springer Nature
The essential introduction to the principles and applications of feedback systems—now fully revised and expanded This textbook covers the mathematics needed to model, analyze, and design feedback systems. Now more user-friendly than ever, this revised and expanded edition of Feedback Systems is a one-volume resource for students and researchers in mathematics and engineering. It has applications across a range of disciplines that utilize feedback in physical, biological, information, and economic systems. Karl Åström and Richard Murray use techniques from physics, computer science, and operations research to introduce control-oriented modeling. They begin with state space tools for analysis and design, including stability of solutions, Lyapunov functions, reachability, state feedback observability, and estimators. The matrix exponential plays a central role in the analysis of linear control systems, allowing a concise development of many of the key concepts for this class of models. Åström and Murray then develop and explain tools in the frequency domain, including transfer functions, Nyquist analysis, PID control, frequency domain design, and robustness. Features a new chapter on design principles and tools, illustrating the types of problems that can be solved using feedback Includes a new chapter on fundamental limits and new material on the Routh-Hurwitz criterion and root locus plots Provides exercises at the end of every chapter Comes with an electronic solutions manual An ideal textbook for undergraduate and graduate students Indispensable for researchers seeking a self-contained resource on control theory
Environmental Literacy in Science and Society Academic Press
By incorporating biologically-inspired functions into ICT, various types of new-generation information and communication systems can be created. Just some example of areas already benefiting from such design inspiration are network architectures, information processing, molecular communication, and complex network modeling for solving real world-problems. This book provides the theoretical basis for understanding these developments and explains their practical applications. Highlighted inserts appears throughout to help readers to understand the very latest topics in these emerging research fields. The book ends with a more philosophical discussion on how new ICT solutions can be found by looking at analogous systems in biology. This new way of thinking may help researchers and practitioners to apply innovative ideas in developing next-generation technologies.
OAR Quarterly Index of Current Research Results Cambridge University Press
Global climate change affects crop production through altered weather patterns and increased environmental stresses. Such stresses include soil salinity, drought, flooding, metal/metalloid toxicity, pollution, and extreme temperatures. The variability of these environmental conditions pared with the sessile lifestyle of plants contribute to high exposure to these stress factors. Increasing tolerance of crop plants to abiotic stresses is needed to fulfill increased food needs of the population. This book focuses on methods of improving plants tolerance to abiotic stresses. It provides information on how protective agents, including exogenous phytoprotectants, can mitigate abiotic stressors affecting plants. The application of various phytoprotectants has become one of the most effective approaches in enhancing the tolerance of plants to these stresses. Phytoprotectants are discussed in detail including information on osmoprotectants, antioxidants, phytohormones, nitric oxide, polyamines, amino acids, and nutrient elements of plants. Providing a valuable resource of information on phytoprotectants, this book is useful in diverse areas of life sciences including agronomy, plant physiology, cell biology, environmental sciences, and biotechnology.
Bookseller and the Stationery Trades' Journal Matte Ventures Pty. Ltd
Mathematical and computational modeling approaches in biological and medical research are experiencing rapid growth globally. This Special Issue Book intends to scratch the surface of this exciting phenomenon. The subject areas covered involve general mathematical methods and their applications in biology and medicine, with an emphasis on work related to mathematical and computational modeling of the complex dynamics observed in biological and medical research. Fourteen rigorously reviewed papers were included in this Special Issue. These papers cover several timely topics relating to classical population biology, fundamental biology, and modern medicine. While the authors of these papers dealt with very different modeling questions, they were all motivated by specific applications in biology and medicine and employed innovative mathematical and computational methods to study the complex dynamics of their models. We hope that these papers detail case studies

that will inspire many additional mathematical modeling efforts in biology and medicine

Ethnobotany and Ethnopharmacology of Medicinal and Aromatic Plants Princeton University Press

On the heels of our groundbreaking books in landscape architecture, James Corner's Recovering Landscape and Charles Waldheim's Landscape Urbanism Reader, comes another essential reader, . Examining our shifting perceptions of nature and place in the context of environmental challenges and how these affect urbanism and architecture, the seventeen essayists in argue for an all-encompassing view of landscape that integrates the scientific, intellectual, aesthetic, and mythic into a new multidisciplinary understanding of the contemporary landscape. A must-read for anyone concerned about the changing nature of our landscape in a time of climate crisis.

Plant Tolerance to Environmental Stress Taylor & Francis

Publisher description

Wiley Encyclopedia of Chemical Biology, Volume 1 Springer

Access to food with enough calories and nutrients is a fundamental right of every human. The global population has exceeded 7.8 billion and is expected to pass 10 billion by 2055. Such rapid population increase presents a great challenge for food supply. More grain production is needed to provide basic calories for humans. Thus, it is crucial to produce 60-110% more food to fill the gap between food production and the demand of future generations. Meanwhile food nutritional values are of increasing interest to accommodate industrialized modern lives. The instability of food production caused by global climate change presents another great challenge. The global warming rate has become more rapid in recent decades, with more frequent extreme climate change including higher temperatures, drought, and floods. Our world faces various unprecedented scenarios such as rising temperatures, which causes melting glaciers and the resulting various biotic and abiotic stresses, ultimately leading to food scarcity. In these circumstances it is of utmost importance to examine the genetic basis and extensive utilization of germplasm to develop “climate resilient cultivars” through the application of plant breeding and biotechnological tools. Future crops must adapt to these new and unpredictable environments. Crop varieties resistant to biotic and abiotic stresses are also needed as plant disease, insects, drought, high- and low-temperature stresses are expected to be impacted by climate change. Thus, we need a food production system that can simultaneously satisfy societal demands and long-term development. Since the Green Revolution in the 1960s, farming has been heavily dependent on high input of nitrogen and pesticides. This leads to environmental pollution which is not sustainable in the long run. Therefore, a new breeding scheme is urgently needed to enable sustainable agriculture; including new strategies to develop varieties and crops that have high yield potential, high yield stability, and superior grain quality and nutrition while also using less consumption of water, fertilizer, and chemicals in light of environmental protection. While we face these challenges, we also have great opportunities, especially with flourishing developments in omics technologies. High-quality reference genomes are becoming available for a larger number of species, with some species having more than one reference genome. The genome-wide re-sequencing of diverse varieties enables the identification of core- and pan-genomes. An integration of omics data will enable a rapid and high-throughput identification of many genes simultaneously for a relevant trait. This will change our current research paradigm fundamentally from single gene analysis to pathway or network analysis. This will also expand our understanding of crop domestication and improvement. In addition, with the knowledge gained from omics data, in combination with new technologies like targeted gene editing, we can breed new varieties and crops for sustainable agriculture.

Biological Functions for Information and Communication Technologies Springer Science & Business Media

Part A and Part B of the fifth of twelve volumes of The Mycota deal with the mechanisms of interactions between fungi and plants and consider pathogenic as well as mutualistic associations. Nobody involved in the manipulation of plant populations can afford to ignore the fungi, so pervasive and important are fungus/plant interactions for the well-being of plant communities, both managed and natural. Consequently, these volumes will be of interest to a broad range of professionals involved in agriculture, forestry, horticulture, and conservation as well as plant pathology, mycology, ecology, and evolution.

Synopsis on the Biology of the Jack Mackerel (Trachurus Symmetricus) Springer Science & Business Media

Chromosome biology has been brought to a golden age by phenomenal advanced in molecular genetics and techniques. This is true in the plant arena, and it is becoming increasingly true in animal studies, where chromosomes are more difficult to work with. With advanced knowledge of transformation, scientists can tell exactly where a new element enters a chromosome. Conversely, molecular biologists can make large mistakes if they do not understand the behavior of chromosomes. Written by internationally recognized experts in the field, this book is the most authoritative work on the subject to date. Students of genetics, crop science and plant breeding, entomology, animal science, and related fields will benefit from this comprehensive and practical textbook.

50Coach Biology MasterBook Hodder Education

Cell culture based research is important for our understanding of biological processes at the cellular and molecular level. Using this approach, the previous decades have produced a wealth of mechanistic information in all areas of biomedical research. Such in vitro research, however, lacks the complexity of in vivo investigations, where many different cell types interact with each other in a normal, three-dimensional environment, with normal levels of cytokines and growth factors. Furthermore, complex human diseases, such as cancer, diabetes or chronic inflammation, can only be modeled in vivo. Due to its small size, its short reproduction time, and the possibility to introduce specific gene mutations, the mouse has become the favourite mammalian model organism to study in vivo function of genes during development and in disease. This book combines review articles on selected subjects presented at the symposium “Mouse as a Model Organism – From Animals to Cells”, held in Rovaniemi, Finland, 2009. Among other topics, high-throughput phenotyping of mouse mutants, mouse phenotypes dependent on nature and nuture, and a spectrum of in vivo, ex vivo and in vitro methods to study cancer in mice are described. This book will give an excellent introduction to scientists interested in the use of mice as a model to understand complex biological questions in the post-genomic era. It will highlight the possibilities, but also discuss the current problems and shortcomings, to give a realistic view of the current state-of-art in this fascinating field of biomedical research.

Tilapia Culture MDPI

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Mouse as a Model Organism Wiley-Blackwell

This book introduces the new concept of “nanozyme”, which refers to nanomaterials with intrinsic enzymatic activity, rather than nanomaterials with biological enzymes incorporated on the surface. The book presents the cutting-edge advances in nanozyme, with emphasis on state-of-the-art applications in many important fields, such as in the biomedical fields and for environmental protection. The nanozyme is a totally new type of artificial enzyme and exhibits huge advantages over natural enzymes, including greater stability, low cost, versatility, simplicity, and suitability for industry. It is of interest to university researchers, R&D engineers, as well as graduate students in nanoscience and technology, and biology wishing to learn the core principles, methods, and the corresponding applications of “nanozyme”.

Neuroscientific Basis of Dementia Elsevier

This book explores the agricultural, commercial, and ecological future of plants in relation to mineral nutrition. It covers various topics regarding the role and importance of mineral nutrition in plants including essentiality, availability, applications, as well as their management and control strategies. Plants and plant products are increasingly important sources for the production of energy, biofuels, and biopolymers in order to replace the use of fossil fuels. The maximum genetic potential of plants can be realized successfully with a balanced mineral nutrients supply. This book explores efficient nutrient management strategies that tackle the over and under use of nutrients, check different kinds of losses from the system, and improve use efficiency of the plants. Applied and basic aspects of ecophysiology, biochemistry, and biotechnology have been adequately incorporated including pharmaceuticals and nutraceuticals, agronomical, breeding and plant protection parameters, propagation and nutrients managements. This book will serve not only as an excellent reference material but also as a practical guide for readers, cultivators, students, botanists, entrepreneurs, and farmers.

Methods for Risk Assessment of Transgenic Plants Springer Nature

Plants have developed very sophisticated mechanisms to combat pathogens and pestsusingtheleastamountofreservedorgen eratedenergypossible. Theydothis by activating major defense mechanisms after recognition of the organisms that are considered to be detrimental to their survival; therefore they have been able to exist on Earth longer than any other higher organisms. It has been known for the past century that plants carry genetic information for inherited resistance against many pathogenic organisms including fungi, bacteria, and viruses, and that the relationship between pathogenic organisms and hosts plants are rather complex and in some cases time dependent. This genetic information has been the basis for breeding for resistance that has been employed by plant breeders to develop better-yielding disease resistant varieties, some of which are still being cultivated. Single gene resistance is one type of resistance which has been extensively studied by many research groups all around the world using biotechnological methodologies that have been the subject of many books and journal articles; therefore, it is beyond the scope of this book. This type of resistance is very effective, although it can be overcome by the pressure of pathogenic organisms since it depends on interaction of a single elicitor molecule from the pathogen with a single receptor site in the host.

Principles of Gene Manipulation and Genomics OUP Oxford

Medicinal and aromatic plants are beneficial to human health. Plant-derived molecules possess biological activities that can be used to prevent many infectious diseases and metabolic disorders. Ethnobotany and Ethnopharmacology of Medicinal and Aromatic Plants summarizes techniques and methods used to study the biological activities of plant-derived extracts and compounds to study ethnobotanical and ethnopharmacological features of medicinal and aromatic plants. This book: Includes computational approaches to study the pharmacological properties of biomolecules in medicinal and aromatic plants. Details methods in ethnopharmacology including chromatographical and analytical techniques. Demonstrates trends in sustainable use and management of medicinal and aromatic plants. Features information on databases and tools used in computational phytochemistry for drug designing and discovery. Elucidates the importance of phytochemicals as immunomodulators in herbal drug development including their nanoformulations. A volume in the Exploring Medicinal Plants series, Ethnobotany and Ethnopharmacology of Medicinal and Aromatic Plants will be of interest to those working with plant extracts, including botanists and ethnobotanists, pharmacologists and ethnopharmacologists, as well as scientists and researchers interested in natural compounds and their potential applications.

Biology for the IB Diploma Study and Revision Guide CRC Press

For centuries, TK has been used almost exclusively by its creators, that is, indigenous and local communities. Access to, use of and handing down of TK has been regulated by local laws, customs and tmditions. Some TK has been freely accessible by all members of an indigenous or local community and has been freely exchanged with other communities; other TK has only been known to particular individuals within these communities such as shamans, and has been handed down only to particular individuals of thc next generation. Over many generations, indigenous and local communities have accumulated a great deal of TK which has generally been adapted, developed and improved by the generations that followed. For a long time, Western anthropologists and other scientists have generally been able to freely access TK and have documented it in their works. Still, this TK was only seldom used outside the indigenous and local communities that created it. More recently, however, Western scientists have become aware that TK is neither outdated nor valueless knowledge, but, instead, 1 can be useful to solve some of the problems facing today's world. Modem science, for example, has shown an increased interest in some fornls ofTK as knowledge that can be used in 4 research and development (R&D) activities and be integrated in modem innovations. This holds especially true for TK regarding genetic resources, which has been integrated in modem 6 phannaceuticals,s agro-chemicals and seed.

British Books in Print Springer Nature

LABFAX volumes are purpose-designed data reference books for practicing scientists. Each book presents key information for a major subject in one place and so saves hours of searching. It

does not simply collect together data which are already available in catalogs, since these are often incomplete and can contain conflicting information. Rather, the authors and editors of each LABFAX volume have searched the original literature for the accurate data which they know the specialist needs. Plant Molecular Biology Labfax is a detailed compendium of essential information on plant nucleic acids, transformation and expression vectors, selectable genes and reporter genes, gene expression and PCR techniques, etc. A key feature is the Plant Gene Index, comprising comprehensive tables of plant genes published and submitted to sequence databases. Plant Molecular Biology Labfax, while specializing in molecular aspects of plant science, inevitably has numerous sections dealing with general molecular biology which complement the extensive information provided in Molecular Biology Labfax. It is therefore a worthy companion to this text.

Nanozymology Springer

This unique compilation of chapters reviews a broad range of topics at the cutting edge of hearing research. The authors include many of the top auditory scientists in the world as well as some of the brightest rising stars. Although the book obviously focuses on the exciting, revolutionary work being done with mice, the authors have made a strong

Commercial Fisheries Abstracts Springer Science & Business Media

The most comprehensive coverage of the new 2014 syllabus for both SL and HL, this completely revised edition gives you unrivalled support for the new concept-based approach to learning, the Nature of Science. The only DP Biology resource that includes support straight from the IB, integrated exam work helps you maximize achievement.