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Issues in Life Sciences—Molecular Biology: 2012 Edition CRC Press

The Series The fungi represent a heterogeneous assemblage of eukaryotic microorganisms and have become favored organisms for research at the cellular and molecular level. Such research involvement has been stimulated by interest in the biotechnological application of fungi in processes related to industry, agriculture and ecology. Considering both yeasts and mycelial fungi, The Mycota highlights developments in both basic and applied research and presents an overview of fungal systematics and cell structure. Foremost authorities in research on mycology have been assembled to edit and contribute to the volumes. This Volume The third volume includes: Membrane Systems and Transport, Responses to Physical Stress, Transcription, Chromosome Replication, Metabolic Pathways and Regulation.

Biological Nitrogen Fixation Springer

Weeds are a fascinating study for specialists, not only because of their economic importance, but also since in this case biology must be combined with history and agriculture (and its economic aspects). Thus, weed scientists may be concerned with pure basic research, concentrating on general aspects, or with applied science, i.e. having a practical orientation. One of the aims of this book is to create a synthesis between these two branches of study and to review the literature of both fields. The agrestals, the weeds of arable land ~ the most important group from an economic point of view ~ was chasen as the main topic. Other weed groups could only be mentioned briefly (e.g. grassland weeds), or superficially (e.g. aquatic weeds), or had to be omitted completely (e.g. ruderals, because they are so heterogeneous), to keep this volume to an acceptable size and price. Nevertheless, nearly all subsections of botanical science have been treated.

Encyclopedia of Bioinformatics and Computational Biology Springer Science & Business Media

Nitrogen is arguably the most important nutrient required by plants. However, the availability of nitrogen is limited in many soils and although the earth's atmosphere consists of 78.1% nitrogen gas (N2) plants are unable to use this form of nitrogen. To compensate , modern agriculture has been highly reliant on industrial nitrogen fertilizers to achieve maximum crop productivity. However, a great deal of fossil fuel is required for the production and delivery of nitrogen fertilizer. Moreover carbon dioxide (CO2) which is released during fossil fuel combustion contributes to the greenhouse effect and run off of nitrate leads to eutrophication of the waterways. Biological nitrogen fixation is an alternative to nitrogen fertilizer. It is carried out by prokaryotes using an enzyme complex called nitrogenase and results in atmospheric N2 being reduced into a form of nitrogen diazotrophic organisms and plants are able to use (ammonia). It is this process and its major players which will be discussed in this book. Biological Nitrogen Fixation is a comprehensive two volume work bringing together both review and original research articles on key topics in nitrogen fixation. Chapters across both volumes emphasize molecular techniques and advanced biochemical analysis approaches applicable to various aspects of biological nitrogen fixation. Volume 1 explores the chemistry and biochemistry of nitrogenases, nif gene regulation, the taxonomy, evolution, and genomics of nitrogen fixing organisms, as well as their physiology and metabolism. Volume 2 covers the symbiotic interaction of nitrogen fixing organisms with their host plants, including nodulation and symbiotic nitrogen fixation, plant and microbial "omics", cyanobacteria, diazotrophs and non-legumes, field studies and inoculum preparation, as well as nitrogen fixation and cereals. Covering the full breadth of current nitrogen fixation research and expanding it towards future advances in the field, Biological Nitrogen Fixation will be a one-stop reference for microbial ecologists and environmental microbiologists as well as plant and agricultural researchers working on crop sustainability.

Water Bears: The Biology of Tardigrades Springer Nature

Superconducting technology is potentially important as one of the future smart grid technologies. It is a combination of superconductor materials, electrical engineering, cryogenic insulation, cryogenics and cryostats. There has been no specific book fully describing this branch of science and technology in electrical engineering. However, this book includes these areas, and is essential for those majoring in applied superconductivity in electrical engineering. Recently, superconducting technology has made great progress. Many universities and companies are involved in applied superconductivity with the support of government. Over the next five years, departments of electrical engineering in universities and companies will become more involved in this area. This book: • will enable people to directly carry out research on applied superconductivity in electrical engineering • is more comprehensive and practical when compared to other advances • presents a clear introduction to the application of superconductor in electrical engineering and related fundamental technologies • arms readers with the technological aspects of superconductivity

required to produce a machine • covers power supplying technologies in superconducting electric apparatus • is well organized and adaptable for students, lecturers, researchers and engineers • lecture slides suitable for lecturers available on the Wiley Companion Website Fundamental Elements of Applied Superconductivity in Electrical Engineering is ideal for academic researchers, graduates and undergraduate students in electrical engineering. It is also an excellent reference work for superconducting device researchers and engineers.

Understanding Abnormal Behavior Springer Science & Business Media

The Dictionary of Cell and Molecular Biology, Fifth Edition, provides definitions for thousands of terms used in the study of cell and molecular biology. The headword count has been expanded to 12,000 from 10,000 in the Fourth Edition. Over 4,000 headwords have been rewritten. Some headwords have second, third, and even sixth definitions, while fewer than half are unchanged. Many of the additions were made to extend the scope in plant cell biology, microbiology, and bioinformatics. Several entries related to specific pharmaceutical compounds have been removed, while some generic entries ("alpha blockers, "NSAIDs, and "tetracycline antibiotics, for example), and some that are frequently part of the experimentalist's toolkit and probably never used in the clinic, have been retained. The Appendix includes prefixes for SI units, the Greek alphabet, useful constants, and single-letter codes for amino acids. Thoroughly revised and expanded by over 20% with over 12,000 entries in cellular and molecular biology Includes expanded coverage of terms, including plant molecular biology, microbiology and biotechnology areas Consistently provides the most complete short definitions of technical terminology for anyone working in life sciences today Features extensive cross-references Provides multiple definitions, notes on word origins, and other useful features

Natural Bio-active Compounds Storey Publishing, LLC

The book uses an integrated approach to predict the behavior of various biological interactions. It further discusses how synthetic biology gathers the information about various systems, in order to either devise an entirely new system, or, to modulate existing systems. The book also tackles the concept of modularity, where biological systems are visualized in terms of their parts. The chapters discuss how the principles of engineering are being used in biomedical sciences, to design biological circuits that can harbor multiple inputs and generate multiple outputs; to create genetic networks and control gene activity, in order to generate a desired response. The book aims to help the readers develop an array of biological parts, and to use these parts to develop synthetic circuits that can be assembled like electronic circuits. The ultimate aim of the book will be to serve as an amalgamation of key ideas of how judiciously synthetic biology could be exploited in therapeutic device and delivery mechanism.

Essentials of Understanding Abnormal Behavior Cengage Learning

This book on protocols in semen biology is a compilation of 20 chapters written by 15 experts from 5 Indian Council of Agricultural Research institutions, focusing on the basics of various procedures in semen biology with applications in animal and other allied sciences The information is presented in simple language with illustrative figures and colour microphotographs, making it understandable for readers of every level. It highlights recent findings, the comparative analysis of assays, protocols, points to ponder, background information and major references, and also compares various assays for evaluating a seminal parameters. The book provides a comprehensive resource for beginners, as well as academics, investigators and scientists of animal semen biology and relevant fields. Further, it offers valuable teaching material.

Grapevine Viruses: Molecular Biology, Diagnostics and Management Elsevier

Offering extensive information on tardigrades, this volume begins with a chapter on the history of tardigrades, from the first description by Goeze in 1773, until 1929, when the most comprehensive monographic approach by E. Marcus was published. Tardigrades' organ systems, including their integument, body cavity, digestive, muscular, nervous and reproductive systems, as well as their overall external morphology, are summarized in the second chapter. Subsequent chapters present the current state of knowledge on tardigrade phylogeny, biogeography, paleontology, cytology and cytogenetics. In addition, the book provides insights into the ecology of tardigrades in marine, freshwater and terrestrial habitats. The reproduction, development and life cycles are summarized and the extraordinary environmental adaptations of encystment and cyclomorphosis, desiccation tolerance, freezing tolerance and radiation tolerance are discussed in detail. Further chapters provide an overview of key approaches in molecular tardigrade studies and describe techniques for sampling and sample processing. The book closes with a list of tardigrade taxa up to a sub-generic level, including the type species of each genus, the numbers of lower taxa in each taxon, and the main environments in which the taxa were found. Given its depth of coverage, the volume offers an invaluable resource for scientists from various disciplines who plan to research tardigrades, and for all others who are interested in these fascinating animals.

The Plant Family Brassicaceae Springer

At the time that the editors conceived the idea of trying to organize the meeting on which the contents of this volume are based and which became, in March 1980, a NATO Advanced Study Institute, the techniques of time-resolved fluorescence spectroscopy, in both the nanosecond and sub-nanosecond time-domains, might reasonably have been said to be coming of age, both in their execution and in the analysis and interpretation of the results obtained. These techniques, then as now, comprised mainly a number of pulse methods using laser, flash-lamp or, most recently, synchrotron radiation. In addition, significant developments in the more classical phase approach had also rendered that method popular, utilizing either modulation of an otherwise continuous source or, again recently, the ultra-rapid pulse rate attainable with a synchrotron source. In general terms, time-resolved fluorescence studies are capable, under appropriate conditions, of supplying direct kinetic information on both photophysics and various aspects of molecular, macromolecular and supramolecular structure and dynamics. The nanosecond and sub-nanosecond time-scales directly probed render these techniques particularly appropriate in studying relaxation and fluctuation processes in macromolecules, particularly biopolymers (e. g. proteins, nucleic acids), in supramolecular assemblies such as cell membranes, and in a variety of relatively simpler model systems.

Autophagy: Biology and Diseases Springer

Nowadays, advanced remote sensing technology plays tremendous roles to build a quantitative and comprehensive understanding of how the Earth system operates. The advanced remote sensing technology is also used widely to monitor and survey the natural disasters and man-made pollution. Besides, telecommunication is considered as precise advanced remote sensing technology tool. Indeed precise usages of remote sensing and telecommunication without a comprehensive understanding of mathematics and physics. This book has three parts (i) microwave remote sensing applications, (ii) nuclear, geophysics and telecommunication; and (iii) environment remote sensing investigations.

Biochemistry and Molecular Biology John Wiley & Sons

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) addresses classification and labelling of chemicals by types of hazards. It provides the basis for worldwide harmonization of rules and regulations on chemicals and aims at enhancing the protection of

human health and the environment during their handling, transport and use by ensuring that the information about their physical, health and environmental hazards is available. The sixth revised edition includes, inter alia, a new hazard class for desensitized explosives and a new hazard category for pyrophoric gases; miscellaneous amendments intended to further clarify the criteria for some hazard classes (explosives, specific target organ toxicity following single exposure, aspiration hazard, and hazardous to the aquatic environment) and to complement the information to be included in section 9 of the Safety Data Sheet; revised and further rationalized precautionary statements; and an example of labelling of a small packaging in Annex 7.

1st World Congress on Electroporation and Pulsed Electric Fields in Biology, Medicine and Food & Environmental Technologies Springer Nature

ESSENTIALS OF UNDERSTANDING ABNORMAL BEHAVIOR, 3rd Edition offers the same multidimensional focus, multicultural emphasis, topical coverage, and engaging style as its comprehensive counterpart -- UNDERSTANDING ABNORMAL BEHAVIOR -- in a condensed, student-friendly format. Updated to reflect DSM-5 and the newest scientific, psychological, multicultural, and psychiatric research, the text introduces and integrates the Multipath Model of Mental Disorders to explain how biological, psychological, social, and sociocultural factors interact to cause mental disorders. A focus on resilience highlights prevention and recovery from the symptoms of various disorders, and the book also continues its emphasis on the multicultural, sociocultural, and diversity aspects of abnormal psychology. The authors present material in a lively and engaging manner, connecting topics to real-world case studies, current events, and issues of particular importance and relevance to college students. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Computational Methods in Systems Biology CRC Press

This book provides all aspects of the physiology, stress responses and tolerance to abiotic stresses of the Brassicaceae plants. Different plant families have been providing food, fodder, fuel, medicine and other basic needs for the human and animal since the ancient time. Among the plant families, Brassicaceae has special importance for their agri-horticultural importance and multifarious uses apart from the basic needs. Interest understanding the response of Brassicaceae plants toward abiotic stresses is growing considering the economic importance and the special adaptive mechanisms. The knowledge needs to be translated into improved elite lines that can contribute to achieve food security. The physiological and molecular mechanisms acting on Brassicaceae introduced in this book are useful to students and researchers working on biology, physiology, environmental interactions and biotechnology of Brassicaceae plants.

Biology and ecology of weeds Academic Press

Encyclopedia of Immunobiology provides the largest integrated source of immunological knowledge currently available. It consists of broad ranging, validated summaries on all of the major topics in the field as written by a team of leading experts. The large number of topics covered is relevant to a wide range of scientists working on experimental and clinical immunology, microbiology, biochemistry, genetics, veterinary science, physiology, and hematology. The book is built in thematic sections that allow readers to rapidly navigate around related content. Specific sections focus on basic, applied, and clinical immunology. The structure of each section helps readers from a range of backgrounds gain important understanding of the subject. Contains tables, pictures, and multimedia features that enhance the learning process In-depth coverage allows readers from a range of backgrounds to benefit from the material Provides handy cross-referencing between articles to improve readability, including easy access from portable devices

Fundamental Elements of Applied Superconductivity in Electrical Engineering Springer Science & Business Media

The study of stem cell biology is under intensive investigations. Because stem cells have the unique capability to self-renew and differentiate into one or several cell types, they play a critical role in development, tissue homeostasis and regeneration. Stem cells also constitute promising cell candidates for cell therapy.The aim of this book is to provide an accurate knowledge on stem cell biology and regenerative medicine. This book will cover many topics in the field and is based on seminars given by recognized scientists involved the international master program on stem cell biology at the University Pierre and Marie Curie (UPMC) in Paris.

How to prepare for the biology olympiad Springer

Bioactive compounds produced by natural sources, such as plants, microbes, endophytic fungi, etc., can potentially be applied in various fields, including agriculture, biotechnology and biomedicine. Several bioactive compounds have proved to be invaluable in mediating plant-microbe interactions, and promoting plant growth and development. Due to their numerous health-promoting properties, these compounds have been widely used as a source of medication since ancient times. However, there is an unprecedented need to meet the growing demand for natural bioactive compounds in the flavor and fragrance, food, and pharmaceutical industries. Moreover, discovering new lead molecules from natural sources is essential to overcoming the rising number of new diseases. In this regard, natural bioactive compounds hold tremendous potential for new drug discovery. Therefore, this field of research has become a vital area for researchers interested in understanding the chemistry, biosynthetic mechanisms, and pharmacological activities of these bioactive metabolites. This book describes the basics of bioactive plant compounds, their chemical properties, and their pharmacological biotechnological properties with regard to various human diseases and applications in the drug, cosmetics and herbal industries. It offers a valuable asset for all students, educators, researchers, and healthcare experts involved in agronomy, ecology, crop science, molecular biology, stress physiology, and natural products.

Marine Organisms as Model Systems in Biology and Medicine Springer

The domestication of grapes dates back five thousand years ago and has spread to nearly all continents. In recent years, grape acreage has increased dramatically in new regions, including the United States of America, Chile, Asia (China and India), and Turkey. A major limiting factor to the sustained production of premium grapes and wines is infections by viruses. The advent of powerful molecular and metagenomics technologies, such as molecular cloning and next generation sequencing, allowed the discovery of new viruses from grapes. To date, grapevine is susceptible to 64 viruses that belong to highly diverse taxonomic groups. The most damaging diseases include: (1) infectious degeneration; (2) leafroll disease complex; and (3) rugose wood complex. Recently, two new disease syndromes have been recognized: Syrah decline and red blotch. Losses due to fanleaf degeneration are estimated at $1 billion annually in France alone. Other diseases including leafroll, rugose wood, Syrah de cline and red blotch can result in total crop loss several years post-infection. This situation is further exacerbated by mixed infections with multiple viruses and other biotic as well as adverse abiotic environmental conditions, such as drought and winter damage, causing even greater destruction. The book builds upon the last handbook (written over twenty years ago) on the part of diagnostics and extensively expands its scope by inclusion of molecular biology aspects of select viruses that are widespread and economically most important. This includes most current information on the biology, transmission, genome replication, transcription, subcellular localization, as well as virus-host interactions. It also touches on several novel areas of scientific inquiry. It also contains suggested

directions for future research in the field of grapevine virology.

Biological Drug Products CRC Press

Encyclopedia of Bioinformatics and Computational Biology: ABC of Bioinformatics combines elements of computer science, information technology, mathematics, statistics and biotechnology, providing the methodology and in silico solutions to mine biological data and processes. The book covers Theory, Topics and Applications, with a special focus on Integrative –omics and Systems Biology. The theoretical, methodological underpinnings of BCB, including phylogeny are covered, as are more current areas of focus, such as translational bioinformatics, cheminformatics, and environmental informatics. Finally, Applications provide guidance for commonly asked questions. This major reference work spans basic and cutting-edge methodologies authored by leaders in the field, providing an invaluable resource for students, scientists, professionals in research institutes, and a broad swath of researchers in biotechnology and the biomedical and pharmaceutical industries. Brings together information from computer science, information technology, mathematics, statistics and biotechnology Written and reviewed by leading experts in the field, providing a unique and authoritative resource Focuses on the main theoretical and methodological concepts before expanding on specific topics and applications Includes interactive images, multimedia tools and crosslinking to further resources and databases

Degenerate Diffusion Operators Arising in Population Biology (AM-185) John Wiley & Sons

This new volume in the Subcellular Biochemistry series will focus on the biochemistry and cellular biology of aging processes in human cells. The chapters will be written by experts in their respective fields and will focus on a number of the current key areas of research in subcellular aging research. Main topics for discussion are mitochondrial aging, protein homeostasis and aging and the genetic processes that are involved in aging. There will also be chapters that are dedicated to the study of the roles of a variety of vitamins and minerals on aging and a number of other external factors (microbiological, ROS, inflammation, nutrition). This book will provide the reader with a state of the art overview of the subcellular aging field. This book will be published in cooperation with a second volume that will discuss the translation of the cell biology of aging to a more clinical setting and it is hoped that the combination of these two volumes will bring a deeper understanding of the links between the cell and the body during aging.

Where Mathematics, Computer Science, Linguistics and Biology Meet Dr. R. HALICIOGLU

This book constitutes the proceedings of the 11th International Conference on Computational Methods in Systems Biology, CMSB 2013, held in Klosterneuburg, Austria, in September 2013. The 15 regular papers included in this volume were carefully reviewed and selected from 27 submissions. They deal with computational models for all levels, from molecular and cellular, to organs and entire organisms.