

Biology Paper 1 Hg 2013 Memo

This book provides the first comprehensive overview of the emerging field of interdisciplinary salivary bioscience. It serves as a foundational reference guide to the collection, analysis, and interpretation of salivary data, as well as its myriad applications in medicine, surveillance and public health. The ease and non-invasive nature of saliva collection makes it highly useful in diverse fields such as pediatrics, dentistry, neuroscience, psychology, animal welfare and precision medicine. This book introduces students and scientists alike to the vast potential of salivary bioscience in both research and practice.

INSTANT NEW YORK TIMES BESTSELLER A NEW YORK TIMES NOTABLE BOOK OF 2018 ONE OF THE ECONOMIST'S BOOKS OF THE YEAR "My new favorite book of all time."

--Bill Gates If you think the world is coming to an end, think again: people are living longer, healthier, freer, and happier lives, and while our problems are formidable, the solutions lie in the Enlightenment ideal of using reason and science. By the author of the new book, Rationality. Is the world really falling apart? Is the ideal of progress obsolete? In this elegant assessment of the human condition in the third millennium, cognitive scientist and public intellectual Steven Pinker urges us to step back from the gory headlines and prophecies of doom, which play to our psychological biases. Instead, follow the data: In seventy-five jaw-dropping graphs, Pinker shows that life, health, prosperity, safety, peace, knowledge, and happiness are on the rise, not just in the West, but worldwide. This progress is not the result of some cosmic force. It is a gift of the Enlightenment: the conviction that reason and science can enhance human flourishing. Far from being a naïve hope, the Enlightenment, we now know, has worked. But more than ever, it needs a vigorous defense. The Enlightenment project swims against currents of human nature--tribalism, authoritarianism, demonization, magical thinking--which demagogues are all too willing to exploit. Many commentators, committed to political, religious, or romantic ideologies, fight a rearguard action against it. The result is a corrosive fatalism and a willingness to wreck the precious institutions of liberal democracy and global cooperation. With intellectual depth and literary flair, Enlightenment Now makes the case for reason, science, and humanism: the ideals we need to confront our problems and continue our progress.

This book highlights the efforts made by distinguished scientific researchers world-wide to meet two key challenges: i) the limited reserves of polluting fossil fuels, and ii) the ever-increasing amounts of waste being generated. These case studies have brought to the foreground certain innovative biological solutions to real-life problems we now face on a global scale: environmental pollution and its role in deteriorating human health. The book also highlights major advances in microbial metabolisms, which can be used to produce bioenergy, biopolymers, bioactive molecules, enzymes, etc. Around the world, countries like China, Germany, France, Sweden and the US are now implementing major national programs for the production of biofuels. The book provides information on how to meet the chief technical challenges – identifying an industrially robust microbe and cheap raw material as feed. Of the various possibilities for generating bioenergy, the most attractive is the microbial production of biohydrogen, which has recently gained significant recognition worldwide, due to its high efficiency and eco-friendly nature. Further, the book highlights factors that can make these bioprocesses more economical, especially the cost of the feed. The anaerobic digestion (AD) process is more advantageous in comparison to aerobic processes for stabilizing biowastes and producing biofuels (hydrogen, biodiesel, 1,3-propanediol, methane, electricity), biopolymers (polyhydroxyalkanoates, cellulose, exopolysaccharides) and bioactive molecules (such as enzymes, volatile fatty acids, sugars, toxins, etc.) for biotechnological and medical applications. Information is provided on how the advent of molecular biological techniques can provide greater insights into novel microbial lineages. Bioinformatic tools and metagenomic techniques have extended the limits to which these biological processes can be exploited to improve human welfare. A new dimension to these scientific works has been added by the emergence of synthetic biology. The Big Question is: How can these Microbial Factories be improved through metabolic engineering and what cost targets need to be met?

Vertebrate palaeontology is a lively field, with new discoveries reported every week... and not only dinosaurs! This new edition reflects the international scope of vertebrate palaeontology, with a special focus on exciting new finds from China. A key aim is to explain the science. Gone are the days of guesswork. Young researchers use impressive new numerical and imaging methods to explore the tree of life, macroevolution, global change, and functional morphology. The fourth edition is completely revised. The cladistic framework is strengthened, and new functional and developmental spreads are added. Study aids include: key questions, research to be done, and recommendations of further reading and web sites. The book is designed for palaeontology courses in biology and geology departments. It is also aimed at enthusiasts who want to experience the flavour of how the research is done. The book is strongly phylogenetic, and this makes it a source of current data on vertebrate evolution.

A Journey Through Earth's Extinct Worlds

Atlas of Crustacean Larvae

Nanobiosensors and Nanobioanalyses

Phytochemicals and Medicinal Plants

Seminal Papers in Pain with Expert Commentaries

Biology and Evolution of Crocodylians

"Immersive . . . bracingly ambitious . . . rewinds the story of life on Earth—from the mammoth steppe of the last Ice Age to the dawn of multicellular creatures over 500 million years ago."—The Economist "One of those rare books that's both deeply informative and daringly imaginative."—Elizabeth

Kolbert, author of *Under a White Sky* The past is past, but it does leave clues, and Thomas Halliday has used cutting-edge science to decipher them more completely than ever before. In *Otherlands*, Halliday makes sixteen fossil sites burst to life on the page. This book is an exploration of the Earth as it used to exist, the changes that have occurred during its history, and the ways that life has found to adapt—or not. It takes us from the savannahs of Pliocene Kenya to watch a python chase a group of australopithecines into an acacia tree; to a cliff overlooking the salt pans of the empty basin of what will be the Mediterranean Sea just as water from the Miocene Atlantic Ocean spills in; into the tropical forests of Eocene Antarctica; and under the shallow pools of Ediacaran Australia, where we glimpse the first microbial life. *Otherlands* also offers us a vast perspective on the current state of the planet. The thought that something as vast as the Great Barrier Reef, for example, with all its vibrant diversity, might one day soon be gone sounds improbable. But the fossil record shows us that this sort of wholesale change is not only possible but has repeatedly happened throughout Earth history. Even as he operates on this broad canvas, Halliday brings us up close to the intricate relationships that defined these lost worlds. In novelistic prose that belies the breadth of his research, he illustrates how ecosystems are formed; how species die out and are replaced; and how species migrate, adapt, and collaborate. It is a breathtaking achievement: a surprisingly emotional narrative about the persistence of life, the fragility of seemingly permanent ecosystems, and the scope of deep time, all of which have something to tell us about our current crisis.

The paratext framework is now used in a variety of fields to assess, measure, analyze, and comprehend the elements that provide thresholds, allowing scholars to better understand digital objects. Researchers from many disciplines revisit paratextual theories in order to grasp what surrounds text in the digital age. *Examining Paratextual Theory and its Applications in Digital Culture* suggests a theoretical and practical tool for building bridges between disciplines interested in conducting joint research and exploration of digital culture. Helping scholars from different fields find an interdisciplinary framework and common language to study digital objects, this book serves as a useful reference for academics, librarians, professionals, researchers, and students, offering a collaborative outlook and perspective.

The first international volume on the topic of biosemiotics and linguistics. It aims to establish a new relationship between linguistics and biology as based on shared semiotic foundation.

Lipids are best known as energy storing molecules and core-components of cellular membranes, but can also act as mediators of cellular signaling. This is most prominently illustrated by the paramount importance of the phospholipase C (PLC) and phosphoinositide 3-kinase (PI3K) signaling pathways in many cells, including T cells and cancer cells. Both of these enzymes use the lipid phosphatidylinositol(4,5)bisphosphate (PIP2) as their substrate. PLCs produce the lipid product diacylglycerol (DAG) and soluble inositol(1,4,5)trisphosphate (IP3). DAG acts as a membrane tether for protein kinase C and RasGRP proteins. IP3 is released into the cytosol and controls calcium release from internal stores. The PI3K lipid product phosphatidylinositol(3,4,5)trisphosphate (PIP3) controls signaling by binding and recruiting effector proteins such as Akt and Itk to cellular membranes. Recent research has unveiled important signaling roles for many additional phosphoinositides and other lipids. The articles in this volume highlight how multiple different lipids govern T cell development and function through diverse mechanisms and effectors. In T cells, lipids can orchestrate signaling by organizing membrane topology in rafts or microdomains, direct protein function through covalent lipid-modification or non-covalent lipid binding, act as intracellular or extracellular messenger molecules, or govern T cell function at the level of metabolic regulation. The cellular activity of certain lipid messengers is moreover controlled by soluble counterparts, exemplified by symmetric PIP3/inositol(1,3,4,5)tetrakisphosphate (IP4) signaling in developing T cells. Not surprisingly, lipid producing and metabolizing enzymes have gained attention as potential therapeutic targets for immune disorders, leukemias and lymphomas.

From Farms to Kitchens

Microbial Factories

The Four Components

The Case for Reason, Science, Humanism, and Progress

Treating Addictions

Spatial Dynamics and Pattern Formation in Biological Populations

An objective analysis of relevant issues and case studies to further the ape conservation agenda around killing, capture and trade.

Ultraviolet LED Technology for Food Applications: From Farms to Kitchens examines the next wave in the LED revolution and its ability to bring numerous advantages of UVC disinfection based light fixtures will become the driving force behind wider adoption, with potential use in the treatment of beverages, disinfection of food surfaces, packaging and other food surfaces, this book presents the latest information, including LEDs unique properties and advantages and the developments and advances made in four areas of application, including horticulture, post-harvest and post processing storage, safety and point-of-use applications. Alternative opportunities to current practices of food production and processing that are diverse and being intensively investigated in recent decades, things like Ultraviolet light (UV) irradiation. The effects of UVC LEDs against bacteria, viruses and fungi already have been reported, along with the first applications for disinfection of air, water and surface made for the "point-of-use" integration. Brings unique advantages of LEDs for foods from farm to table applications and advances in LEDs for horticulture, crops production, postharvest reservation and produce storage Investigates UV LEDs in food safety

Biological sciences have been revolutionized, not only in the way research is conducted -- with the introduction of techniques such as recombinant DNA and digital technology -- but also in how findings are communicated among professionals and to the public. Yet, the undergraduate programs that train biology researchers remain much the same as they were before these

came on the scene. This new volume provides a blueprint for bringing undergraduate biology education up to the speed of today's research fast track. It includes recommendations for the generation of life science investigators, through: Building a strong interdisciplinary curriculum that includes physical science, information technology, and mathematics. Eliminating financial barriers to cross-departmental collaboration. Evaluating the impact of medical college admissions testing on undergraduate biology education. Creating early opportunities for research. Designing meaningful laboratory experiences into the curriculum. The committee presents a dozen brief case studies of exemplary programs at leading institutions and lists them for biology educators. This volume will be important to biology faculty, administrators, practitioners, professional societies, research and education funders, and the biotechnology industry. Destined to become a key reference for specialists and students and a treasured book for anyone who wishes to understand "the invertebrate backbone of marine ecosystems, Atlanta belongs on the shelf of every serious marine biologist.

Mechanobiology

Foundations of Interdisciplinary Saliva Research and Applications

Fishery Ecosystem Dynamics

Salivary Bioscience

Lipid Signaling in T Cell Development and Function

This reference book includes 24 chapters written by a group of experts in the different fields of microfungi and cover a broad range of topics on microfungi. It provides the most updated information on the latest development in systematics and taxonomy of microfungi, new techniques which were developed in the last ten years and their application in microfungal research. After the International Code of Nomenclature for algae, fungi, and plants (Melbourne Code) was adopted by the Eighteenth International Botanical Congress Melbourne, Australia, July 2011, it has had a profound impact on mycology and its research. Fungal nomenclature changes and its significance to fungal taxonomy and naming of microfungi in the future is discussed in detail. Since dual names system for fungi developing both sexual and asexual states, and fungi developing only asexual state is no longer available, the first five chapters will clarify some confusion and provides perspective views on the direction for future research. The next nine chapters cover microfungi and their ecological roles or functions in the different habitats (air, indoor, aquatic, marine, plants, soils, etc). The remaining 13 chapters cover the relationship of microfungi and humans (good and bad) and usage or application microfungi in different industries, such as food, agriculture, forestry, green technology, pharmaceuticals, and medicine, as well as in our daily life. The book bridges the gap between basic mycological research and applied mycology and provide readers a unique set of information and knowledge of microfungi generated from multiple angles in different fields of mycology.

Anatomy and physiology is designed for the two-semester anatomy and physiology course taken by life science and allied health students.

Abscisic Acid in Plants, Volume 92, the latest release in the Advances in Botanical Research series, is a compilation of the current state-of-the-art on the topic. Chapters in this new release comprehensively describe latest knowledge on how ABA functions as a plant hormone. They cover topics related to molecular mechanisms as well as the biochemical and chemical aspects of ABA action: hormone biosynthesis, catabolism, transport, perception, signaling in plants, seeds and in response to biotic and abiotic stresses, hormone evolution and chemical biology, and much more. Presents the latest release in the Advances in Botanical Research series Provides an Ideal resource for post-graduates and researchers in the plant sciences, including plant physiology, plant genetics, plant biochemistry, plant pathology, and plant evolution Contains contributions from internationally recognized authorities in their respective fields

Anatomy & Physiology Biology of Microfungi Springer

Otherlands

Biology of Microfungi

Mexican Aquatic Environments

Internet of Medical Things

Biological Invasions in South Africa

Abscisic Acid in Plants

This open access volume presents a comprehensive account of all aspects of biological invasions in South Africa, where research has been conducted over more than three decades, and where bold initiatives have been implemented in attempts to control invasions and to reduce their ecological, economic and social effects. It covers a broad range of themes, including history, policy development and implementation, the status of invasions of animals and plants in terrestrial, marine and freshwater environments, the development of a robust ecological theory around biological invasions, the effectiveness of management interventions, and scenarios for the future. The South African situation stands out because of the remarkable diversity of the country, and the wide range of problems encountered in its varied ecosystems, which has resulted in a disproportionate investment into both research and management. The South African experience holds many lessons for other parts of the world, and this book should be of immense value to researchers, students, managers, and policy-makers who deal with biological invasions and ecosystem management and conservation in most other regions.

Pursuing a multidisciplinary approach, this book highlights current challenges in, and potential solutions to, environmental water management in Mexico. It includes an essential review of current literature and state of the art research, providing a one-stop resource for researchers, graduate students and environmental water managers alike. The result of a cooperation between 35 researchers

from seven Mexican academic institutions, two Federal Commissions and one international organization, the book links science to practice for living organisms and their environment, while also addressing anthropogenic effects on our water ecosystems. Particularly the book addresses the following subjects: Biodiversity in inland waters, physical and chemical characterization of inland waters, physico-chemical characterization of Mexican coastal lagoons, microbiota in brackish ecosystems, diversity associated with southern Mexico's pacific coral reefs, fry fish stockings in aquatic epicontinental systems, a review of tuna fisheries in Mexico, fishery resource management challenges stemming from climate change, aquatic invasive alien species, harmful algal blooms, and aquatic protected areas, related ecological and social problems and the importance for fisheries' yield.

The book provides an introduction to deterministic (and some stochastic) modeling of spatiotemporal phenomena in ecology, epidemiology, and neural systems. A survey of the classical models in the fields with up to date applications is given. The book begins with detailed description of how spatial dynamics/diffusive processes influence the dynamics of biological populations. These processes play a key role in understanding the outbreak and spread of pandemics which help us in designing the control strategies from the public health perspective. A brief discussion on the functional mechanism of the brain (single neuron models and network level) with classical models of neuronal dynamics in space and time is given. Relevant phenomena and existing modeling approaches in ecology, epidemiology and neuroscience are introduced, which provide examples of pattern formation in these models. The analysis of patterns enables us to study the dynamics of macroscopic and microscopic behaviour of underlying systems and travelling wave type patterns observed in dispersive systems. Moving on to virus dynamics, authors present a detailed analysis of different types models of infectious diseases including two models for influenza, five models for Ebola virus and seven models for Zika virus with diffusion and time delay. A Chapter is devoted for the study of Brain Dynamics (Neural systems in space and time). Significant advances made in modeling the reaction-diffusion systems are presented and spatiotemporal patterning in the systems is reviewed. Development of appropriate mathematical models and detailed analysis (such as linear stability, weakly nonlinear analysis, bifurcation analysis, control theory, numerical simulation) are presented. Key Features Covers the fundamental concepts and mathematical skills required to analyse reaction-diffusion models for biological populations. Concepts are introduced in such a way that readers with a basic knowledge of differential equations and numerical methods can understand the analysis. The results are also illustrated with figures. Focuses on mathematical modeling and numerical simulations using basic conceptual and classic models of population dynamics, Virus and Brain dynamics. Covers wide range of models using spatial and non-spatial approaches. Covers single, two and multispecies reaction-diffusion models from ecology and models from bio-chemistry. Models are analysed for stability of equilibrium points, Turing instability, Hopf bifurcation and pattern formations. Uses Mathematica for problem solving and MATLAB for pattern formations. Contains solved Examples and Problems in Exercises. The Book is suitable for advanced undergraduate, graduate and research students. For those who are working in the above areas, it provides information from most of the recent works. The text presents all the fundamental concepts and mathematical skills needed to build models and perform analyses.

An emerging field at the interface of biology and engineering, mechanobiology explores the mechanisms by which cells sense and respond to mechanical signals—and holds great promise in one day unravelling the mysteries of cellular and extracellular matrix mechanics to cure a broad range of diseases. *Mechanobiology: Exploitation for Medical Benefit* presents a comprehensive overview of principles of mechanobiology, highlighting the extent to which biological tissues are exposed to the mechanical environment, demonstrating the importance of the mechanical environment in living systems, and critically reviewing the latest experimental procedures in this emerging field. Featuring contributions from several top experts in the field, chapters begin with an introduction to fundamental mechanobiological principles; and then proceed to explore the relationship of this extensive force in nature to tissues of musculoskeletal systems, heart and lung vasculature, the kidney glomerulus, and cutaneous tissues. Examples of some current experimental models are presented conveying relevant aspects of mechanobiology, highlighting emerging trends and promising avenues of research in the development of innovative therapies. Timely and important, *Mechanobiology: Exploitation for Medical Benefit* offers illuminating insights into an emerging field that has the potential to revolutionise our comprehension of appropriate cell biology and the future of biomedical research.

Paradigm of Wearable Devices

Sea Ice

Cytochrome Complexes: Evolution, Structures, Energy Transduction, and Signaling

Biosemitic Perspectives on Language and Linguistics

Transforming Undergraduate Education for Future Research Biologists

The Cross-Disciplinary Perspectives of Management

Internet of Things (IoT) has become a valuable tool for connection and information exchange between devices. This book provides a brief introduction to this new field, focuses on wearable medical devices, and covers the basic concepts by providing the reader with enough information to solve various practical problems. This book provides the latest applications, experiments, fundamentals concepts, and cutting-edge topics for the ehealth and wearable devices field. The book also offers topics related to Security in IoT and Wearable Devices, Wearable Devices and Internet of Medical Devices (IoMT), IoT for Medical Applications, and Tools and study cases. The book brings new and valuable information to PhD researchers, students, professors, and professionals working in IoT and related fields.

This book provides a comprehensive review of established, cutting-edge, and future trends in the exponentially growing field of nanomaterials and their applications in biosensors and bioanalyses. Part I focuses on the key principles and transduction approaches, reviewing the timeline featuring the important historical milestones in the development and application of nanomaterials in biosensors and bioanalyses. Part II reviews various architectures used in nanobiosensing designs focusing on nanowires, one- and two-dimensional nanostructures, and plasmonic nanobiosensors with interferometric reflectance imaging. Commonly used nanomaterials, functionalization of the nanomaterials, and development of nanobioelectronics are discussed in detail in Part III with examples from screen-printed electrodes, nanocarbon films, and semiconductor quantum dots. Part IV reviews the current applications of carbon nanotubes, nanoneedles, plasmonic sensors, electrochemical scanning microscopes, and field-effect transistors with the future outlook for emerging technologies. Attention is also given to potential challenges, in particular, of taking these technologies at the point-of-need. The book concludes by providing a condensed summary of the contents, with emphasis on future directions.

Nanomaterials have become an essential part of biosensors and bioanalyses in the detection and monitoring of medical, pharmaceutical, and environmental conditions, from cancer to chemical

warfare agents. This book, with its distinguished editors and international team of expert contributors, will be an essential guide for all those involved in the research, design, development, and application of nanomaterials in biosensors and bioanalyses.

Biology and Evolution of Crocodylians is a comprehensive review of current knowledge about the world's largest and most famous living reptiles. Gordon Grigg's authoritative and accessible text and David Kirshner's stunning interpretive artwork and colour photographs combine expertly in this contemporary celebration of crocodiles, alligators, caimans and gharials. This book showcases the skills and capabilities that allow crocodylians to live how and where they do. It covers the biology and ecology of the extant species, conservation issues, crocodylian–human interaction and the evolutionary history of the group, and includes a vast amount of new information; 25 per cent of 1100 cited publications have appeared since 2007. Richly illustrated with more than 500 colour photographs and black and white illustrations, this book will be a benchmark reference work for crocodylian biologists, herpetologists and vertebrate biologists for years to come.

This book is the first overview on Deep Learning (DL) for biomedical data analysis. It surveys the most recent techniques and approaches in this field, with both a broad coverage and enough depth to be of practical use to working professionals. This book offers enough fundamental and technical information on these techniques, approaches and the related problems without overcrowding the reader's head. It presents the results of the latest investigations in the field of DL for biomedical data analysis. The techniques and approaches presented in this book deal with the most important and/or the newest topics encountered in this field. They combine fundamental theory of Artificial Intelligence (AI), Machine Learning (ML) and DL with practical applications in Biology and Medicine. Certainly, the list of topics covered in this book is not exhaustive but these topics will shed light on the implications of the presented techniques and approaches on other topics in biomedical data analysis. The book finds a balance between theoretical and practical coverage of a wide range of issues in the field of biomedical data analysis, thanks to DL. The few published books on DL for biomedical data analysis either focus on specific topics or lack technical depth. The chapters presented in this book were selected for quality and relevance. The book also presents experiments that provide qualitative and quantitative overviews in the field of biomedical data analysis. The reader will require some familiarity with AI, ML and DL and will learn about techniques and approaches that deal with the most important and/or the newest topics encountered in the field of DL for biomedical data analysis. He/she will discover both the fundamentals behind DL techniques and approaches, and their applications on biomedical data. This book can also serve as a reference book for graduate courses in Bioinformatics, AI, ML and DL. The book aims not only at professional researchers and practitioners but also graduate students, senior undergraduate students and young researchers. This book will certainly show the way to new techniques and approaches to make new discoveries.

Killing, Capture, Trade and Ape Conservation

Proceedings of the Society for Experimental Biology and Medicine

Handbook of Research on Machine Learning Innovations and Trends

Examining Paratextual Theory and its Applications in Digital Culture

Exploitation for Medical Benefit

Indian National Bibliography

This book concerns the different aspects of forest fires, the impact of fire on both forest resources (e.g. forest cover) and communities that use different forest functions. Therefore, forest fires have their environmental, economic and social consequences, and none of them is less important. Forest fires can be caused by both natural forces and anthropogenic factors, and in the latter case, it is extremely interesting to profile the potential arsonist. Forest fires may also cause conflicts, stronger or weaker, in local communities that have been using forests for years. These conflicts can be solved both by gradually changing the law itself and through education at the local level. Not less important is the ability to detect fires early, which can be helped by the development of modern technologies. In limiting the effects of forest fires, it may also be helpful to develop mathematical models that indicate various factors affecting the possibility of a fire or affecting the rate of its spread. Not less important is the attempt to assess the direction of forest regeneration after the fire has ceased, in understanding what the help of modern technology is. These aspects of forest fire are the subject of this book. I realize, however, that the contents in it can only be an incentive for the reader to learn more, in an interesting aspect. I assume that this book will be valuable to researchers as well as students who are interested in different aspects connected to forest fires, not only from the ecological point of view but also from the social one. Both are extremely important in future forest protection and sustainable use of forest by local communities.

Fisheries supply a critically important ecosystem service by providing over three billion people with nearly 20% of their daily animal protein intake. Yet one third of the world's fish stocks are currently harvested at unsustainable levels. Calls for the adoption of more holistic approaches to management that incorporate broader ecosystem principles are now being translated into action worldwide to meet this challenge. The transition from concept to implementation is accompanied by the need to further establish and evaluate the analytical framework for Ecosystem-Based Fishery Management (EBFM). The objectives of this novel textbook are to provide an introduction to this topic for the next generation of scientists who will carry on this work, to illuminate the deep and often underappreciated connections between basic ecology and fishery science, and to explore the implications of these linkages in formulating management strategies for the 21st century. Fishery Ecosystem Dynamics will be of great use to graduate level students as well as academic researchers and professionals (both governmental and NGO) in the fields of fisheries ecology and management.

Tracing the cultural, material, and discursive history of an early manifestation of media culture in the making. Beginning in the late eighteenth century, huge circular panoramas presented their audiences with resplendent representations that ranged from historic battles to exotic locations. Such panoramas were immersive but static. There were other panoramas that moved—hundreds, and probably thousands of them. Their history has been largely forgotten. In Illusions in Motion, Erkki Huhtamo excavates this neglected early manifestation of media culture in the making. The moving panorama was a long painting that unscrolled behind a “window” by means of a mechanical cranking system, accompanied by a lecture, music, and sometimes

sound and light effects. Showmen exhibited such panoramas in venues that ranged from opera houses to church halls, creating a market for mediated realities in both city and country. In the first history of this phenomenon, Huhtamo analyzes the moving panorama in all its complexity, investigating its relationship to other media and its role in the culture of its time. In his telling, the panorama becomes a window for observing media in operation. Huhtamo explores such topics as cultural forms that anticipated the moving panorama; theatrical panoramas; the diorama; the "panoromania" of the 1850s and the career of Albert Smith, the most successful showman of that era; competition with magic lantern shows; the final flowering of the panorama in the late nineteenth century; and the panorama's afterlife as a topos, traced through its evocation in literature, journalism, science, philosophy, and propaganda.

Pain Medicine, a relatively new specialty, has proven increasingly relevant to medical practitioners in every field. The specialism of pain has emerged over the past 50 years, largely due to the persistence of experts and new medical evidence that points to its necessity. Today, it is a distinct and integral part of global medical practice. Landmark Papers in Pain offers a comprehensive inventory of over 80 key studies in pain medicine from the last 100 years. Each paper is accompanied by a concise commentary on the significance of the original findings written by an expert in pain. The reviews discuss how the paper influenced the development of the speciality, and how the findings have advanced our global comprehension of pain. Together, the selected papers and reviews chart the growth of an embryonic field into the modern speciality of pain medicine. Compiled by leading specialists in the field, the papers included in this book are significant for any student, researcher, clinical practitioner, or medical historian interested in pain medicine. Organised into eight distinct topics and cross-referenced by topics and author of original paper, the book is comprehensive in its coverage and easy to use. A review of the contemporary and historical research that shaped the speciality of pain, Landmark Papers in Pain is essential reading for all medical practitioners with an interest in pain medicine.

New Perspectives on Pterosaur Palaeobiology

Building Ontologies with Basic Formal Ontology

Enlightenment Now

Forest Fire

Media Archaeology of the Moving Panorama and Related Spectacles

Biodiversity, Biopolymers, Bioactive Molecules: Volume 2

Overview of sea ice growth and properties / Chris Petrich & Hajo Eicken -- Sea ice thickness distribution / Christian Haas -- Snow in the sea-ice system : friend or foe? / Matthew Sturm & Robert A. Massom -- Sea ice and sunlight / Donald K. Perovich -- The sea ice-ocean boundary layer / Miles G. McPhee -- The atmosphere over sea ice / Ola Persson & Timo Vihma -- Sea ice and arctic ocean oceanography / Finlo Cottier, Mike Steele & Frank Nielsen -- Oceanography and sea ice in the southern ocean / Michael P. Meredith & Mark A. Brandon -- Methods of satellite remote sensing of sea ice / Gunnar Spreen & Stefan Kern -- Gaining (and losing) antarctic sea ice : variability, trends and mechanisms / Sharon Stammerjohn & Ted Maksym -- Losing arctic sea ice : observations of the recent decline and the long-term context / Walt N. Meier -- Sea ice in earth system models / Dirk Notz & Cecilia M. Bitz -- Sea ice as a habitat for bacteria, archaea and viruses / Jody W. Deming & R. Eric Collins -- Sea ice as a habitat for primary producers / Kevin R. Arrigo -- Sea ice as a habitat for micrograzers / David A. Caron, Rebecca J. Gast & Marie-Eve Garneau -- Sea ice as a habitat for macrograzers / Bodil A. Bluhm, Kerrie M. Swadling & Rolf Gradinger -- Nutrients, dissolved organic matter and exopolymers in sea ice / Klaus M. Meiners & Christine Michel -- Gases in sea ice / Jean-Louis Tison, Bruno Delille & Stathys Papadimitriou -- Transport and transformation of contaminants in sea ice / Feiyue Wang, Monika Pucko & Gary Stern -- Numerical models of sea ice biogeochemistry / Martin Vancoppenolla & Letizia Tedesco -- Arctic marine mammals and sea ice / Kristin L. Laidre & Eric V. Regehr -- Antarctic marine mammals and sea ice / Marthán N. Bester, Horst Bornemann & Trevor McIntyre -- A feathered perspective : the influence of sea ice on arctic marine birds / Nina J. Karnovsky & Maria V. Gavrilov -- Birds and antarctic sea ice / David Ainley, Eric J. Woehler & Amelie Lescroel -- Sea ice is our beautiful garden : indigenous perspectives on sea ice of sea ice in the arctic / Henry P. Huntington, Shari Gearheard, Lene Kielsen Holm, George Noongwook, Margaret Opie & Joelle Sanguya -- Advances in palaeo sea-ice estimation / Leanne Armand, Alexander Ferry & Amy Leventer -- Ice in subarctic seas / Hermanni Kaartokallio, Mats A. Granskog, Harri Kuosa & Jouni Vainio

Oncological Functional Nutrition: Phytochemicals and Medicinal Plants presents the anticancer activities, metabolism, mechanism of action, doses, and sources of various phytochemicals and medicinal plants. Broken into five parts, this book addresses cancer epidemiology, molecular and therapeutic bases of cancer, macro and micronutrients in cancer prevention and treatment, phytochemicals in the cancer treatment, and medicinal plants as potential functional foods or resources for the obtention of metabolites with anticancer activity. Written for nutritionists, food scientists, health professionals, oncologists, endocrinologists, natural product chemists, ethnobotanists, chemists, pharmacists, biochemists, and students studying relating fields, Oncological Functional Nutrition: Phytochemicals and Medicinal Plants will be a useful reference for those interested in learning more about functional nutrition and cancer. Discusses functional nutrition as alternative therapy Provides recommendations and intervention strategies related to the consumption of phytochemicals, food, and medicinal plants Addresses cancer epidemiology, the molecular and therapeutic bases of cancer, phytochemicals in the cancer treatment, and medicinal plants

This book provides cross-disciplinary management research that integrates theories, concepts, and perspectives from two or more scientific disciplines. It aims to resolve complex theoretical problems within multiple industries, fields and areas of management including mergers, SMEs, hospitality, and healthcare.

Continuous improvements in technological applications have allowed more opportunities to develop automated systems. This not only leads to higher success in smart data analysis, but it increases the overall probability of technological progression. The Handbook of Research on Machine Learning Innovations and Trends is a key resource on the latest advances and research regarding the vast range of advanced systems and applications involved in machine intelligence. Highlighting multidisciplinary studies on decision theory, intelligent search, and multi-agent systems, this publication is an ideal reference source for professionals and researchers working in the field of machine learning and its applications.

Landmark Papers in Pain

Illusions in Motion

Deep Learning for Biomedical Data Analysis

Ultraviolet LED Technology for Food Applications

Techniques, Approaches, and Applications

Oncological Functional Nutrition

List of members in each volume.

An introduction to the field of applied ontology with examples derived particularly from biomedicine, covering theoretical components, design practices, and practical applications. In the era of "big data," science is increasingly information driven, and the potential for computers to store, manage, and integrate massive amounts of data has given rise to such new disciplinary fields as biomedical informatics. Applied ontology offers a strategy for the organization of scientific information in computer-tractable form, drawing on concepts not only from computer and information science but also from linguistics, logic, and philosophy. This book provides an introduction to the field of applied ontology that is of particular relevance to biomedicine, covering theoretical components of ontologies, best practices for ontology design, and examples of biomedical ontologies in use. After defining an ontology as a representation of the types of entities in a given domain, the book distinguishes between different kinds of ontologies and taxonomies, and shows how applied ontology draws on more traditional ideas from metaphysics. It presents the core features of the Basic Formal Ontology (BFO), now used by over one hundred ontology projects around the world, and offers examples of domain ontologies that utilize BFO. The book also describes Web Ontology Language (OWL), a common framework for Semantic Web technologies. Throughout, the book provides concrete recommendations for the design and construction of domain ontologies.

New Frontiers in Astrobiology presents a simple and concise overview of the new and emerging field of Astrobiology. A wide range of topics from History of Astrobiology, Big Bang, Prebiotic chemistry, Theories of Origin of Life, and Extreme environments on Earth and Quest for Intelligent life in Space are covered. The hallmark of this book is that it takes critical perspectives to analyze new Frontiers in Astrobiology post Mars 2020/ExoMars missions that encompass the latest developments in detection of biosignatures and habitability beyond our Solar system (Exo moons, exoplanets). This book will be a valuable resource for students, researchers and scientists who seek greater insights in understanding the current status and future of astrobiology. Explores background and historical developments in Astrobiology Provides concise, cutting-edge reviews on fundamental questions on the origin and distribution of life on Earth, habitability beyond Earth, and the future of life on Earth Integrates contemporary and critical views on new frontiers in Astrobiology

Treating Addictions: The Four Components offers a unique and coherent understanding of addiction. The book begins with a chapter discussing the framework of addiction and the four essential components of treatments—the fundamentals of addiction, co-occurring disorders, quality of life, and macro factors—and subsequent chapters elaborate on each component. Most currently available addiction treatment books present knowledge and skills in separate chapters and fail to integrate all chapters within a single framework that can weave all concepts into a meaningful tapestry. Using a unified framework, this book offers students a comprehensive skill set for treating addictions.

Physical Activity: An Optimizer of the Neurophysiological System?

Anatomy and Physiology

Challenges and Opportunities

Anatomy & Physiology

A General View from Hydrobiology to Fisheries

New Frontiers in Astrobiology

Pterosaurs, the first vertebrates to evolve powered flight, are undergoing a long-running scientific renaissance that has seen sustained, and even elevated interest, for generations of palaeontologists. These incredible reptiles are known from every continent, flew the Mesozoic skies for at least 160 million years, diversified into more than a dozen major clades and well over 100 species, and included the largest flying animals of all time. This volume brings together leading pterosaur researchers from around the globe to discuss new and cutting-edge research into various aspects of pterosaur palaeobiology and presents diverse papers to deliver new insights on flying reptile palaeoecology, flight, ontogeny, skeletal and soft-tissue anatomy, temporal and spatial distribution and evolution, as well as revisions of their taxonomy and interrelationships. An Introduction that describes the origin of cytochrome notation also connects to the history of the field, focusing on research in England in the pre-World War II era. The modern era of studies on structure-function of cytochromes and energy-transducing membrane proteins was marked by the 1988 Nobel Prize in Chemistry, given

Deisenhofer, H. Michel, and R. Huber for determination of the crystal structure of the bacterial photosynthetic reaction center. An ab initio logic of presentation in the discusses the evolution of cytochromes and hemes, followed by theoretical perspectives on electron transfer in proteins and specifically in cytochromes. There is an e description of the molecular structures of cytochromes and cytochrome complexes from eukaryotic and prokaryotic sources, bacterial, plant and animal. The presenta atomic structure information has a major role in these discussions, and makes an important contribution to the broad field of membrane protein structure-function.

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Vertebrate Palaeontology