

Biology Spring Final 2014 Study Guide Answers

The field of genetics is rapidly evolving, and new medical breakthroughs are occurring as a result of advances in our knowledge of genetics. Advances in Genetics continually publishes important reviews of the broadest interest to geneticists and their colleagues in affiliated disciplines. Volume 87 presents an eclectic mix of articles of use to all human and molecular geneticists on topics including: gene transfer, fruiting body development and the genetics of Alzheimer's disease; and more. Includes methods for testing with ethical, legal, and social implications Critically analyzes future directions Written and edited by recognized leaders in the field

Concepts and Goals's innovative conceptual and organizing Essential Questions framework, BIOCHEMISTRY guides students through course concepts in a way that reveals the beauty and usefulness of biochemistry in the everyday world. Offering a balanced and streamlined presentation, this edition has been updated throughout with new material and revised presentations. For the first time, this book is integrated with OWL, a powerful online learning system for chemistry with book-specific end-of-chapter material that engages students and improves learning outcomes. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Over the last two decades, digital access to data has revolutionized research methods and ways of doing science in the biological and biomedical fields. Prominent scientists have characterized this shift as leading to a new, data-intensive paradigm for research, encompassing innovative ways to produce, store, disseminate, and interpret huge masses of data. In this book Sabina Leonelli explores the epistemological challenges this poses to how life is researched and understood. By following how data travels across research contexts, and the role played by standards, theories, models, and human agency in shaping their evidential value, she shows the conditions under which digitally available data further our understanding of life. Turning to how the characteristics of data-intensive science bear on philosophical debates, Leonelli explores the shifting criteria for what counts as scientific evidence and how data are transformed into new knowledge. In short, she argues that a philosophical characterization of how data and knowledge move from one context to another is of fundamental importance to a productive philosophical understanding of contemporary scientific practices.

Sugar chains (glycans) are often attached to proteins and lipids and have multiple roles in the organization and function of all organisms. "Essentials of Glycobiology" describes their biogenesis and function and offers a useful gateway to the understanding of glycans.

Review of NASA's Evidence Reports on Human Health Risks

Weapons and the Law of Armed Conflict

An Annual Review

Encyclopedia of Cardiovascular Research and Medicine

Tips and tricks for science competitions

Why there is more to the human genome than meets the eye

Fungi bio-products in sustainable agriculture, environment and nanotechnology is a three-volume series that has been designed to explore the huge potential of the many diverse applications of fungi to human life. The series unveils the latest developments and scientific advances in the study of the biodiversity of fungi, extremophilic fungi, and fungal secondary metabolites and enzymes, while also presenting cutting-edge molecular tools used to study fungi. Readers will learn all about the recent progress and future potential applications of fungi in agriculture, environmental remediation, industry, food safety, medicine, and nanotechnology. Volume 1 will cover the biodiversity of fungi and the associated bioprotective applications. This volume offers insights into both basic and advanced biotechnological applications in human welfare and sustainable agriculture. The chapters shed light on the different roles of fungi as a bio-fertilizer, a bio-control agent, and a component of microbial inoculants. They also focus on the various applications of fungi in bio-fuel production, nano-technology, and in the management of abiotic stresses such as drought, salinity, and metal toxicity. Provides a deep understanding of fungi and summarizes fungi's various applications in the fields of microbiology and sustainable agriculture Describes the role of fungal inoculants as biocontrol agents, and in improved stress tolerance and growth of plants

Much research has focused on the basic cellular and molecular biological aspects of stem cells. Much of this research has been fueled by their potential for use in regenerative medicine applications, which has in turn spurred growing numbers of translational and clinical studies. However, more work is needed if the potential is to be realized for improvement of the lives and well-being of patients with numerous diseases and conditions. This book series 'Cell Biology and Translational Medicine (CBTMD)' as part of SpringerNature's longstanding and very successful Advances in Experimental Medicine and Biology book series, has the goal to accelerate advances by timely information exchange. Emerging areas of regenerative medicine and translational aspects of stem cells are covered in each volume. Outstanding researchers are recruited to highlight developments and remaining challenges in both the basic research and clinical areas. This current book is the tenth volume of a continuing series.

Invertebrates have proven to be extremely useful model systems for gaining insights into the neural and molecular mechanisms of sensory processing, motor control and higher functions such as feeding behavior, learning and memory, navigation, and social behavior. A major factor in their enormous contributions to neuroscience is the relative simplicity of invertebrate nervous systems. In addition, some invertebrates, primarily the molluscs, have large cells, which allow analyses to take place at the level of individually identified neurons. Individual neurons can be surgically removed and assayed for expression of membrane channels, levels of second messengers, protein phosphorylation, and RNA and protein synthesis. Moreover, peptides and nucleotides can be injected into individual neurons. Other invertebrate model systems such as Drosophila and Caenorhabditis elegans offer tremendous advantages for obtaining insights into the neuronal bases of behavior through the application of genetic approaches. The Oxford Handbook of Invertebrate Neurobiology reviews the many neurobiological principles that have emerged from invertebrate analyses, such as motor pattern generation, mechanisms of synaptic transmission, and learning and memory. It also covers general features of the neurobiology of invertebrate circadian rhythms, development, and regeneration and reproduction. Some neurobiological phenomena are species-specific and diverse, especially in the domain of the neuronal control of locomotion and camouflage. Thus, separate chapters are provided on the control of swimming in annelids, crustacea and molluscs, locomotion in hexapods, and camouflage in cephalopods. Unique features of the handbook include chapters that review social behavior and intentionality in invertebrates. A chapter is devoted to summarizing past contributions of invertebrates to the understanding of nervous systems and identifying areas for future studies that will continue to advance that understanding.

Review of NASA's Evidence Reports on Human Health Risks 2014 Letter Report is the second in a series of five reports from the Institute of Medicine that will independently review more than 30 evidence reports that the National Aeronautics and Space Administration has compiled on human health risks for long-duration and exploration space flights. This report builds on the 2008 IOM report Review of NASA's Human Research Program Evidence Books: A Letter Report, which provided an initial and brief review of the evidence reports. This letter report reviews seven evidence reports and examines the quality of the evidence, analysis, and overall construction of each report; identifies existing gaps in report content; and provides suggestions for additional sources of expert input. The report analyzes each evidence report's overall quality, which included readability; internal consistency; the source and breadth of cited evidence; identification of existing knowledge and research gaps; authorship expertise; and, if applicable, response to recommendations from the 2008 IOM letter report.

Review of the Edwards Aquifer Habitat Conservation Plan

Book 2e

Handbook of Astrobiology

An Introduction to Ethical, Safety and Intellectual Property Rights Issues in Biotechnology

Mechanisms and Function of Sleep Health

The Global Relevance of Critical and Inclusive Pedagogies in Higher Education

Evolutionary science is critical to an understanding of integrated human biology and is increasingly recognised as a core discipline by medical and public health professionals. Advances in the field of genomics, epigenetics, developmental biology, and epidemiology have led to the growing realisation that incorporating evolutionary thinking is essential for medicine to achieve its full potential. This revised and updated second edition of the first comprehensive textbook of evolutionary medicine explains the principles of evolutionary biology from a medical perspective and focuses on how medicine and public health might utilise evolutionary thinking. It is written to be accessible to a broad range of readers, whether or not they have had formal exposure to evolutionary science. The general structure of the second edition remains unchanged, with the initial six chapters providing a summary of the evolutionary theory relevant to understanding human health and disease, using examples specifically relevant to medicine. The second part of the book describes the application of evolutionary principles to understanding particular aspects of human medicine; in addition to updated chapters on reproduction, metabolism, and behaviour, there is an expanded chapter on our coexistence with micro-organisms and an entirely new chapter on cancer. The two parts are bridged by a chapter that details pathways by which evolutionary processes affect disease risk and symptoms, and how hypotheses in evolutionary medicine can be tested. The final two chapters of the volume are considerably expanded; they illustrate the application of evolutionary biology to medicine and public health, and consider the ethical and societal issues of an evolutionary perspective. A number of new clinical examples and historical illustrations are included. This second edition of a novel and popular textbook provides an updated resource for doctors and other health professionals, medical students and biomedical scientists, as well as anthropologists interested in human health, to gain a better understanding of the evolutionary processes underlying human health and disease.

An Introduction to Ethical, Safety and Intellectual Property Rights Issues in Biotechnology provides a comprehensive look at the biggest technologies that have revolutionized biology since the early 20th century, also discussing their impact on society. The book focuses on issues related to bioethics, biosafety and intellectual property rights, and is written in an easy-to-understand manner for graduate students and early career researchers interested in the opportunities and challenges associated with advances in biotechnology. Important topics covered include the Human Genome Project, human cloning, rDNA technology, the 3Rs and animal welfare, bioterrorism, human rights and genetic discrimination, good laboratory practices, good manufacturing practices, the protection of biological material and much more. Full of relevant case studies, practical examples, weblinks and resources for further reading, this book offers an essential and holistic look at the ways in which biotechnology has affected our global society. Provides a comprehensive look at the ethical, legal and social implications of biotechnology Discusses the global efforts made to resolve issues Incorporates numerous case studies to more clearly convey concepts and chart the development of guidelines and legislation regulatory issues in biotechnology Takes a straightforward approach to highlight and discuss both the benefits and risks associated with the latest biotechnologies

This book is used at the graduate or advanced undergraduate level and many others. Manned and unmanned ground, aerial and marine vehicles enable many promising and revolutionary civilian and military applications that will change our life in the near future. These applications include, but are not limited to, surveillance, search and rescue, environment monitoring, infrastructure monitoring, self-driving cars, contactless last-mile delivery vehicles, autonomous ships, precision agriculture and transmission line inspection to name just a few. These vehicles will benefit from advances of deep learning as a subfield of machine learning able to endow these vehicles with different capability such as perception, situation awareness, planning and intelligent control. Deep learning models also have the ability to generate actionable insights into the complex structures of large data sets. In recent years, deep learning research has received an increasing amount of attention from researchers in academia, government laboratories and industry. These research activities have borne some fruit in tackling some of the challenging problems of manned and unmanned ground, aerial and marine vehicles that are still open. Moreover, deep learning methods have been recently actively developed in other areas of machine learning, including reinforcement training and transfer/meta-learning, whereas standard, deep learning methods such as recent neural network (RNN) and coevolutionary neural networks (CNN). The book is primarily meant for researchers from academia and industry, who are working on in the research areas such as engineering, control engineering, robotics, mechatronics, biomedical engineering, mechanical engineering and computer science. The book chapters deal with the recent research problems in the areas of reinforcement learning-based control of UAV's and deep learning for unmanned aerial systems (UAS) The book chapters present various techniques of deep learning for robotic applications. The book chapters contain a good literature survey with a long list of references. The book chapters are well written with a good exposition of the research problem, methodology, block diagrams and mathematical techniques. The book chapters are lucidly illustrated with numerical examples and simulations. The book chapters discuss details of applications and future research areas.

Ever-increasing interest in oceanography and marine biology and their relevance to global environmental issues create a demand for authoritative reviews summarizing the results of recent research. Oceanography and Marine Biology: An Annual Review has catered to this demand since its founding by the late Harold Barnes more than 50 years ago. Its objectives are to consider, and increasingly, to discuss, research thoroughly revised and expanded to 15 volumes that include the latest advances in research, and is uniquely organized by organ system for ease of reference and diagnosis. The favourable reception and complimentary reviews accorded to all the volumes shows that the series is fulfilling a very real need. The 53rd volume follows closely the objectives and style of the other volumes, continuing to regard the marine sciences—with all their various aspects—as unity. Physical, chemical, and biological aspects of marine science are dealt with by experts actively engaged in these fields. The series is an essential reference text for researchers and students in all fields of marine science and related subjects, and it finds a place in libraries of universities, marine laboratories, research institutes and government departments. It is consistently among the highest ranking series in terms of impact factor in the marine biology category of the citation indices compiled by the Institute for Scientific Information/Web of Science.

Advances in Genetics

Stem Cell Therapy - Potential and Challenges

Engineering Corynebacterium Glutamicum Chassis for Synthetic Biology, Biomanufacturing, and Bioremediation

Data-Centric Biology

Experimental Design for Biologists

Essentials of Glycobiology

Mobile phones have become an integral part of society, as their convenience has helped democratize and revolutionize communication and the marketplace of ideas. Because of their ubiquity in higher education, undergraduate classrooms have begun to utilize smartphones and tablets as tools for learning. The Handbook of Research on Mobile Devices and Applications in Higher Education Settings explores and fosters new perspectives on the use of mobile applications in a classroom context. This timely publication will demonstrate the challenges that universities face when introducing new technologies to students and instructors, as well as the rewards of doing so in a thoughtful manner. This book is meant to present the latest research and become a source of inspiration for educators, administrators, researchers, app developers, and students of education and technology.

Distance Learning is for leaders, practitioners, and decision makers in the fields of distance learning, eLearning, telecommunications, and related areas. It is a professional journal with applicable information for those involved with providing instruction to all kinds of learners, of all ages, using telecommunications technologies of all types. Stories are written by practitioners for practitioners, and the research is cutting-edge, providing information and ideas. Articles are accepted from authors - new and experienced - with interesting and important information about the effective practice of distance teaching and learning. Distance Learning is published quarterly. Each issue includes eight to ten articles and three to four columns, including the highly regarded "And Finally..." column covering recent important issues in the field and written by Distance Learning editor, Michael Simonson. Articles are written by practitioners from various countries and locations, nationally and internationally. Distance Learning is an official publication of the United States Distance Learning Association, and is co-sponsored by the Fischer School of Education at Nova Southeastern University and Information Age Publishing.

The Edwards Aquifer in south-central Texas is the primary source of water for one of the fastest growing cities in the United States, San Antonio, and it also supplies irrigation water to thousands of farmers and livestock operators. It is also the source water for several springs and rivers, including the two largest freshwater springs in Texas that form the San Marcos and Comal Rivers. The unique habitat afforded by these spring-fed rivers has led to the development of species that are found in no other locations on Earth. Due to the potential for variations in spring flow caused by both human and natural causes, these species are continuously at risk and have been recognized as endangered under the federal Endangered Species Act (ESA). In an effort to manage the river systems and the aquifer that controls them, the Edwards Aquifer Authority (EAA) and stakeholders have developed a Habitat Conservation Plan (HCP). The HCP seeks to effectively manage the river-aquifer system to ensure the viability of the ESA-listed species in the face of drought, population growth, and other threats to the aquifer. This report is the third and final product of a three-phase study to provide advice to the EAA on various aspects of the HCP that will ultimately lead to improved management of the Edwards Aquifer. This final report focuses on the biological goals and objectives found in the HCP for each of the listed species.

This is the first report of the Circumpolar Biodiversity Monitoring Program (CBMP) to summarize status and trends in biotic elements in the arctic marine environment. The effort has identified knowledge gaps in circumpolar biodiversity monitoring. CBMP is the cornerstone program of Conservation of Arctic Flora and Fauna (CAFF).

Learning Under the Lens

Volume 13 #1

ABC of Bioinformatics

Active Learning: Theoretical Perspectives, Empirical Studies and Design Profiles

Report 3

Race, Equity, and the Learning Environment

Choice Recommended Title, August 2019 Read an exclusive interview with Professor Vera Kolb here. Astrobiology is the study of the origin, evolution, distribution, and future of life on Earth. This exciting and significant field of research also investigates the potential existence and search for extra-terrestrial life in the Solar System and beyond. This is the first hand interdisciplinary field. Edited by Vera Kolb, a highly respected astrobiologist, this comprehensive resource captures the history and current state of the field. Rich in information and easy to use, it assumes basic knowledge and provides answers to questions from practitioners and specialists in the field, as well as providing key references for further study. Features a market, providing a comprehensive overview of the field Edited by an authority in the subject, with chapters written by experts in the many diverse areas that comprise astrobiology Contains in-depth and broad coverage of an exciting field that will only grow in importance in the decades ahead

Encyclopedia of Cardiovascular Research and Medicine offers researchers over 200 articles covering every aspect of cardiovascular research and medicine, including fully annotated figures, abundant color illustrations and links to supplementary datasets and references. With contributions from top experts in the field, this book is the most reputable and easily searched focused basic and translational content for students, researchers, clinicians and teaching faculty across the biomedical and medical sciences. The panel of authors chosen from an international board of leading scholars renders the text trustworthy, contemporary and representative of the global scientific expertise in these domains. The book's thematic structuring for practitioners and user-friendly, easily searchable chapters. Cross-references to related articles and links to further reading and references will further guide readers to a full understanding of the topics under discussion. Readers will find an unparalleled, one-stop resource exploring all major aspects of cardiovascular research and medicine. Presents comprehensive cardiovascular medicine and research Offers readers a broad, interdisciplinary overview of the concepts in cardiovascular research and medicine with applications across biomedical research includes reputable, foundational content on genetics, cancer, immunology, cell biology and molecular biology Provides a multi-media enriched color-illustrated text with high quality This edited volume offers a crosscutting view of STEM and is comprised of work by scholars in science, technology, engineering, and mathematics education. It offers a view of STEM from the disciplines that comprise it, while adhering to the idea that STEM itself is an interdisciplinary treatment of all the associated disciplines in a meaningful way. This book raises the meaning of STEM education and research. This volume is divided into three sections: the first one describes the nature of the component disciplines of STEM. The next section presents work from leaders representing all STEM disciplines and deals with aspects such as K-12 and post-secondary education. The last section draws conclusions regarding the nature and advantages of STEM education in terms of theoretical and practical implications. The two final chapters compile arguments from the research chapters, describing themes in research results, and making recommendations for best STEM education practice, and examining areas for future research in STEM education.

North American deserts—lands of little water—have long been home to a surprising diversity of aquatic life, from fish to insects and mollusks. With European settlement, however, water extraction, resource exploitation, and invasive species set many of these native aquatic species on downward spirals. In this book, conservationists dedicated to these creatures do techniques and philosophies that inform it, and the challenges and opportunities of the future. A precursor to this book, Battle Against Extinction, laid out the scope of the problem and related conservation activities through the late 1980s. Since then, many nascent conservation programs have matured, and researchers have developed new technologies, improved and expanded our knowledge of the myriad influences on the ecology and dynamics of these species. Standing between life and Extinction brings the story up to date. While the future for some species is more secure than thirty years ago, others are less fortunate. Calling attention not only to iconic species like the razorback sucker, Gila trout, and Devils Hole pupfish, obscure and fascinating invertebrates inhabiting intermittent aquatic habitats, this book explores the scientific, social, and political challenges of preserving these aquatic species and their habitats amid an increasingly charged political discourse and in desert regions characterized by a growing human population and rapidly changing climate.

Extinction Between Life and Extinction

Encyclopedia of Evolutionary Biology

Assessing the Societal Implications of Emerging Technologies

Fungi Bio-prospects in Sustainable Agriculture, Environment and Nano-technology

Evolving germs - Antibiotic resistance and natural selection in education and public communication

Comprehensive Toxicology, Third Edition, discusses chemical effects on biological systems, with a focus on understanding the mechanisms by which chemicals induce adverse health effects. Organized by organ system, this comprehensive reference work addresses the toxicological effects of chemicals on the immune system, the hematopoietic system, cardiovascular system, respiratory system, hepatic toxicology, renal toxicology, gastrointestinal toxicology, reproductive and endocrine toxicology, neuro and behavioral toxicology, developmental toxicology and carcinogenesis, also including critical sections that cover the general principles of toxicology, cellular and molecular toxicology, cellular and molecular toxicology, testing and evaluation. Each section is examined in state-of-the-art chapters written by domain experts, providing key information to support the investigations of researchers across the medical, veterinary, food, environment and chemical research industries, an national and international regulatory agencies. Fully updated and uniquely organized by organ system for ease of reference and diagnosis, this new edition is an essential reference for researchers of toxicology. Organized to cover both the fundamental principles of toxicology and unique aspects of major organ systems. Thoroughly revised to include the latest advances in the toxicological effects of chemicals on the immune system Features additional coverage throughout and a new volume on toxicology of the hematopoietic system Presents in-depth, comprehensive coverage from an international author base of domain experts

Over a decade ago, as the Human Genome Project completed its mapping of the entire human genome, hopes ran high that we would rapidly be able to use our knowledge of human genes to tackle many inherited diseases, and understand what makes us unique among animals. But things didn't turn out that way. For a start, we turned out to have far fewer genes than originally thought — just over 20,000, the same sort of number as a fruit fly or worm. What's more, the proportion of DNA consisting of genes coding for proteins was a mere 2%. So, was the rest of the genome accumulated 'junk'? Things have changed since those early heady days of the Human Genome Project. But the emerging picture is if anything far more exciting. In this book, John Parrington explains the key features that are coming to light - some, such as the results of the international ENCODE programme, still much debated and controversial in their scope. He gives an outline of the deeper genome, involving layers of regulatory elements controlling and coordinating the switching on and off of genes; the impact of its 3D geometry; the discovery of a variety of new RNAs playing critical roles; the epigenetic changes influenced by the environment and life experiences that can make identical twins different and be passed on to the next generation; and the clues coming out of comparisons with the genomes of Neanderthals as well as that of chimps about the evolution of our species. We are learning more about ourselves, and about the genetic aspects of many of our diseases. But in its complexity, flexibility, and ability to respond to environmental cues, the human genome is proving to be far more subtle than we ever imagined.

The current research efforts of a growing international network of researchers and practitioners to promote the development and uptake of evidence-based pedagogies in higher education, at something a level approaching large-scale impact. By offering a communication venue that attracts and enhances much needed partnerships among practitioners and researchers in pedagogical innovation, we aim to change the conversation and focus on how we work and learn together - i.e. extending the implementation and knowledge of co-design methods. In this first edition of our Research Topic on Active Learning, we highlight two (of the three) types of publications we wish to promote. First are studies aimed at understanding the pedagogical designs developed by practitioners in their own practices by bringing to bear the theoretical lenses developed and tested in the education research community. These types of studies constitute the 'practices pull' that we see as a necessary counterbalance to "knowledge push" in a more productive pedagogical innovation ecosystem based on research-practitioner partnerships. Second are studies empirically examining the implementations of evidence-based designs in naturalistic settings and under varying conditions. Interestingly, the teams conducting these studies are already exemplars of partnerships between researchers and practitioners who are uniquely positioned as "in-betweens" straddling the two worlds. As a result, these publications represent both the rigours of research and the pragmatism of reflective practice. In forthcoming editions, we will add to this collection a third type of publication -- design profiles. These will present practitioner-developed pedagogical designs at natural levels of abstraction to be held to scrutiny among practitioners, instructional designers and researchers alike. We hope by bringing these types of studies together in an open access format that we may contribute to the development of new forms of practitioner-researcher interactions that promote co-design in pedagogical innovation.

The project has been prepared by the Food and Agriculture Organization of the United Nations (FAO), in accordance with a request from CITES (CoP Decision 17.191 on Precious corals, for consideration at the 30th meeting of the Animals Committee). The report concerns precious (red, pink, white and black) coral species within the hexacorall order Antipatharia, and the octocorall family Coralliidae. According to the requirements of CITES Decision 17.191, the study considers all available data and information on the current status, use, and trade in each species, including the identification of gaps in such data and information. It contains information on the management and harvest regulation schemes for these coral species, with the aim of considering the effectiveness of their management and conservation. The report intends to inform the CITES parties of the status of the management and trade of precious corals, in order to provide guidance on the actions needed to enhance the conservation and sustainable use of precious corals.

The SAGE Encyclopedia of Stem Cell Research

Anticipatory governance in practice

Biochemistry

Epidemiology of Brain and Spinal Tumors

Encyclopedia of Bioinformatics and Computational Biology

Ethics and Ecology of Conserving Aquatic Species in North American Deserts

The SAGE Encyclopedia of Stem Cell Research, Second Edition is filled with new procedures and exciting medical breakthroughs, including executive orders from the Obama administration reversing barriers to research imposed under the Bush administration, court rulings impacting NIH funding of research based on human embryonic stem cells, edicts by the Papacy and other religious leaders, and the first success in cloning human stem cells. Stem cell biology is clearly fueling excitement and potential in traditional areas of developmental biology and in the field of regenerative medicine, where they are believed to hold much promise in addressing any number of intractable medical conditions. This updated second edition encyclopedia will expand on information that was given in the first edition and present more than 270 new and updated articles that explore major topics in ways accessible to nonscientists, thus bringing readers up-to-date with where stem cell biology stands today, including new and evolving ethical, religious, legal, social, and political perspectives. This second edition reference work will serve as a universal resource for all public and academic libraries. It is an excellent foundation for anyone who is interested in the subject area of stem cell biology. Key Features: Reader's Guide, Further Readings, Cross References, Chronology, Resource Guide, Index A Glossary will elucidate stem cell terminology for the nonscientist Statistics and selected reports of major journal articles that pertain to milestones achieved in stem cell research Documents from Congressional Hearings on stem cells and cloning Reports to the President's Council on Bioethics, and more

Evolutionary Biology is the definitive go-to reference in the field of evolutionary biology. It provides a fully comprehensive review of the field in an easy to search structure. Under the collective leadership of fifteen distinguished section editors, it is comprised of articles written by leading experts in the field, providing a full review of the current status of each topic. The articles are up-to-date and fully illustrated with in-text references that allow readers to easily access primary literature. While all entries are authoritative and valuable to those with advanced understanding of evolutionary biology, they are also intended to be accessible to both advanced undergraduate and graduate students. Broad topics include the history of evolutionary biology, population genetics, quantitative genetics, speciation, life history evolution, evolution of sex and mating systems, evolutionary biogeography, evolutionary developmental biology, molecular and genome evolution, coevolution, phylogenetic methods, microbial evolution, diversification of plants and fungi, diversibility of animals, and applied evolution. Presents fully comprehensive content, allowing easy access to fundamental information and links to primary research Contains concise articles written by leading experts in the field that ensures current coverage of each topic Provides ancillary learning tools like tables, illustrations, and multimedia features to assist with the comprehension process

Bacterial resistance to antibiotics threatens modern healthcare on a global scale. Several actors in society, including the general public, must become more involved if this development is to be countered. The conveyance of relevant information provided through education and media reports is therefore of high concern. Antibiotic resistance evolves through the mechanisms of natural selection; in this way, a sound understanding of the mechanisms underlies explanations of success and the development of effective risk-reduction measures. In addition to natural selection functioning as an explanatory framework to antibiotic resistance, bacterial resistance as a context seems to possess a number of qualities that make it suitable for teaching natural selection - a subject that has been proven notoriously hard to teach and learn. A recently suggested approach to teaching natural selection involves so-called threshold concepts, which introduce abstract and integrative ideas. The threshold concepts associated with natural selection include, among others, the notions of randomness as well as vast spatial and temporal scales. Illustrating complex relationships between concepts on different levels of organization is one, of several, areas where visualizations are efficient. Given the often-incomprehensible nature of threshold concepts as well as the fact that natural selection processes occur on different organizational levels, visual accounts of natural selection have many potential benefits for learning. Against this background, the present dissertation explores information conveyed to the public regarding antibiotic resistance and natural selection, as well as investigates how these topics are presented together, by scrutinizing media including news reports, websites, educational textbooks and online videos. The principal method employed in the media studies was content analysis, which was complemented with various other analytical procedures. Moreover, a classroom study was performed, in which novice pupils worked with a series of animations explaining the evolution of antibiotic resistance. Data from individual written assignments, group questions and video-recorded discussions were collected and analyzed to empirically explore the potential of antibiotic resistance as a context for learning about evolution through natural selection. Among the findings are that certain information, that is crucial for the public to know, about antibiotic resistance was conveyed to a low extent through wide-reaching news reporting. Moreover, explanations based on natural selection were rarely included in accounts of antibiotic resistance in any of the examined media. Thus, it is highly likely that a large proportion of the population is never exposed to explanations for resistance development during education or through newspapers. Furthermore, the few examples that were encountered in newspapers or textbooks were hardly ever visualized, but presented only in textual form. With regard to videos the findings especially concern the lack of a majority of accounts of central key concepts. Additionally, explanations of how variation originates on the DNA-level were especially scarce. These and other findings coming from the content analysis are discussed through the lens of scientific literacy and could be used to inform and strengthen teaching and scientific curricula with regards to both antibiotic resistance and evolution. Furthermore, several factors of interest for using antibiotic resistance in the teaching of evolution were identified from the classroom study. These involve, among others, how learners' perception of threshold concepts such as randomness and levels of organization in space and time are affected by the bacterial context.

This eBook is a collection of articles from a Frontiers Research Topic. Frontiers Research Topics are very popular trademarks of the Frontiers Journals Series: they are collections of at least ten articles, all centered on a particular subject. With their unique mix of varied contributions from Original Research to Review Articles, Frontiers Research Topics unify the most influential researchers, the latest key findings and historical advances in a hot research area! Find out more on how to host your own Frontiers Research Topic or contribute to one as an author by contacting the Frontiers Editorial Office: frontiersin.org/about/contact. Global Report on the Biology, Fishery and Trade of Precious Corals

The Deeper Genome

State of the Arctic Marine Biodiversity Report

Advances in Pollen Research: Biology, Biotechnology and Plant Breeding Applications

Principles of Evolutionary Medicine

Comprehensive Toxicology

A growing problem of interest in the field of science and technology policy is that the next generation of innovations is arriving at an accelerating rate, and the governance system is struggling to catch up. Current approaches and institutions for effective technology assessment are ill suited and poorly designed to proactively address the multidimensional, interconnected societal impacts of science and technology advancements that are already taking place and expected to continue over the course of the 21st century. This book offers tangible insights into the strategies deployed by well-known, high-profile organizations involved in anticipating the various societal and policy implications of nanotechnology and synthetic biology. It focuses predominantly on an examination of the practices adopted by the often-cited and uniquely positioned Project on Emerging Nanotechnologies in the United States, as well as being informed by comparisons with a range of institutions also interested in embedding forward-looking perspectives in their respective area of innovation. The book lays out one of the first actionable roadmaps that other interested stakeholders can follow when working toward institutionalizing anticipatory governance practices throughout the policymaking process.

Science competitions test a student's level of knowledge, power of scientific reasoning, and analytical thinking outside of the regular school curriculum. A systematic approach and smart study regimen are both required to get good results in science competitions. In this book, you will find many tips and tricks for how to study and prepare for science olympiads. Moreover, you will learn how to: • boost your motivation • cope with failures and anxiety before the tests • defeat procrastination • manage your time • memorize information quicker and more effectively • organize your study material • read a science textbook • plan your study schedule • develop practical skills get into and survive in the lab. Furthermore, you will find essential test-taking strategies for tackling the olympiad exams and example-based tips on how to develop critical thinking and problem solving skills.

Neurological Medication: Sleep promotes readers with updated scientific reviews regarding the interaction between sleep and contributing factors, with special attention paid to the potential for neurological modulation of sleep via diet. This book expands the notion of diet and adds an element of physical activity and exercise as well as a chapter on caffeine and its effects on sleep. With 30+ international contributors, this book aims to provide readers with a unique global perspective on the role these factors plays in sleep architecture and its regulation by circadian biology and neurology. Sleep disorders have become an increasing problem plaguing more than 70 million Americans according to the American Sleep Association. There is a clear association between sleep disorder and a wide range of other human disorders -performance deficiencies, psychiatric illnesses, heart disease, obesity and more - but in spite of this there is not yet a convenient overview on the market detailing the impact of obesity, eye, diabetes and diet on sleep duration and attendant health outcomes. Describes the impact of diet, caffeine and physical activity on sleep Reviews the neurology and metabolism of sleep Identifies what foods impact sleep and how Discusses the clinical use of nutraceuticals to improve sleep

How to prepare for the biology olympiads: Tips and tricks for science competitionsMartyna Petrylyte

Advances and Challenges in Microphytobenthos Research: From Cell Biology to Coastal Ecosystem Function

How to prepare for the Biology Olympiad

Deep Learning for Unmanned Systems

2014 Letter Report

Critical Questions in STEM Education

Distance Learning

Epidemiology of Brain and Spinal Tumors provides a single volume resource on imaging methods and neuroepidemiology of both brain and spinal tumors. The book covers a variety of imaging techniques, including computed tomography (CT), MRI, positron emission tomography (PET), and other laboratory tests used in diagnosis and treatment. Detailed epidemiology, various imaging methods, and clinical considerations of tumors of the CNS make this an ideal reference for users who will also find diverse information about structures and functions, cytology, epidemiology (including molecular epidemiology), diagnosis and treatment. This book is appropriate for neuroscience researchers, medical professionals and anyone interested in a complete guide to visualizing and understanding CNS tumors. Provides the most up-to-date information surrounding the epidemiology, biology and imaging techniques for brain and spinal tumors, including CT, MRI, PET, and others Includes full color figures, photos, tables, graphs and radioimaging Contains information that will be valuable to anyone interested in the field of neurooncology and the treatment of patients with brain and spinal tumors Serves as a source of background information for basic scientists and pharmaceutical researchers who have an interest in imaging and treatment

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 PCB, 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

Learning Under the Lens: Applying Findings from the Science of Learning to the Classroom highlights the innovative approach being undertaken by researchers from the disparate fields of neuroscience, education and psychology working together to gain a better understanding of how we learn, and its potential to impact student learning outcomes. The book is structured in four parts: 'Science of learning: a policy perspective' sets the scene for this emerging field of research; 'Self regulation of learning' and 'Technology and learning' feature findings by eminent international and national researchers in the field and provides an insight into some of the innovative research illustrating the depth, breadth and multi-disciplinarity of the research; and 'Research translation' focuses on the scaled-up implementation of research findings in authentic learning settings, and showcases research findings which are having impact in learning environments. This fascinating book is intended as a reference tool to create awareness among researchers, policy makers, and education practitioners of the research being undertaken in the science of learning field and its potential to impact student learning outcomes.

At a time of impending demographic shifts, faculty and administrators in higher education around the world are becoming aware of the need to address the systemic practices and barriers that contribute to inequitable educational outcomes of racially and ethnically diverse students. Focusing on the higher education learning environment, this volume illuminates the global relevance of critical and inclusive pedagogies (CIP), and demonstrates how their application can transform the teaching and learning process and promote more equitable educational outcomes among all students, but especially racially minoritized students. The examples in this book illustrate the importance of recognizing the detrimental impact of dominant ideologies, of evaluating who is being included in and excluded from the learning process, and paying attention to when teaching fails to consider students' varying social, psychological, physical and/or emotional needs. This edited volume brings CIP into the realm of comparative education by gathering scholars from across academic disciplines and countries to explore how these pedagogies not only promote deep learning among students, but also better equip instructors to attend to the needs of diverse students by prioritizing their intellectual and social development; creating identity affirming learning environments that foster high expectations; recognizing the value of the cultural and national differences that learners bring to the educational experience; and engaging the "whole" student in the teaching and learning process.

Applying Findings from the Science of Learning to the Classroom

A Philosophical Study

The Oxford Handbook of Invertebrate Neurobiology

Volume 1: Fungal Diversity of Sustainable Agriculture

Neurological Modulation of Sleep

Handbook of Research on Mobile Devices and Applications in Higher Education Settings

Bringing together the law of armed conflict governing the use of weapons into a single volume, the fully updated Second Edition of Weapons and the Law of Armed Conflict interprets these rules and discusses the factors influencing future developments in weapons law. After relating the historical evolution of weapons law, the book discusses the important customary principles that are the foundation of the subject, and provides a condensed account of the law that exists on the use of weapons. The treaties and customary rules applying to particular categories of weapon are thereafter listed and explained article

by article and rule by rule in a series of chapters. Having stated the law as it is, the book then explores the way in which this dynamic field of international law develops in the light of various influences. The legal review of weapons is discussed, both from the perspective of how such reviews should be undertaken and how such a system should be established. Having stated the law as it is, the book then investigates the way in which this dynamic field of international law develops in the light of various influences. In the final chapter, the prospects for future rule change are considered. This Second Edition includes a discussion of new treaty law on expanding bullets, the arms trade, and norms in relation to biological and chemical weapons. It also analyses the International Manuals on air and missile warfare law and on cyber warfare law, the challenges posed by 'lethal autonomous weapon systems', and developments in the field of information and telecommunications otherwise known as cyber activities.

Experimental Design for Biologists explains how to establish the framework for an experimental project, including the effects of using a hypothesis-driven approach versus a question/answer approach, how to set up a system, design experiments within that system, and how to determine and use the correct set of controls. Separate chapters are devoted to the negative control, the positive control, and other categories of controls which are perhaps less recognized, such as "assumption controls", and "experimentalist controls." Further, there are sections on establishing the experimental system, which includes performing critical "system controls". While the book does reference the use of statistics, statistics is not the focus of this book, but rather the way the scientist should go about framing an experimental question, establishing a validated system to answer the question, and deriving verifiable models from experimental data. There is often very little formal training in this area for biologists; therefore this text serves as an essential teaching tool for understanding the theory and practice of designing a research plan.

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