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Intracellular Pangenesis Hugo De Vries 2017-02-09 From the TRANSLATOR'S PREFACE. Every student of heredity is brought face to face with the problem of some mechanism of inheritance. Pangenesis was Darwin's solution of this problem. But it was not in the form in which Darwin left it that pangenesis became directly fruitful of results; and no one felt the insufficiency of his hypothesis more keenly than Darwin himself. Writing to Asa Gray in 1867 he said: "The chapter on what I call Pangenesis will be called a mad dream but at the bottom of my own mind I think it contains a great truth." And to J. D. Hooker, in 1868, he wrote: "I feel sure if Pangenesis is now still born it will, thank God, at some future time reappear, begotten by some other father, and christened by some other name." Many men discerned the weak features of the hypothesis, but to Hugo de Vries belongs the credit of having detected the "great truth" it contained. He became its "other father," and rechristened it with another name -a name more nearly like the original, no doubt, than Darwin could have imagined. The pangenesis of Darwin was hardly susceptible of experimental verification, except to the extent that a more intimate acquaintance with the facts showed that the assumption of a transportation of "gemmules" was superfluous. But it contained the germ of de Vries's intracellular pangenesis, the direct progenitor of the mutation theory. It was primarily because of this genetic relationship, together with the masterful way in which the hypothesis is developed, and the accompanying wealth of illustration, that the little German volume, here done into English, was deemed worthy of translation at the present time....

Theory Change in Science Lindley Darden 1991-09-12 This challenging and innovative book examines the processes involved in the birth and development of new scientific ideas. The author has searched for strategies used by scientists for producing new theories, both those that yield a range of plausible hypotheses and ones that aid in narrowing that range. She goes on to focus on the development of the theory of the gene as a case study in scientific creativity. Her discussion of modern genetics greatly demystifies the philosophy of science, and establishes a realistic framework for understanding how scientists actually go about their work. This compelling work will interest a broad range of readers, including biologists and geneticists, along with historians and philosophers of science.

Holt Biology: Mendel and heredity 2003

Science as a Way of Knowing John Alexander Moore 1999 This book makes Moore's wisdom available to students in a lively, richly illustrated account of the history and workings of life. Employing rhetoric strategies including case histories, hypotheses and deductions, and chronological narrative, it provides both a cultural history of biology and an introduction to the procedures and values of science.

Handbook of Statistical Genetics David J. Balding 2008-06-10 The Handbook for Statistical Genetics is widely regarded as the reference work in the field. However, the field has developed considerably over the past three years. In particular the modeling of genetic networks has advanced considerably via the evolution of microarray analysis. As a consequence the 3rd edition of the handbook contains a much expanded section on Network Modeling, including 5 new chapters covering metabolic networks, graphical modeling and inference and simulation of pedigrees and genealogies. Other chapters new to the 3rd edition include Human Population Genetics, Genome-wide Association Studies, Family-based Association Studies, Pharmacogenetics, Epigenetics, Ethic and Insurance. As with the second Edition, the Handbook includes a glossary of terms, acronyms and abbreviations, and features extensive cross-referencing between the chapters, tying the different areas together. With heavy use of up-to-date examples, real-life case studies and references to web-based resources, this continues to be must-have reference in a vital area of research. Edited by the leading international authorities in the field. David Balding - Department of Epidemiology & Public Health, Imperial College An advisor for our Probability & Statistics series, Professor Balding is also a previous Wiley author, having written Weight-of-Evidence for Forensic DNA Profiles, as well as having edited the two previous editions of HSG. With over 20 years teaching experience, he's also had dozens of articles published in numerous international journals. Martin Bishop – Head of the Bioinformatics Division at the HGMP Resource Centre As well as the first two editions of HSG, Dr Bishop has edited a number of introductory books on the application of informatics to molecular biology and genetics. He is the Associate Editor of the journal Bioinformatics and Managing Editor of Briefings in Bioinformatics. Chris Cannings – Division of Genomic Medicine, University of Sheffield With over 40 years teaching in the area, Professor Cannings has published over 100 papers and is on the editorial board of many related journals. Co-editor of the two previous editions of HSG, he also authored a book on this topic.

Reticulate Evolution Nathalie Gontier 2015-07-09 Written for non-experts, this volume introduces the mechanisms that underlie reticulate evolution. Chapters are either accompanied with glossaries that explain new terminology or timelines that position pioneering scholars and their major discoveries in their historical contexts. The contributing authors outline the history and original context of discovery of symbiosis, symbiogenesis, lateral gene transfer, hybridization or divergence with gene flow and infectious heredity. By applying key insights from the areas of molecular (phylo)genetics, microbiology, virology, ecology, systematics, immunology, epidemiology and computational science, they demonstrate how reticulate evolution impacts successful survival, fitness and speciation. Reticulate evolution brings forth a challenge to the standard Neo-Darwinian framework, which defines life as the outcome of bifurcation and ramification patterns brought forth by the vertical mechanism of natural selection. Reticulate evolution puts forward a pattern in the tree of life that is characterized by horizontal mergings and lineage crossings induced by symbiosis, symbiogenesis, lateral gene transfer, hybridization or divergence with gene flow and infective heredity, making the "tree of life" look more like a "web of life." On an epistemological level, the various means by which hereditary material can be transferred horizontally challenges our classic notions of units and levels of evolution, fitness, modes of transmission, linearity, communities and biological individuality. The case studies presented examine topics including the origin of the eukaryotic cell and its organelles through symbiogenesis; the origin of algae through primary and secondary symbiosis and dinoflagellates through tertiary symbiosis; the superorganism and holobiont as units of evolution; how endosymbiosis induces speciation in multicellular life forms; transferrable and non-transferrable plasmids and how they symbiotically interact with their host; the means by which pro- and eukaryotic organisms transfer genes laterally (bacterial transformation, transduction and conjugation as well as transposons and other mobile genetic elements); hybridization and divergence with gene flow in sexually-reproducing individuals; current (human) microbiome and viriome studies that impact our knowledge concerning the evolution of organismal health and acquired immunity; and how symbiosis and symbiogenesis can be modelled in computational evolution.

Disease Control Priorities, Third Edition (Volume 6) Prabhat Jha 2017-12-04 Infectious diseases are the leading cause of death globally, particularly among children and young adults. The spread of new pathogens and the threat of antimicrobial resistance pose particular challenges in combating these diseases. Major Infectious Diseases identifies feasible, cost-effective packages of interventions and strategies across delivery platforms to prevent and treat HIV/AIDS, other sexually transmitted infections, tuberculosis, malaria, adult febrile illness, viral hepatitis, and neglected tropical diseases. The volume emphasizes the need to effectively address emerging antimicrobial resistance, strengthen health systems, and increase access to care. The attainable goals are to reduce incidence, develop innovative approaches, and optimize existing tools in resource-constrained settings.

Crumbling Genome Alexey S. Kondrashov 2017-07-12 A thought-provoking exploration of deleterious mutations in the human genome and their effects on human health and wellbeing Despite all of the elaborate mechanisms that a cell employs to handle its DNA with the utmost care, a newborn human carries about 100 new mutations, originated in their parents, about 10 of which are deleterious. A mutation replacing just one of the more than three billion nucleotides in the human genome may lead to synthesis of a dysfunctional protein, and this can be inconsistent with life or cause a tragic disease. Several percent of even young people suffer from diseases that are caused, exclusively or primarily, by pre[?] ¿1/2]existing and new mutations in their genomes, including both a wide variety of genetically simple Mendelian diseases and diverse complex diseases such as birth anomalies, diabetes, and schizophrenia. Milder, but still substantial, negative effects of mutations are even more pervasive. As of now, we possess no means of reducing the rate at which mutations appear spontaneously. However, the recent flood of genomic data made possible by next-generation methods of DNA sequencing, enabled scientists to explore the impacts of deleterious mutations on humans with previously unattainable precision and begin to develop approaches to managing them. Written by a leading researcher in the field of evolutionary genetics, Crumbling Genome reviews the current state of knowledge about deleterious mutations and their effects on humans for those in the biological sciences and medicine, as well as for readers with only a general scientific literacy and an interest in human genetics. Provides an extensive introduction to the fundamentals of evolutionary genetics with an emphasis on mutation and selection Discusses the effects of pre-

existing and new mutations on human genotypes and phenotypes Provides a comprehensive review of the current state of knowledge in the field and considers crucial unsolved problems Explores key ethical, scientific, and social issues likely to become relevant in the near future as the modification of human germline genotypes becomes technically feasible Crumbling Genome is must-reading for students and professionals in human genetics, genomics, bioinformatics, evolutionary biology, and biological anthropology. It is certain to have great appeal among all those with an interest in the links between genetics and evolution and how they are likely to influence the future of human health, medicine, and society.

EBOOK: Psychology: The Science of Mind and Behaviour Nigel Holt 2015-02-16 Psychology: The Science of Mind and Behaviour is here with a new, fully updated and revised third edition. Bringing new developments in the field and its renowned pedagogical design, the third edition offers an exciting and engaging introduction to the study of psychology.This book's scientific approach, which brings together international research, practical application and the levels of analysis framework, encourages critical thinking about psychology and its impact on our daily lives. Key features: Fully updated research and data throughout the book as well as increased cross cultural referencesRestructured Chapter 3 on Genes, Environment and Behaviour, which now starts with a discussion of Darwinian theory before moving on to Mendelian geneticsCore subject updates such as DSM-5 for psychological disorders and imaging techniques on the brain are fully integratedRevised and updated Research Close Up boxesCurrent Issues and hot topics such as, the study of happiness and schizophrenia, intelligence testing, the influence of the media and conflict and terrorism are discussed to prompt debates and questions facing psychologists todayNew to this edition is Recommended Reading of both classic and contemporary studies at the end of chapters Connect Psychology: a digital teaching and learning environment that improves performance over a variety of critical outcomes; easy to use and proven effective. LearnSmart : the most widely used and intelligent adaptive learning resource that is proven to strengthen memory recall, improve course retention and boost grades. SmartBook : Fuelled by LearnSmart, SmartBook is the first and only adaptive reading experience available today.

Exercise Genomics Linda S. Pescatello 2011-03-23 Exercise Genomics encompasses the translation of exercise genomics into preventive medicine by presenting a broad overview of the rapidly expanding research examining the role of genetics and genomics within the areas of exercise performance and health-related physical activity. Leading researchers from a number of the key exercise genomics research groups around the world have been brought together to provide updates and analysis on the key discoveries of the past decade, as well as lend insights and opinion about the future of exercise genomics, especially within the contexts of translational and personalized medicine. Clinicians, researchers and health/fitness professionals will gain up-to-date background on the key findings and critical unanswered questions across several areas of exercise genomics, including performance, body composition, metabolism, and cardiovascular disease risk factors. Importantly, basic information on genomics, research methods, and statistics are presented within the context of exercise science to provide students and professionals with the foundation from which to fully engage with the more detailed chapters covering specific traits. Exercise Genomics will be of great value to health/fitness professionals and graduate students in kinesiology, public health and sports medicine desiring to learn more about the translation of exercise genomics into preventive medicine.

Reinforcement Learning, second edition Richard S. Sutton 2018-11-13 The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning, Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-studies chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

Holistic Darwinism Peter Corning 2010-08-15 In recent years, evolutionary theorists have come to recognize that the reductionist, individualist, gene-centered approach to evolution cannot sufficiently account for the emergence of complex biological systems over time. Peter A. Corning has been at the forefront of a new generation of complexity theorists who have been working to reshape the foundations of evolutionary theory. Well known for his Synergism Hypothesis—a theory of complexity in evolution that assigns a key causal role to various forms of functional synergy—Corning puts this theory into a much broader framework in Holistic Darwinism, addressing many of the issues and concepts associated with the evolution of complex systems. Corning's paradigm embraces and integrates many related theoretical developments of recent years, from multilevel selection theory to niche construction theory, gene-culture coevolution theory, and theories of self-organization. Offering new approaches to thermodynamics, information theory, and economic analysis, Corning suggests how all of these domains can be brought firmly within what he characterizes as a post-neo-Darwinian evolutionary synthesis.

Biology for AP ® Courses Julianne Zedalis 2017-10-16 Biology for AP® courses covers the scope and sequence requirements of a typical two-semester Advanced Placement® biology course. The text provides comprehensive coverage of foundational research and core biology concepts through an evolutionary lens. Biology for AP® Courses was designed to meet and exceed the requirements of the College Board's AP® Biology framework while allowing significant flexibility for instructors. Each section of the book includes an introduction based on the AP® curriculum and includes rich features that engage students in scientific practice and AP® test preparation; it also highlights careers and research opportunities in biological sciences.

Experiments in Plant Hybridisation Gregor Mendel 2008-11-01 Experiments which in previous years were made with ornamental plants have already afforded evidence that the hybrids, as a rule, are not exactly intermediate between the parental species. With some of the more striking characters, those, for instance, which relate to the form and size of the leaves, the pubescence of the several parts, etc., the intermediate, indeed, is nearly always to be seen; in other cases, however, one of the two parental characters is so preponderant that it is difficult, or quite impossible, to detect the other in the hybrid. from 4. The Forms of the Hybrid One of the most influential and important scientific works ever written, the 1865 paper Experiments in Plant Hybridisation was all but ignored in its day, and its author, Austrian priest and scientist GREGOR JOHANN MENDEL (18221884), died before seeing the dramatic long-term impact of his work, which was rediscovered at the turn of the 20th century and is now considered foundational to modern genetics. A simple, eloquent description of his 18561863 study of the inheritance of traits in pea plantsMendel analyzed 29,000 of themthis is essential reading for biology students and readers of science history. Cosimo presents this compact edition from the 1909 translation by British geneticist WILLIAM BATESON (18611926).

Petunia Tom Gerats 2008-12-11 Petunia belongs to the family of the Solanaceae and as such is closely related to important crop species like tomato, potato, eggplant, pepper and tobacco. With around 35 species described it is one of the smaller genera and among those there are two groups of species that make up the majority of them: the purple flowered P.integrifolia group and the white flowered P.axillaris group. It is assumed that interspecific hybrids between members of these two groups have laid the foundation for the huge variation in cultivars as selected from the 1830's onwards. Petunia thus has been a commercially important ornamental since the early days of horticulture. Despite that, Petunia was in use as a research model only parsimoniously until the late fifties of the last century. By then seed companies started to fund academic research, initially with the main aim to develop new color varieties. Besides a moment of glory around 1980 (being elected a promising model system, just prior to the Arabidopsis boom), Petunia has long been a system in the shadow. Up to the early eighties no more then five groups developed classical and biochemical genetics, almost exclusively on flower color genes. Then from the early eighties onward, interest has slowly been growing and nowadays some 20-25 academic groups around the world are using Petunia as their main model system for a variety of research purposes, while a number of smaller and larger companies are developing further new varieties. At present the system is gaining credibility for a number of reasons, a very important one being that it is now generally realized that only comparative biology will reveal the real roots of evolutionary development of processes like pollination syndromes, floral development, scent emission, seed survival strategies and the like. As a system to work with, Petunia combines advantages from several other model species: it is easy to grow, sets abundant seeds, while self- and cross pollination is easy; its lifecycle is four months from seed to seed; plants can be grown very densely, in 1 cm2 plugs and can be rescued easily upon flowering, which makes even huge selection plots easy to handle. Its flowers (and indeed leaves) are relatively large and thus obtaining biochemical samples is no problem. Moreover, transformation and regeneration from leaf disc or protoplast are long established and easy-to-perform procedures. On top of this easiness in culture, Petunia harbors an endogenous, very active transposable element system, which is being used to great advantage in both forward and reverse genetics screens. The virtues of Petunia as a model system have only partly been highlighted. In a first monograph, edited by K. Sink and published in 1984, the emphasis was mainly on taxonomy, morphology, classical and biochemical genetics, cytogenetics, physiology and a number of topical subjects. At that time, little molecular data was available. Taking into account that that first monograph will be offered electronically as a supplement in this upcoming edition, we would like to put the overall emphasis for the second edition on molecular developments and on comparative issues. To this end we propose the underneath set up, where chapters will be brief and topical. Each chapter will present the historical setting of its subject, the comparison with other systems (if available) and the unique progress as made in Petunia. We expect that the second edition of the Petunia monograph will draw a broad readership both in academia and industry and hope that it will contribute to a further expansion in research on this wonderful Solanaceae.

Handbook of General Psychology Benjamin B. Wolman 1973

Mendel's Principles of Heredity William Bateson 2007-11-01 Gregor Mendel first began studying inheritance in pea plants in 1856. While Darwin may have convinced the scientific community that evolution occurred, Mendel discovered some of the rules for this process. By breeding hybrid plants together, he was able to determine that there were dominant and recessive traits. And these traits would appear with a predictable and particular frequency in a given set

of offspring. Mendel's Principles of Heredity is the 1913 translation, with added commentary, of Mendel's original work by British scientist WILLIAM BATESON (1861-1926), who coined the term genetics to refer to heredity and inherited traits. Anyone with an interest in science and genetics will find a wealth of information about one of the most revolutionary insights in modern science.

Mutating Concepts, Evolving Disciplines: Genetics, Medicine, and Society L.S. Parker 2012-12-06 This volume employs philosophical and historical perspectives to shed light on classic social, ethical, and philosophical issues raised with renewed urgency against the backdrop of the mapping of the human genome. Philosophers and historians of science and medicine, ethicists, and those interested in the reciprocal influence of science and other cultural practices will find the arguments and observations offered fascinating and indispensable.

Finding a Path to Safety in Food Allergy National Academies of Sciences, Engineering, and Medicine 2017-05-27 Over the past 20 years, public concerns have grown in response to the apparent rising prevalence of food allergy and related atopic conditions, such as eczema. Although evidence on the true prevalence of food allergy is complicated by insufficient or inconsistent data and studies with variable methodologies, many health care experts who care for patients agree that a real increase in food allergy has occurred and that it is unlikely to be due simply to an increase in awareness and better tools for diagnosis. Many stakeholders are concerned about these increases, including the general public, policy makers, regulatory agencies, the food industry, scientists, clinicians, and especially families of children and young people suffering from food allergy. At the present time, however, despite a mounting body of data on the prevalence, health consequences, and associated costs of food allergy, this chronic disease has not garnered the level of societal attention that it warrants. Moreover, for patients and families at risk, recommendations and guidelines have not been clear about preventing exposure or the onset of reactions or for managing this disease. Finding a Path to Safety in Food Allergy examines critical issues related to food allergy, including the prevalence and severity of food allergy and its impact on affected individuals, families, and communities; and current understanding of food allergy as a disease, and in diagnostics, treatments, prevention, and public policy. This report seeks to: clarify the nature of the disease, its causes, and its current management; highlight gaps in knowledge; encourage the implementation of management tools at many levels and among many stakeholders; and delineate a roadmap to safety for those who have, or are at risk of developing, food allergy, as well as for others in society who are responsible for public health.

Sexual Reproduction in Animals and Plants Hitoshi Sawada 2014-02-07 This book contains the proceedings of the International Symposium on the Mechanisms of Sexual Reproduction in Animals and Plants, where many plant and animal reproductive biologists gathered to discuss their recent progress in investigating the shared mechanisms and factors involved in sexual reproduction. This now is the first book that reviews recent progress in almost all fields of plant and animal fertilization. It was recently reported that the self-sterile mechanism of a hermaphroditic marine invertebrate (ascidian) is very similar to the self-incompatibility system in flowering plants. It was also found that a male factor expressed in the sperm cells of flowering plants is involved in gamete fusion not only of plants but also of animals and parasites. These discoveries have led to the consideration that the core mechanisms or factors involved in sexual reproduction may be shared by animals, plants and unicellular organisms. This valuable book is highly useful for reproductive biologists as well as for biological scientists outside this field in understanding the current progress of reproductive biology.

A Cultural History of Heredity Staffan M[illegible]ller-Wille 2012-06-26 Heredity: knowledge and power -- Generation, reproduction, evolution -- Heredity in separate domains -- First syntheses -- Heredity, race, and eugenics -- Disciplining heredity -- Heredity and molecular biology -- Gene technology, genomics, postgenomics: attempt at an outlook.

The Evolution of Social Behaviour Michael Taborsky 2021-08-26 First book to outline the fundamental principles of social evolution underlying the stunning diversity of social systems and behaviours.

The Dynamics of Living Systems Thomas Lecuit 2020-11-16 How can we explain the fundamental paradox of living matter, which combines stability and robustness of form with constant internal dynamics? It is not only the genetic information contained in every cell, but also numerous stochastic biomolecular processes that are at work in morphogenesis. In addition, the shaping of an organism is driven by mechanical forces that operate within and between cells, across tissues and organs. The dynamics of morphogenesis is a self-organized process that emerges from biological control and physical constraints at all scales. Its study is currently bringing together a fast-growing interdisciplinary community that observes, analyses and models living organisms.

The Mechanism Of Mendelian Heredity Thomas Hunt Morgan 2019-04-03 This work has been selected by scholars as being culturally important, and is part of the knowledge base of civilization as we know it. This work was reproduced from the original artifact, and remains as true to the original work as possible. Therefore, you will see the original copyright references, library stamps (as most of these works have been housed in our most important libraries around the world), and other notations in the work. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. As a reproduction of a historical artifact, this work may contain missing or blurred pages, poor pictures, errant marks, etc. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

Understanding Genetics Genetic Alliance 2009 The purpose of this manual is to provide an educational genetics resource for individuals, families, and health professionals in the New York - Mid-Atlantic region and increase awareness of specialty care in genetics. The manual begins with a basic introduction to genetics concepts, followed by a description of the different types and applications of genetic tests. It also provides information about diagnosis of genetic disease, family history, newborn screening, and genetic counseling. Resources are included to assist in patient care, patient and professional education, and identification of specialty genetics services within the New York - Mid-Atlantic region. At the end of each section, a list of references is provided for additional information. Appendices can be copied for reference and offered to patients. These take-home resources are critical to helping both providers and patients understand some of the basic concepts and applications of genetics and genomics.

Choice Richard K. Gardner 1976

Holt McDougal Biology Stephen Nowicki 2008-10-22

The Philosophy of Biology Kostas Kampourakis 2013-06-18 This book brings together for the first time philosophers of biology to write about some of the most central concepts and issues in their field from the perspective of biology education. The chapters of the book cover a variety of topics ranging from traditional ones, such as biological explanation, biology and religion or biology and ethics, to contemporary ones, such as genomics, systems biology or evolutionary developmental biology. Each of the 30 chapters covers the respective philosophical literature in detail and makes specific suggestions for biology education. The aim of this book is to inform biology educators, undergraduate and graduate students in biology and related fields, students in teacher training programs, and curriculum developers about the current state of discussion on the major topics in the philosophy of biology and its implications for teaching biology. In addition, the book can be valuable to philosophers of biology as an introductory text in undergraduate and graduate courses.

Holt Biology Interactive Reader ANONIMO 2008-01-01

The Self-Directed Learning Handbook Maurice Gibbons 2003-02-17 The Self-Directed Learning Handbook offers teachers and principals an innovative program for customizing schooling to the learning needs of individual students--and for motivating them to take increasing responsibility for deciding what and how they should learn. Whether the students are struggling or proficient, the program is designed to nurture their natural passion for learning and mastery, challenging them to go beyond the easy and familiar so they can truly excel. The program can be introduced in stages in any middle or high school classroom and enables students of diverse abilities to design and pursue independent course work, special projects, or even artistic presentations, community field work or apprenticeships. Using this approach, the students take on an increasingly autonomous, self-directed role as they progress. The heart of the program is the action contract (or learning agreement) whereby the student sets challenging yet attainable goals, commits to a path for achieving them, and evaluates the results. Special emphasis is placed on developing skills and competencies that can serve the student well in his or her academic and career endeavors.

Concepts of Biology Samantha Fowler 2018-01-07 Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand.We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

Feedback Control in Systems Biology Carlo Cosentino 2011-10-17 Like engineering systems, biological systems must also operate effectively in the presence of internal and external uncertainty—such as genetic mutations or temperature changes, for example. It is not surprising, then, that evolution has resulted in the widespread use of feedback, and research in systems biology over the past decade has shown that feedback control systems are widely found in biology. As an increasing number of researchers in the life sciences become interested in control-theoretic ideas such as feedback, stability, noise and disturbance attenuation, and robustness, there is a need for a text that explains feedback control as it applies to biological systems. Written by established researchers in both control engineering and systems biology, Feedback Control in Systems Biology explains how feedback control concepts can be applied to systems biology. Filling the need for a text on control theory for systems biologists, it provides an overview of relevant ideas and methods from control engineering and illustrates their application to the analysis of biological

systems with case studies in cellular and molecular biology. Control Theory for Systems Biologists The book focuses on the fundamental concepts used to analyze the effects of feedback in biological control systems, rather than the control system design methods that form the core of most control textbooks. In addition, the authors do not assume that readers are familiar with control theory. They focus on "control applications" such as metabolic and gene-regulatory networks rather than aircraft, robots, or engines, and on mathematical models derived from classical reaction kinetics rather than classical mechanics. Another significant feature of the book is that it discusses nonlinear systems, an understanding of which is crucial for systems biologists because of the highly nonlinear nature of biological systems. The authors cover tools and techniques for the analysis of linear and nonlinear systems; negative and positive feedback; robustness analysis methods; techniques for the reverse-engineering of biological interaction networks; and the analysis of stochastic biological control systems. They also identify new research directions for control theory inspired by the dynamic characteristics of biological systems. A valuable reference for researchers, this text offers a sound starting point for scientists entering this fascinating and rapidly developing field.

Creationism's Trojan Horse Barbara Forrest 2007 This carefully documented expose of the Intelligent Design (ID) movement contributed to the stunning victory in Federal court of eleven Dover, PA, parents who recognized ID's threat to public education and religious freedom. Now in paperback, here is Forrest and Gross's influential work documenting the continuity of intelligent design with traditional creationism. The new text updates ID initiatives in Kansas and Ohio and the movement's shifting strategies in an attempt to remain viableafter its legal undoing in federal court. Anyone who values science and the benefits of life in an enlightened society should know about the Wedge's political, cultural, and religious ambitions. With a new foreword by Barry Lynn, this updated edition is an essential guide to ID's continuing threat to public education and the separation of church and state. It is the book to turn to for an inside look at the claims and operations of the ID movement, the most recent manifestation of American creationism.

Principles of Geology Sir Charles Lyell 1835

Liquid Life: On Non-Linear Materiality Rachel Armstrong 2019-12-11 If we lived in a liquid world, the concept of a "machine" would make no sense. Liquid life is metaphor and apparatus that discusses the consequences of thinking, working, and living through liquids. It is an irreducible, paradoxical, parallel, planetary-scale material condition, unevenly distributed spatially, but temporally continuous. It is what remains when logical explanations can no longer account for the experiences that we recognize as part of "being alive." Liquid life references a third-millennial understanding of matter that seeks to restore the agency of the liquid soul for an ecological era, which has been banished by reductionist, "brute" materialist discourses and mechanical models of life. Offering an alternative worldview of the living realm through a "new materialist" and "liquid" study of matter, it conjures forth examples of creatures that do not obey mechanistic concepts like predictability, efficiency, and rationality. With the advent of molecular science, an increasingly persuasive ontology of liquid technologies can be identified. Through the lens of lifelike dynamic droplets, the agency for these systems exists at the interfaces between different fields of matter/energy that respond to highly local effects, with no need for a central organizing system. Liquid Life seeks an alternative partnership between humanity and the natural world. It provokes a re-invention of the languages of the living realm to open up alternative spaces for exploration: Rolf Hughes' "angelology" of language explores the transformative invocations of prose poetry, and Simone Ferracina's graphical notations help shape our concepts of metabolism, upcycling, and designing with fluids. A conceptual and practical toolset for thinking and designing, Liquid Life reunites us with the irreducible "soul substance" of living things, which will neither be simply "solved," nor go away. Rachel Armstrong is Professor of Experimental Architecture at Newcastle University (UK), and has also been a Rising Waters II Fellow for the Robert Rauschenberg Foundation (April-May 2016), TWOTY futurist in 2015, Fellow of the British Interplanetary Society, and a Senior TED Fellow in 2010. She is also the coordinator of the Living Architecture project, an EU-funded project that establishes the principles for our buildings to share some of the properties of living things, e.g. metabolism, operating at the intersection of architecture, building construction, bio-energy and synthetic biology. She is also the author of Vibrant Architecture (De Gruyter, 2015), Star Ark: A Living, Self-Sustaining Spaceship (Springer, 2017), and Soft Living Architecture: An Alternative View of Bio-informed Design Practice (Bloomsbury, 2018).

Michael Speicher 2009-11-26 The fourth edition of this classical reference book can once again be relied upon to present a cohesive and up-to-date exposition of all aspects of human and medical genetics. Human genetics has become one of the main basic sciences in medicine, and molecular genetics is increasingly becoming a major part of this field. This new edition integrates a wealth of new information - mainly describing the influence of the "molecular revolution" - including the principles of epigenetic processes which together create the phenotype of a human being. Other revisions are an improved layout, sub-division into a larger number of chapters, as well as two-colour print throughout for ease of reference, and many of the figures are now in full colour. For graduates and those already working in medical genetics.

S. Sarkar 1992-10-31 This book is a reassessment of the work of Fisher, Haldane, Muller and Wright on the occasion of the centenaries of their birth. Given the seminal role played by these figures in twentieth century evolutionary biology, it is also an important contribution to the history of biology. It brings together the scholarship of biologists, historians and philosophers to analyze the relative contributions and influence of these figures. In considering Muller along with Fisher, Haldane and Wright as a founder of 'evolutionary genetics', this book breaks new ground in the historiography of biology. The contributions included here should be of value to evolutionary biologists as well as historians and philosophers of science. The book will appeal to historians and philosophers of biology, evolutionary biologists, and historians and philosophers of science.

Holt Science & Technology Holt Rinehart & Winston 2007-01-01

On the Backs of Tortoises Elizabeth Hennessy 2019-10-29 An insightful exploration of the iconic Gal pagos tortoises, and how their fate is inextricably linked to our own in a rapidly changing world The Gal pagos archipelago is often viewed as a last foothold of pristine nature. For sixty years, conservationists have worked to restore this evolutionary Eden after centuries of exploitation at the hands of pirates, whalers, and island settlers. This book tells the story of the islands' namesakes—the giant tortoises—as coveted food sources, objects of natural history, and famous icons of conservation and tourism. By doing so, it brings into stark relief the paradoxical, and impossible, goal of conserving species by trying to restore a past state of prehistoric evolution. The tortoises, Elizabeth Hennessy demonstrates, are not prehistoric, but rather microcosms whose stories show how deeply human and nonhuman life are entangled. In a world where evolution is thoroughly shaped by global history, Hennessy puts forward a vision for conservation based on reckoning with the past, rather than trying to erase it.

Teaching About Evolution and the Nature of Science National Academy of Sciences 1998-05-06 Today many school students are shielded from one of the most important concepts in modern science: evolution. In engaging and conversational style, Teaching About Evolution and the Nature of Science provides a well-structured framework for understanding and teaching evolution. Written for teachers, parents, and community officials as well as scientists and educators, this book describes how evolution reveals both the great diversity and similarity among the Earth's organisms; it explores how scientists approach the question of evolution; and it illustrates the nature of science as a way of knowing about the natural world. In addition, the book provides answers to frequently asked questions to help readers understand many of the issues and misconceptions about evolution. The book includes sample activities for teaching about evolution and the nature of science. For example, the book includes activities that investigate fossil footprints and population growth that teachers of science can use to introduce principles of evolution. Background information, materials, and step-by-step presentations are provided for each activity. In addition, this volume: Presents the evidence for evolution, including how evolution can be observed today. Explains the nature of science through a variety of examples. Describes how science differs from other human endeavors and why evolution is one of the best avenues for helping students understand this distinction. Answers frequently asked questions about evolution. Teaching About Evolution and the Nature of Science builds on the 1996 National Science Education Standards released by the National Research Council--and offers detailed guidance on how to evaluate and choose instructional materials that support the standards. Comprehensive and practical, this book brings one of today's educational challenges into focus in a balanced and reasoned discussion. It will be of special interest to teachers of science, school administrators, and interested members of the community.

Vogel and Motulsky's Human Genetics

The Founders of Evolutionary Genetics