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Evolution Challenges Conceptual Change in Biology Crossing the threshold Darwin's Reach Evolution Science as a Process Evolution Thinking Evolutionarily Evolutionary Biology Evolutionary Psychology Evolution of Insect Migration and Diapause Research topics in software evolution and maintenance Evolution and the Big Questions Teaching Biological Evolution in Higher Education Evolution, Explanation, Ethics and Aesthetics Issues in Biological, Biochemical, and Evolutionary Sciences Research: 2013 Edition Conceptual Issues in Evolutionary Biology, third edition The Structural Links between Ecology, Evolution and Ethics Advances in Evolutionary Developmental Biology Basics in Human Evolution Life and Evolution Analysis of Phylogenetics and Evolution with R Evolutionary Theory and Processes: Modern Perspectives Narrow Roads of Gene Land - The Collected Papers of W. D. Hamilton Handbook of Evolutionary Research in Archaeology Evolutionary and Molecular Biology Ecology and Evolution of Plants Under Domestication in the Neotropics Form and Function in Developmental Evolution Evolving Pathways Evolutionary Perspectives on Death The Arc of Life Modern Ideas of Evolution as Related to Revelation and Science Speciation Simulated Evolution and Learning An Urchin in the Storm Nonlinear Evolution Equations and Related Topics Origin and Evolution of Hepatitis Viruses Modern Ideas of Evolution Molecular Approaches to Ecology and Evolution Molecular Ecology and Evolution

Evolution Challenges 2012-04-23

a recent poll revealed that one in four americans believe in both creationism and evolution while another 41 believe that creationism is true and evolution is false a minority only 13 believe only in evolution given the widespread resistance to the idea that humans and other animals have evolved and given the attention to the ongoing debate of what should be taught in public schools issues related to the teaching and learning of evolution are quite timely evolution challenges integrating research and practice in teaching and learning about evolution goes beyond the science versus religion dispute to ask why evolution is so often rejected as a legitimate scientific fact focusing on a wide range of cognitive socio cultural and motivational factors that make concepts such as evolution difficult to grasp the volume brings together researchers with diverse backgrounds in cognitive development and education to examine children s and adults thinking learning and motivation and how aspects of representational and symbolic knowledge influence learning about evolution the book is organized around three main challenges inherent in teaching and learning evolutionary concepts folk theories and conceptual biases motivational and epistemological biases and educational aspects in both formal and informal settings commentaries across the three main themes tie the book together thematically and contributors provide ideas for future research and methods for improving the manner in which evolutionary concepts are conveyed in the classroom and in informal learning experiences evolution challenges is a unique text that extends far beyond the traditional evolution debate and is an invaluable resource to researchers in cognitive development science education and the philosophy of science science teachers and exhibit and curriculum developers

Conceptual Change in Biology 2014-11-07

this volume explores questions about conceptual change from both scientific and philosophical viewpoints by analyzing the recent history of evolutionary developmental biology it features revised papers that originated from the workshop conceptual change in biological science evolutionary developmental biology 1981 2011 held at the max planck institute for the history of science in berlin in july 2010 the preface has been written by ron amundson in these papers philosophers and biologists compare and contrast key concepts in evolutionary developmental biology and their development since the original seminal dahlem conference on evolution and development held in berlin in 1981 many of the original scientific participants from the 1981 conference are also contributors to this new volume and in conjunction with other expert biologists and philosophers specializing on these topics provide an authoritative comprehensive view on the subject taken together the papers supply novel perspectives on how and why the conceptual landscape has shifted and stabilized in particular ways yielding insights into the dynamic epistemic changes that have occurred over the past three decades this volume will appeal to philosophers of biology studying conceptual change evolutionary developmental biologists focused on comprehending the genesis of their

field and evaluating its future directions and historians of biology examining this period when the intersection of evolution and development rose again to prominence in biological science

Crossing the threshold 2021-02-18

the theory of evolution is considered the unifying theory of biology an accurate understanding of evolution is vital both for the understanding of diverse topics in biology but also for societal issues such as antibiotic resistance or biodiversity in contrast decades of research in science education have revealed that students have difficulties to accurately understand evolutionary processes such as mutation and natural selection the majority of this research relies on a conceptual framework of so called key concepts variation selection inheritance derived from scholarly descriptions of natural selection recent research suggests that non domain specific concepts such as randomness probability spatial and temporal scales so called threshold concepts are important for evolution understanding in addition to the key concepts thus many important elements of evolutionary theory are counter intuitive or lie outside direct perception hence representations such as visualizations models and simulations are considered to be important for teaching and learning evolution while the importance of visualizations is generally acknowledged for science education less is known about how visual design can facilitate students understanding of threshold concepts such as random mutations or spatial scales this thesis uses the model of educational reconstruction mer as the guiding framework for exploring the significance of threshold concepts by analysing the conceptual content of students explanations and extant visualizations of natural selection mer combines scientific content with teaching and learning perspectives for the analysis and design of learning environments content analysis of visualizations available online showed that most fail to fully represent the basic principles of natural selection variation selection and inheritance moreover the representational potential of visualizations was seldom used to represent threshold concepts such as randomness in origin of variation visualizations were also biased to animals as the context of evolution similarly upper secondary and tertiary students explanations of natural selection were seldom complete in terms of the basic principles and threshold concepts such as randomness were often lacking especially significant was the almost complete lack of randomness in upper secondary students explanations in addition threshold concepts were context sensitive across the items used bacteria cheetah and salamander for example spatial scale and randomness was significantly more common in responses to the bacteria item compared to the cheetah and salamander items considering the results from these studies three interactive visualizations were developed evolution of antibiotic resistance and fur colouration in mice the visualization design was conducted iteratively following a design based research approach and evaluated in classroom settings in secondary and upper secondary swedish schools the results showed that visualizations targeting randomness and genetic level events such as mutations can guide students towards a more scientific conception of natural selection however there were differences across the

visualizations and student samples in addition while students often inferred randomness from the visuals the results showed that integration of randomness into explanations of natural selection may be challenging hence future research should explore the role of guidance and reflection for students understanding of randomness the thesis also discusses the role of students intuitive conceptions in relation to the use of interactive visualizations and how these preconceptions interact with the presented message by using the theory of frame semantics framing effects and conceptual integration students issues of achieving an accurate understanding of evolution are discussed in relation to the theory of conceptual change implications for teaching and learning natural selection as well as visualization design for learning are also discussed evolutionsteorin förs ofta fram som biologins förenande teori vikten av en korrekt och användbar evolutionsförståelse har därför ofta betonats inte minst för elevers förståelse inom biologins olika delområden men också för att fatta beslut i samhällsfrågor som exempelvis antibiotikaresistens många av de centrala delarna av evolutionsteorin är konstraintuitiva eller abstrakta och decennier av forskning har visat att elever har svårigheter att förstå evolutionära processer som mutation och naturligt urval representationer såsom visualiseringar modeller och simuleringar är därför viktiga för att ge elever direkta erfarenheter av evolutionära processer Även om vikten av visualiseringar är allmänt accepterad inom naturvetenskapsundervisning så är det mindre känt hur visualiseringars utformning specifikt bidrar till att utveckla elevers förståelse av vetenskapliga fenomen såsom evolution dessutom har forskningen på elevers evolutionsförståelse till stor del fokuserat på så kallade nyckelbegrepp variation selektion och arv som härletts från vetenskapliga beskrivningar av evolutionsteorin dessa begrepp antas vara nödvändiga men också tillräckliga för elevers evolutionsförståelse dock har vikten av icke domänspecifika begrepp kopplade till evolutionsteorin såsom slump sannolikhet spatial och temporala skalor så kallade tröskelbegrepp inte undersökts i någon högre grad den här avhandlingen använder model of educational reconstruction för att utforska betydelsen av tröskelbegrepp för evolutionsförståelse med utgångspunkt i den vetenskapliga beskrivningen och historiken undersöks förekomsten av tröskelbegrepp i befintliga visualiseringar för lärande samt elevers förklaringar för att formulera designprinciper för interaktiva visualiseringar av evolution dessutom beskrivs utvecklingen av ett antal interaktiva visualiseringar samt undersökningar av deras potentiella användning i klassrumsmiljöer avhandlingen diskuterar även betydelsen av elevers intuitiva föreställningar i relation till användandet av interaktiva visualiseringar och hur dessa föreställningar interagerar med det presenterade budskapet genom användning av ramsemantisk teori inklusive framingeffekter och blendteori diskuteras elevers svårigheter och utveckling av en vetenskaplig evolutionsförståelse i relation till tidigare teorier om begreppsförändring konsekvenser av ramsemantisk teori och framingeffekter i visuella medier diskuteras även i relation till visuell design för lärande

Darwin's Reach 2021-12-27

the application of evolutionary biology addresses a wide range of practical problems in medicine agriculture the environment and society such cutting edge applications are emerging due to recent advances in dna sequencing new gene editing tools and computational methods this book is about applied evolution the application of the principles of and information about evolutionary biology to diverse practical matters although applied evolution has existed unrecognized for a very long time today s version has a much wider scope evolutionary medicine has formed into its own discipline evolutionary approaches have long been employed in agriculture and in conservation biology but darwin s reach now extends beyond just these three fields it now also includes forensic biology and the law ideas from evolutionary biology can be used to inform policy regarding foreign affairs and national security applied evolution is not only interdisciplinary but also multidisciplinary consequently this book is for experts in one field who are interested in expanding their evolutionary horizons it is also for students at the undergraduate and graduate levels one of the public relations challenges faced by evolutionary biology is that most people do not see it being all that relevant to their daily lives even many who accept evolution do not grasp how far darwin s reach extends this book will change that perception key features emphasizes the expanding role evolutionary biology has in today s world includes examples from medicine law agriculture conservation and even national security summarizes new technologies and computational methods that originated as innovations based in part or whole on evolutionary theory current has extensive coverage of the covid 19 pandemic and other recent topics documents the important role evolution plays in everyday life illustrates the broadly interdisciplinary nature of evolutionary theory resources the applications of evolutionary biology are far too numerous to include in just one book plus new scientific findings emerge almost every day underscoring the central role evolution plays in our lives the author has established a blog site to highlight these fascinating discoveries please visit darwinsreach blog to be inspired by endless forms most beautiful and most wonderful that have been and are being evolved the last line of charles darwin s the origin of species

Evolution 2011-08-24

if you want to know whether evolution is a science how life began what charles darwin really said about evolution why a fungus is more closely related to humans than to a plant how experiments in evolution can be carried out why birds are flying dinosaurs how we manipulate the evolution of other species and if you want a clear treatment of the processes that result in evolution then this is the book for you written for those with a minimal science background evolution principles and processes provides a concise introduction of evolutionary topics for the one term course using an engaging writing style and a wealth of full color illustrations hall covers all topics from the origin of universe earth the origin of life and on to how humans influence the evolution of other species he brings together the

principles and processes that explain evolutionary change and discusses the patterns of life that have resulted from the operation of evolution over the past 3.5 billion years this overview coupled with numerous case studies and examples helps readers understand and truly appreciate the origin and diversity of life

Science as a Process 2010-12-15

legend is overdue for replacement and an adequate replacement must attend to the process of science as carefully as Hull has done. I share his vision of a serious account of the social and intellectual dynamics of science that will avoid both the rosy blur of legend and the facile charms of relativism because of Hull's deep concern with the ways in which research is actually done. Science as a Process begins an important project in the study of science. It is one of a distinguished series of books which Hull himself edits. Philip Kitcher's *Nature in Science as a Process*. David Hull argues that the tension between cooperation and competition is exactly what makes science so successful. Hull takes an unusual approach to his subject. He applies the rules of evolution in nature to the evolution of science, arguing that the same kinds of forces responsible for shaping the rise and demise of species also act on the development of scientific ideas. Natalie Angier's *New York Times Book Review* by far the most professional and thorough case in favour of an evolutionary philosophy of science ever to have been made. It contains excellent short histories of evolutionary biology and of systematics, the science of classifying living things, an important and original account of modern systematic controversy, a counter-attack against the philosophical critics of evolutionary philosophy, social psychological evidence collected by Hull himself to show that science does have the character demanded by his philosophy, and a philosophical analysis of evolution which is general enough to apply to both biological and historical change. Mark Ridley's *Times Literary Supplement*. Hull is primarily interested in how social interactions within the scientific community can help or hinder the process by which new theories and techniques get accepted. The claim that science is a process for selecting out the best new ideas is not a new one but Hull tells us exactly how scientists go about it and he is prepared to accept that at least to some extent the social activities of the scientists promoting a new idea can affect its chances of being accepted. Peter J. Bowler's *Archives of Natural History*. I have been doing philosophy of science now for twenty-five years and whilst I would never have claimed that I knew everything, I felt that I had a really good handle on the nature of science. Again and again Hull was able to show me just how incomplete my understanding was. Moreover, *Science as a Process* is one of the most compulsively readable books that I have ever encountered. Michael Ruse, *Biology and Philosophy*.

Evolution 1986

all of Sewall Wright's published papers on evolution up to 1950 and a few published later are gathered in this volume. William Provine's introductions to each paper include pertinent references to related portions of Provine's *Sewall Wright and Evolutionary Biology* and

wright's four volume masterwork evolution and the genetics of populations by comparing the papers in this volume with the corresponding topics in the larger work it is possible to determine the respects in which wright extended changed or remained constant in his ideas over a period of sixty years wright's shifting balance theory of evolution first conceived in 1925 has proved enormously useful in modern evolutionary biology wright's international prestige has never been higher than it is currently and the time is ripe for a rereading of his seminal papers these papers are not only historically important for understanding the period of the evolutionary synthesis of the 1930s and 1940s but continue to be stimulating and useful to working evolutionary biologists today

Thinking Evolutionarily 2012-05-31

evolution is the central unifying theme of biology yet today more than a century and a half after charles darwin proposed the idea of evolution through natural selection the topic is often relegated to a handful of chapters in textbooks and a few class sessions in introductory biology courses if covered at all in recent years a movement has been gaining momentum that is aimed at radically changing this situation on october 25 26 2011 the board on life sciences of the national research council and the national academy of sciences held a national convocation in washington dc to explore the many issues associated with teaching evolution across the curriculum thinking evolutionarily evolution education across the life sciences summary of a convocation summarizes the goals presentations and discussions of the convocation the goals were to articulate issues showcase resources that are currently available or under development and begin to develop a strategic plan for engaging all of the sectors represented at the convocation in future work to make evolution a central focus of all courses in the life sciences and especially into introductory biology courses at the college and high school levels though participants also discussed learning in earlier grades and life long learning thinking evolutionarily evolution education across the life sciences summary of a convocation covers the broader issues associated with learning about the nature processes and limits of science since understanding evolutionary science requires a more general appreciation of how science works this report explains the major themes that recurred throughout the convocation including the structure and content of curricula the processes of teaching and learning about evolution the tensions that can arise in the classroom and the target audiences for evolution education

Evolutionary Biology 2017-03-23

evolution both the fact that it occurred and the theory describing the mechanisms by which it occurred is an intrinsic and central component in modern biology theodosius dobzhansky captures this well in the much quoted title of his 1973 paper nothing in biology makes sense except in the light of evolution the correctness of this assertion is even more obvious today philosophers of biology and biologists agree that the fact of evolution is undeniable and that the theory of evolution

explains that fact such a theory has far reaching implications in this volume eleven distinguished scholars address the conceptual metaphysical and epistemological richness of the theory and its ethical and religious impact exploring topics including dna barcoding three grand challenges of human evolution functionalism historicity design evolution and development and religion and secular humanism the volume will be of great interest to those studying philosophy of biology and evolutionary biology

Evolutionary Psychology 2018-09-14

evolutionary psychology genes environments and time is an extremely student friendly textbook that explores with depth all the central topics in evolutionary psychology integrating perspectives from psychology ethology evolutionary biology anthropology and zoology this is a uniquely written text that combines humour and thoughtful scholarship examining the major theoretical perspectives and delivering an entertaining read to students drawing upon cutting edge research and case studies as well as paying appropriate attention to important technical concepts author brett pelham delivers a keenly analytical approach to the subject in addition to covering traditional topics evolutionary psychology also explores the frequently overlooked topics of parenting culture life history theory and applied evolutionary psychology this textbook is apt for undergraduate students taking courses in psychology and anthropology

Evolution of Insect Migration and Diapause **1978-04-11**

this volume is an outgrowth of a symposium entitled evolution of escape in space and time held at the xv international congress of entomology in washington d c usa in august 1976 the choice of topic was prompted by recent advances in evolutionary ecology and the apparent suitability of insect migration and dia pause as appropriate material for evolutionary studies in the event that choice seems amply justified as i hope a perusal of these papers will show these symposium papers hardly cover the topic of the evolution of escape mechanisms exhaustively and i am sure everyone will have his favorite lacuna some of the more obvious ones are indicated by professor southwood in his concluding remarks at the end of the book the purpose of the symposium however was not complete coverage but rather to indicate the potential inherent in insect migration and diapause for the study of evolutionary problems in that i think we have succeeded reasonably well these papers are expanded and in some cases somewhat altered versions of the papers delivered in washington this has allowed greater coverage of the topics in question i suggested a format of a general overview of a topic emphasizing the author s own research contributions in general the papers follow this outline although emphases vary two of the authors dr rainey and dr lumme were unable to attend the symposium dr rainey s paper was read by mr frank walsh but dr

Research topics in software evolution and maintenance 2008-02-11

evolution and the big questions david n stamos s evolution and the big questions delivers what its title promises you get to look at all of the issues such as race and ethics and religion that make the study of evolution so interesting and more than just a science the book is written in a clear and friendly manner and deserves a very wide readership michael ruse florida state university this provocative text considers whether evolutionary explanations can be used to clarify some of life s biggest questions it offers a lively informative and timely look at a wide variety of key issues facing all of us today including questions of race sex gender the nature of language religion ethics knowledge consciousness and ultimately thc meaning of life some of the questions examined are did evolution make men and women fundamentally different is the concept of race merely a social construction is morality including universal human rights a mass delusion can religion and evolution really be harmonized docs evolution render life meaningless designed for students and anyone with an interest in the relationship between evolutionary heritage and human nature the text takes an interdisciplinary approach and offers direction for further reading and research each chapter presents a main topic together with discussion of related ideas and arguments from various perspectives along the way it poses life s biggest questions pulling no punches and presenting a challenge to thinkers on all levels

Evolution and the Big Questions 2005

an important new book by the author of the bestselling text defending evolution a guide to the creation evolution controversy this title examines the controversial issues surrounding this central concept of life science and explores students common scientific misconceptions describes approaches for teaching topics and principles of evolution and offers strategies for handling the various problems some students have with the idea of evolution due to religious influences

Teaching Biological Evolution in Higher Education 2016-07-21

evolution explanation ethics and aesthetics towards a philosophy of biology focuses on the dominant biological topic of evolution it deals with the prevailing philosophical themes of how to explain the adaptation of organisms the interplay of chance and necessity and the recurrent topics of emergence reductionism and progress in addition the extensively treated topic of how to explain human nature as a result of natural processes and the encompassed issues of the foundations of morality and the brain to mind transformation is discussed the philosophy of biology is a rapidly expanding field not more than half a century old at most and to a large extent is replacing the interest in the philosophy of physics that prevailed in the first two thirds of the twentieth century few texts available have

the benefit of being written by an eminent biologist who happens to be also a philosopher as in this work this book is a useful resource for seminar courses and college courses on the philosophy of biology researchers academics and students in evolutionary biology behavior genetics and biodiversity will also be interested in this work as will those in human biology and issues such as ethics religion and the human mind along with professional philosophers of science and those concerned with such issues as whether evolution is compatible with religion and or where morality comes from presents the unique perspective of a distinguished biologist with extensive experience in the field who has published much about the subject in a wide variety of journals and edited volumes covers the philosophical issues related to evolution and biology in an approachable and readable style includes the most up to date treatment of this burgeoning exciting field within biology provides the ideal guide for researchers academics and students in evolutionary biology behavior genetics and biodiversity

Evolution, Explanation, Ethics and Aesthetics 2013-05-01

issues in biological biochemical and evolutionary sciences research 2013 edition is a scholarly editions book that delivers timely authoritative and comprehensive information about additional research the editors have built issues in biological biochemical and evolutionary sciences research 2013 edition on the vast information databases of scholarly news you can expect the information about additional research in this book to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant the content of issues in biological biochemical and evolutionary sciences research 2013 edition has been produced by the world's leading scientists engineers analysts research institutions and companies all of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at scholarly editions and available exclusively from us you now have a source you can cite with authority confidence and credibility more information is available at scholarly editions com

Issues in Biological, Biochemical, and Evolutionary Sciences Research: 2013 Edition 2006-08-04

these essays by leading scientists and philosophers address conceptual issues that arise in the theory and practice of evolutionary biology the third edition of this widely used anthology has been substantially revised and updated four new sections have been added on women in the evolutionary process evolutionary psychology laws in evolutionary theory and race as social construction or biological reality other sections treat fitness units of selection adaptationism reductionism essentialism species phylogenetic inference cultural evolution and evolutionary ethics each of the twelve sections contains two or three essays that develop different views of the subject at hand for example

the section on evolutionary psychology offers one essay by two founders of the field and another that questions its main tenets one sign that a discipline is growing is that there are open questions with multiple answers still in competition the essays in this volume demonstrate that evolutionary biology and the philosophy of evolutionary biology are living growing disciplines contributors robin o andreasen kwame anthony appiah david a baum john h beatty david j buller leda cosmides james donoghue steven j farris joseph felsenstein susan k finsen joseph fracchia stephen jay gould sarah blaffer hrady david l hull philip kitcher r c lewontin elisabeth lloyd ernst mayr michael ruse john maynard smith elliot sober john tooby c kenneth waters george c williams david sloan wilson e o wilson

Conceptual Issues in Evolutionary Biology, third edition 2013-01-06

evolutionary biology ecology and ethics at first glance three different objects of research three different worldviews and three different scientific communities in reality there are both structural and historical links between these disciplines first some topics are obviously common across the board second the emerging need for environmental policy management has gradually but radically changed the relationship between these disciplines over the last decades in particular there has emerged a need for an interconnecting meta paradigm that integrates more strictly evolutionary studies biodiversity studies and the ethical frameworks that are most appropriate for allowing a lasting co evolution between natural and social systems today such a need is more than a mere luxury it is an epistemological and practical necessity

The Structural Links between Ecology, Evolution and Ethics 2014-01-21

providing outstanding breadth of coverage in evo devo advances in evolutionary developmental biology provides a comprehensive review of the milestones of research in evolution and development and outlines the exciting research agenda for the field going forward compiling the viewpoints of a diverse group of field experts this timely text expands the now mature science of evo devo into more complex areas of research this essential reference is destined to become the go to source for ideas and hypotheses for a new generation of graduate students in evolutionary and developmental biology

Advances in Evolutionary Developmental Biology 2015-07-24

basics in human evolution offers a broad view of evolutionary biology and medicine the book is written for a non expert audience providing accessible and convenient content that will appeal to numerous readers across the interdisciplinary field from evolutionary theory to cultural evolution this book fills gaps in the readers knowledge from

various backgrounds and introduces them to thought leaders in human evolution research offers comprehensive coverage of the wide ranging field of human evolution written for a non expert audience providing accessible and convenient content that will appeal to numerous readers across the interdisciplinary field provides expertise from leading minds in the field allows the reader the ability to gain exposure to various topics in one publication

Basics in Human Evolution 2021-04-11

this book offers to the international reader a collection of original articles of some of the most skillful historians and philosophers of biology currently working in latin american universities during the last decades increasing attention has been paid in latin america to the history and philosophy of biology but since many local authors prefer to write in spanish or in portuguese their ideas have barely crossed the boundaries of the continent this volume aims to remedy this state of things providing a good sample of this production to the english speaking readers bringing together contributions from researchers working in brazilian argentinean chilean colombian and mexican universities the stress on the regional provenance of the authors is not intended to suggest the existence of something like a latin american history and philosophy of biology supposedly endowed with distinctive features on the contrary the editors firmly believe that advances in this field can be achieved only by stimulating the integration in the international debate based on this assumption the book focuses on two topics life and evolution and presents a selection of contributions addressing issues such as the history of the concept of life the philosophical reflection on life manipulation and life extension the structure and development of evolutionary theory as well as human evolution life and evolution latin american essays on the history and philosophy of biology will provide the international reader with a rather complete picture of the ongoing research in the history and philosophy of biology in latin america offering a snapshot of this dynamic community it will also contribute to contextualize and develop the debate concerning life and evolution and the relation between the two phenomena

Life and Evolution 2006-11-25

this book integrates a wide variety of data analysis methods into a single and flexible interface the r language the book starts with a presentation of different r packages and gives a short introduction to r for phylogeneticists unfamiliar with this language the basic phylogenetic topics are covered the chapter on tree drawing uses r s powerful graphical environment a section deals with the analysis of diversification with phylogenies one of the author s favorite research topics the last chapter is devoted to the development of phylogenetic methods with r and interfaces with other languages c and c some exercises conclude these chapters

Analysis of Phylogenetics and Evolution with R 2012-10-09

this volume consists of papers written by evolutionary molecular and organismal biologists geneticists ecologists behavioural ecologists morphologists mathematicians theoreticians and experimentalists in honour of professor eibin on the occasion of his seventieth birthday the contributors are only a small subset of eibi's many friends collaborators and students not that one can distinguish these categories among eibi's colleagues his widespread influence and activity both in ismel and more generally as a leading evolutionary biologist is indicated by his many co-authors on books and papers and by his many students integrated in teaching and research sensible publishers and indeed readers reflexively flinch from festschrifts which too often are well intentioned but inchoate collections of papers frequently recycled this particular collection however is unified by the way the editors have built on eibi's own work to provide a connective narrative and synthesis much of which is new material the unifying thread is evolutionary theory as a result of recent advances at the interface between molecular and organismal biology evolutionary theory is currently undergoing one of its most dynamic and dramatic developments unravelling the origins structure and evolution of living organisms over the past four decades studies of the causes and consequences of biological diversity at every level genes genomes populations species ecosystems have revolutionised evolutionary biology new perspectives in ecological dynamics and in molecular biology and in diversity along with complete sequencing of the first prokaryote and eukaryote genomes highlight the evolutionary origins and relationships which underlie the unity and diversity of life on our small planet

Evolutionary Theory and Processes: Modern Perspectives 2005-11-10

w d hamilton 1936-2000 has been described by richard dawkins as a good candidate for the title of most distinguished darwinian since darwin his work on evolutionary biology continues to influence scientists working across a wide variety of disciplines including evolution population genetics animal behaviour genetics anthropology and ecology this third and final volume of narrow roads of gene land contains hamilton's key papers published between 1990 and 2000 a period in which he covered a great diversity of topics often in collaboration with other scientists many of the papers in this volume continue his work on sex and particularly its relation to parasitic disease but other topics covered include the gaia theory the colours of autumn leaves and the still controversial hypothesis that the aids pandemic accidentally originated in a polio vaccination campaign in africa each of the co-authored papers in this volume is preceded by an introduction written by one of hamilton's co-authors following the model of the previous two volumes in this series which brings the reader closer to hamilton's extraordinary personality and intellect providing the intellectual and physical contexts within which each

piece of research was developed also included are a chapter by jeremy leighton john on the hamilton archive bill s last great work complete with irresistible pictures and alan grafen s biographical memoir which presents an overview of bill s life and work together this unique collection of papers with their biographical introductions provides a profound portrait of one of the twentieth century s most innovative scientists

Narrow Roads of Gene Land - The Collected Papers of W. D. Hamilton 2019-06-03

evolutionary research in archaeology seeks to provide a comprehensive overview of contemporary evolutionary research in archaeology the book will provide a single source for introduction and overview of basic and advanced evolutionary concepts and research programs in archaeology content will be organized around four areas of critical research including microevolutionary and macroevolutionary process human ecology studies evolutionary ecology demography and niche construction and evolutionary cognitive archaeology authors of individual chapters will address theoretical foundations history of research contemporary contributions and debates and implications for the future for their respective topics as appropriate authors present or discuss short empirical case studies to illustrate key arguments

Handbook of Evolutionary Research in Archaeology 1998

this collection of twenty two research papers explores the creative interaction between evolutionary and molecular biology philosophy and theology it is the result of the third of five international research conferences co sponsored by the vatican observatory rome and the center for theology and the natural sciences berkeley the over arching goal of these conferences is to support the engagement of constructive theology with the natural sciences and to investigate the philosophical and theological elements in ongoing theoretical research in the natural sciences contents an extensive introduction robert john russell two recent statements on evolution and christian faith by pope john paul ii and an interpretive essay by the director of the observatory george v coyne s j section one scientific background evolutionary and molecular biology francisco j ayala and camilo j cela conde and the possibility of the evolution of extraterrestrial life julian chela flores section two evolution and divine action philosophical analyses of teleology in light of biology from the perspectives of a scientist francisco j ayala and a theologian wesley j wildman assessments of the evidence for teleology by scientists paul davies and william r stroeger s j and theological arguments on divine action and evolution focusing on special providence robert john russell and on process theism charles birch section three religious interpretations of biological themes critique of evolution based arguments for atheism and of science based religion george f r ellis darwin s relation to natural theology and a feminist perspective on metaphors in evolution anne m clifford evolution from a naturalist

perspective and the challenge to religion willem b drees bicultural evolution and the created co creator philip hefner continuity and emergence propensities pain and death in light of evolution and constructive christology from and anglican perspective arthur peacocke original sin and saving grace in light of evolution from a trinitarian perspective denis edwards divine kenosis and the power of the future from an evolutionary and process perspective john f haught and a comparison of models of god in light of evolution ian g barbour section four biology ethics and the problem of evil an evolutionary model of biological and moral altruism camilo j cela conde and gisele marty supervenience as a response to the reduction of morality to biology nancey murphy ethical and theological issues raised by gem line genetic therapy ted peters and the problems of divine action and theodicy in light of human sinfulness and suffering in nature thomas f tracy this series of conferences builds on the initial 1987 vatican observatory conference and its resulting publication physics philosophy and theology a common quest for understanding 1988 and on the previous jointly sponsored conferences and their publications quantum cosmology and the laws of nature 1993 and chaos and complexity 1995 future conferences will focus on scientific topics including the neuroscience s quantum physics and quantum field theory

Evolutionary and Molecular Biology 2019

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

Ecology and Evolution of Plants Under Domestication in the Neotropics 2010-12-23

this book represents an effort to understand very old questions about biological form function and the relationships between them the essays collected here reflect the diversity of approaches in evolutionary developmental biology evo devo including not only studies by prominent scientists whose research focuses on topics concerned with evolution and development but also historically and conceptually oriented studies that place the scientific work within a larger framework and ask how it can be pushed further topics under discussion range from the use of theoretical and empirical biomechanics to understand the evolution of plant form to detailed studies of the evolution of development and the role of developmental constraints on phenotypic variation the result is a rich and interdisciplinary volume that will begin a wider conversation about the shape of evo devo as it matures as a field

Form and Function in Developmental Evolution 2008-01-10

evolutionary developmental biology or evo devo is the study of the relationship between evolution and development dealing specifically with the generative mechanisms of organismal form evo devo goes straight to the core of the developmental origin of variation the raw material on which natural selection and random drift can work evolving pathways brings together contributions that represent a diversity of approaches topics range from developmental genetics to comparative morphology of animals and plants alike and also include botany and palaeontology two disciplines for which the potential to be examined from an evo devo perspective has largely been ignored until now researchers and graduate students will find this book a valuable overview of current research as we begin to fill a major gap in our perception of evolutionary change

Evolving Pathways 2019-10-21

the latest volume in this multidisciplinary series on key topics in evolutionary studies evolutionary perspectives on death provides an evolutionary analysis of mortality and the consideration of death bringing together noted experts from a variety of fields the books emanate from conferences held at oakland university and are dedicated to providing wide ranging and occasionally provocative views of human evolution the volume on death covers topics from biology anthropology psychology sociology and philosophy with contributors addressing how evolution informs the process of comprehending grieving depicting celebrating and accepting death among the topics covered evolutionary perspectives on the loss of a twin nonhuman primate responses to death death in literature witnessing and representing the death of pets the role of human decomposition facilities in shaping american perspectives on death this insightful volume showcases groundbreaking empirical and theoretical research addressing death and mortality from an evolutionary perspective demonstrating the intellectual value of an interdisciplinary approach to understanding psychological processes and behavior chapter 6 of this book is available open access under a cc by 4 0 license at link.springer.com

Evolutionary Perspectives on Death 2017-01-03

given the rapidly developing area of evolutionary medicine and public health the arc of life examines ways in which research conducted by biological anthropologists can enrich our understanding of variation in human health outcomes the book aims not only to showcase the perspective that biological anthropologists bring to the burgeoning field of evolutionary medicine but to underscore the context of human life history especially the concept of evolutionary trade offs and the ensuing biological processes that can affect health status over the life course this dual emphasis on life history theory and life cycle biology will make for a valuable and unique yet complementary addition to books already available on the subject of evolution and health the

book consolidates diverse lines of research within the field of biological anthropology stimulates new directions for future research and facilitates communication between subdisciplines of human biology operating at the forefront of evolutionary medicine

The Arc of Life 2017-03-03

modern ideas of evolution as related to revelation and science is an unchanged high quality reprint of the original edition of 1890 hansebooks is editor of the literature on different topic areas such as research and science travel and expeditions cooking and nutrition medicine and other genres as a publisher we focus on the preservation of historical literature many works of historical writers and scientists are available today as antiques only hansebooks newly publishes these books and contributes to the preservation of literature which has become rare and historical knowledge for the future

Modern Ideas of Evolution as Related to Revelation and Science 2004

over the last two decades the study of speciation has expanded from a modest backwater of evolutionary biology into a large and vigorous discipline thus the literature on speciation as well as the number of researchers and students working in this area has grown explosively despite these developments there has been no book length treatment of speciation in many years as a result both the seasoned scholar and the newcomer to evolutionary biology had no ready guide to the recent literature on speciation a body of work that is enormous scattered and increasingly technical although several excellent symposium volumes have recently appeared these collections do not provide a unified critical and up to date overview of the field speciation is designed to fill this gap aimed at professional biologists graduate students and advanced undergraduates speciation covers both plants and animals the first book on this subject to do so and deals with all relevant areas of research including biogeography field work systematics theory and genetic and molecular studies it gives special emphasis to topics that are either controversial or the subject of active research including sympatric speciation reinforcement the role of hybridization in speciation the search for genes causing reproductive isolation and mounting evidence for the role of natural and sexual selection in the origin of species the authors do not hesitate to take stands on these and other controversial issues this critical and scholarly book will be invaluable to researchers in evolutionary biology and is also ideal for a graduate level course on speciation

Speciation 2017-11-01

this book constitutes the refereed proceedings of the 11th international conference on simulated evolution and learning seal 2017 held in shenzhen china in november 2017 the 85 papers presented in this volume were carefully reviewed and selected from 145 submissions

they were organized in topical sections named evolutionary optimisation evolutionary multiobjective optimisation evolutionary machine learning theoretical developments feature selection and dimensionality reduction dynamic and uncertain environments real world applications adaptive systems and swarm intelligence

Simulated Evolution and Learning 1988

philippe benilan was a most original and charismatic mathematician who had a deep and decisive impact on the theory of nonlinear evolution equations this present volume is dedicated to him and contains research papers written by highly distinguished mathematicians they are all related to benilan s work and reflect the present state of this most active field the contributions cover a wide range of nonlinear and linear equations special topics include hamilton jacobi equations the porous medium equation reaction diffusion systems integro differential equations and visco elasticity maximal regularity for elliptic and parabolic equations and the ornstein uhlenbeck operator also in this special volume the legendary work of benilan brezis on thomas fermi theory is published for the first time

An Urchin in the Storm 2004-08-20

modern ideas of evolution as related to revelation and science fifth edition is an unchanged high quality reprint of the original edition of 1890 hansebooks is editor of the literature on different topic areas such as research and science travel and expeditions cooking and nutrition medicine and other genres as a publisher we focus on the preservation of historical literature many works of historical writers and scientists are available today as antiques only hansebooks newly publishes these books and contributes to the preservation of literature which has become rare and historical knowledge for the future

Nonlinear Evolution Equations and Related Topics 2021-10-14

four years ago we edited a volume of 36 papers entitled molecular approaches to ecology and evolution schierwater et ai 1994 in which we attempted to put to gether a diverse array of papers that demonstrated the impact that the technologi cal revolution ofmolecular biology has had on the field ofevolutionary biologyand ecology the present volume borrows from that theme but attempts to focus more sharply on the impact that molecular biology has had on our understanding of dif ferent hierarchical levels important in evolutionary and ecological studies because dna sequence variation is at the heart ofeverypaper in the present volume we feel it necessary to examine how dna has affected study at various levels of biological organization the majority of the chapters in the present volume follow themes es tablished in the earlier volume all chapters by authors in the previous volume are either fully updated or entirely new and expand into areas that we felt were impor tant for a more complete

understanding of the impact of dna technology on ecology and evolution the collection of papers in this volume cover a diverse array of ecological and evolutionary questions and demonstrates the breadth of coverage molecular technology has imparted on modern evolutionary biology there are also a broad range of hierarchical questions approached by the 17 papers in this volume

Origin and Evolution of Hepatitis Viruses **2017-05**

this volume is a reprinted collection of 69 classics from the avise laboratory chosen to illustrate a trademark brand of research that harnesses molecular markers to scientific studies of natural history and evolution in the wild spanning the early 1970s through the late 2000s these articles trace how the author and his colleagues have used molecular genetics techniques to address multifarious conceptual topics in genetics ecology and evolution in a fascinating menagerie of creatures with oft peculiar lifestyles the organisms described in this volume range from blind cavefish to male pregnant pipefishes and sea spiders from clonal armadillos to natal homing marine turtles from hermaphroditic sea snails to hybridizing monkeys and tree frogs from clonal marine sponges to pseudohermaphroditic mollusks to introgressing oysters and from endangered pocket gophers terrapins and sparrows to unisexual all female fish species to living fossil horseshoe crabs and even to a strange little fish that routinely mates with itself the conceptual and molecular topics addressed in this volume are also universal ranging from punctuated equilibrium to coalescent theory to the need for greater standardization in taxonomy from cytonuclear disequilibrium statistics to the ideas of speciation duration and sympatric speciation from historical population demography to phylogenetic reconstructions of males sexual ornaments from the population genetic consequences of inbreeding to pleistocene effects on phylogeography and from the molecular underpinnings of null alleles to the notion of clustered mutations that arise in groups to compelling empirical evidence for the unanticipated processes of gene conversion and concerted evolution in animal mitochondrial dna overall this collection includes many of the best most influential sometimes controversial occasionally provocative always intriguing or otherwise entertaining publications to have emerged from the avise laboratory over the last four decades thus this book conveys through the eyes of one of the field's longstanding pioneers what the organismal side of molecular ecology and evolution really means

Modern Ideas of Evolution 2012-12-06

Molecular Approaches to Ecology and Evolution **2010**

Molecular Ecology and Evolution

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