evolution bergstrom and dugatkin pdf

evolution bergstrom and dugatkin pdf is a widely sought resource for students, educators, and researchers interested in evolutionary biology. This comprehensive text offers an in-depth exploration of evolutionary principles, combining theoretical frameworks with empirical research findings. The book, authored by Carl Bergstrom and Lee Dugatkin, covers topics ranging from natural selection and genetic drift to cooperation and social behavior, making it a cornerstone in the study of evolution. Many seek the evolution bergstrom and dugatkin pdf format for convenient access and study, enabling them to engage with the material digitally. This article delves into the content, significance, and availability of the evolution bergstrom and dugatkin pdf, providing insights into its structure and educational value. Additionally, it outlines tips for effective use and highlights its role in modern evolutionary biology curricula.

Overview of Evolution Bergstrom and Dugatkin PDF

The evolution bergstrom and dugatkin pdf is a digital version of the widely acclaimed textbook "Evolution" authored by Carl Bergstrom and Lee Dugatkin. This textbook is designed to provide a rigorous yet accessible introduction to evolutionary biology. The PDF format offers portability and ease of access, making it a preferred choice for many students and professionals. The book itself is recognized for its clear explanations, comprehensive coverage, and integration of recent scientific discoveries. It serves as a foundational resource for understanding evolutionary mechanisms and the genetic basis of evolution.

Authors and Their Contributions

Carl Bergstrom and Lee Dugatkin are prominent figures in the field of evolutionary biology. Bergstrom is known for his work in mathematical biology

and evolutionary theory, while Dugatkin specializes in animal behavior and the evolution of cooperation. Their collaboration brings together diverse expertise, enriching the content with both theoretical and applied perspectives. The evolution bergstrom and dugatkin pdf reflects their combined efforts to present evolution in a detailed and engaging manner.

Structure and Content Breakdown

The textbook is organized into thematic sections that cover essential aspects of evolution. Topics include natural selection, population genetics, speciation, phylogenetics, and evolutionary ecology. Each chapter builds upon previous concepts, ensuring a logical progression for readers. The PDF version maintains this structure, allowing users to navigate easily between chapters and sections for an efficient learning experience.

Key Themes in the Evolution Text

The evolution bergstrom and dugatkin pdf addresses several fundamental themes crucial to evolutionary biology. The text blends classical concepts with modern advances, ensuring that readers gain a well-rounded understanding of the subject.

Natural Selection and Adaptation

One of the core themes explored is natural selection, the driving force behind adaptation and species evolution. The text discusses how genetic variation and environmental pressures lead to differential survival and reproduction. It also covers the mechanisms that promote or constrain adaptation in populations.

Genetics and Population Dynamics

The book delves into population genetics, explaining how allele frequencies change over time due to mutation, gene flow, genetic drift, and selection. These genetic principles form the mathematical foundation for understanding evolutionary change.

Cooperation and Social Behavior

A significant portion of the evolution bergstrom and dugatkin pdf is dedicated to social evolution, including cooperation, altruism, and conflict. It examines theoretical models and empirical studies on how cooperative behavior evolves and persists within populations.

Speciation and Macroevolution

The text also addresses the processes leading to the formation of new species and larger evolutionary patterns. It outlines mechanisms of reproductive isolation, the role of geographic and ecological factors, and the fossil record’s contribution to understanding macroevolutionary trends.

Importance of the Evolution Bergstrom and Dugatkin PDF in Education

The evolution bergstrom and dugatkin pdf is widely used in academic settings due to its clarity, depth, and integration of contemporary research. It is considered essential reading in undergraduate and graduate courses on evolutionary biology and related disciplines.

Enhancing Curriculum and Learning Outcomes

The textbook supports curricula by providing comprehensive material that aligns with educational standards in biology. Its clear explanations help students grasp complex concepts, while its inclusion of recent studies keeps the content relevant and engaging.

Supporting Research and Academic Work

Researchers and educators benefit from the evolution bergstrom and dugatkin pdf as a reliable reference. It offers theoretical frameworks and empirical data that underpin evolutionary studies, facilitating scholarly work and informed teaching.

Accessibility and Convenience

The PDF format makes this textbook more accessible, especially for distance learners and those who prefer digital resources. It allows users to annotate, search, and cross-reference content efficiently, enhancing the study experience.

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Features of the PDF for Effective Study

The evolution bergstrom and dugatkin pdf often includes interactive elements such as bookmarks, clickable tables of contents, and search functionality. These features facilitate quick navigation and efficient review of key topics.

Integrating the PDF into Study Plans

Students can leverage the PDF format to highlight important passages, add notes, and combine the textbook with supplementary digital resources. This integration supports diverse learning styles and enhances comprehension.

Study Tips for Mastering Evolution Concepts

Mastering the complex concepts presented in the evolution bergstrom and dugatkin pdf requires strategic study methods that enhance understanding and retention.

Active Reading and Note-Taking

Engaging actively with the text by summarizing sections, posing questions, and annotating helps deepen comprehension. Using the PDF’s annotation tools can streamline this process.

Utilizing Visual Aids and Examples

The textbook contains diagrams, graphs, and real-world examples that illustrate evolutionary processes. Reviewing these visual aids alongside textual explanations reinforces learning.

Regular Review and Practice

Consistent review of chapters and self-testing with practice questions strengthens knowledge retention. Group study and discussion can also clarify challenging topics.

Supplementing with External Resources

Complementing the evolution bergstrom and dugatkin pdf with lectures, research articles, and online tutorials broadens understanding and provides diverse perspectives on evolutionary biology.

Frequently Asked Questions

Where can I find the PDF of 'Evolution' by Bergstrom and Dugatkin?

You can find the PDF of 'Evolution' by Bergstrom and Dugatkin on academic websites, university libraries, or platforms like Google Scholar. Always ensure to access it through legal and authorized sources.

Is 'Evolution' by Bergstrom and Dugatkin available for free download in PDF format?

Typically, 'Evolution' by Bergstrom and Dugatkin is a copyrighted textbook, so free legal downloads are rare. Access through institutional subscriptions or purchase is recommended.

What topics does 'Evolution' by Bergstrom and Dugatkin cover?

The textbook covers fundamental concepts of evolutionary biology, including natural selection, genetics, population biology, and evolutionary theory, making it suitable for undergraduate students.

Are there any study guides or summaries available for 'Evolution' by Bergstrom and Dugatkin PDF?

Yes, there are study guides and chapter summaries available online created by students and educators that complement the textbook. Websites like Course Hero or Quizlet may have relevant materials.

Can I use 'Evolution' by Bergstrom and Dugatkin PDF for academic research?

Yes, the textbook is widely used in academic settings and can be cited for research purposes. However, ensure you reference it properly and access it through legitimate means.

What edition of 'Evolution' by Bergstrom and Dugatkin is most recommended?

The latest edition of 'Evolution' by Bergstrom and Dugatkin is generally recommended as it contains updated scientific information and recent research findings.

Are there any alternative textbooks similar to 'Evolution' by Bergstrom and Dugatkin?

Yes, alternatives include 'Evolutionary Analysis' by Freeman and Herron and 'Evolution' by Futuyma, which also provide comprehensive coverage of evolutionary biology.

How can I cite 'Evolution' by Bergstrom and Dugatkin PDF in my research paper?

You can cite it in APA format as: Bergstrom, C. T., & Dugatkin, L. A. (Year). Evolution (Edition). Publisher. Include page numbers if referencing specific content.

Additional Resources

1. *Evolution* by Douglas J. Futuyma
This comprehensive textbook covers the fundamental principles of evolutionary biology, including natural selection, genetic drift, and speciation. It integrates molecular biology and ecology to provide a well-rounded understanding of evolution. The book is suitable for advanced undergraduates and graduate students.

2. *Principles of Evolution* by Douglas J. Futuyma and Mark Kirkpatrick
A detailed exploration of evolutionary theory, this book explains the mechanisms driving evolution and the evidence supporting them. It includes discussions on adaptation, phylogenetics, and the genetic basis of evolutionary change. The text is enriched with examples from a wide range of organisms.

3. *Evolution: The Modern Synthesis* edited by Michael H. Nitecki
This classic volume compiles key papers and essays that helped form the modern synthesis of evolutionary biology. It provides historical context and

scientific insights into how Darwinian ideas merged with genetics. The book is valuable for those interested in the development of evolutionary thought.

4. *Evolutionary Analysis* by Scott Freeman and Jon C. Herron
An accessible textbook that introduces evolutionary concepts with clear explanations and engaging examples. It emphasizes the application of evolutionary theory to real-world problems in biology and medicine. The book includes helpful illustrations and review questions for students.

5. *Evolutionary Biology* by Douglas J. Futuyma
This text delves deeply into evolutionary mechanisms, with a particular focus on population genetics, adaptation, and macroevolution. It is well-regarded for its thorough coverage and clarity, making complex topics understandable. The book serves as a key resource for students and researchers alike.

6. *Behavioral Ecology: An Evolutionary Approach* by John R. Krebs and Nicholas B. Davies
Focusing on the evolution of animal behavior, this book explores how natural selection shapes behavioral traits. It integrates ecological and evolutionary perspectives to explain behaviors such as foraging, mating, and social interactions. The text is extensively referenced and widely used in behavioral ecology courses.

7. *Evolution and the Theory of Games* by John Maynard Smith
This seminal work introduces game theory concepts to evolutionary biology, explaining strategies organisms use to maximize fitness. It covers evolutionary stable strategies and their role in animal behavior and population dynamics. The book is foundational for understanding evolutionary game theory.

8. *Evolutionary Dynamics: Exploring the Equations of Life* by Martin A. Nowak
This book offers a mathematical approach to evolutionary biology, modeling how evolutionary processes unfold over time. It covers topics such as cooperation, mutation, and selection from a quantitative perspective. The work is ideal for readers interested in the intersection of mathematics and evolution.

9. *Coevolution: The Geographical Mosaic of Coevolutionary Arms Races* by John N. Thompson
Thompson examines how coevolution shapes the interactions between species across different environments. The book discusses the dynamic and spatial nature of coevolutionary processes, such as predator-prey and host-parasite relationships. It provides a modern synthesis of coevolutionary theory with empirical examples.

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Evolution: Bergstrom and Dugatkin PDF

Name: Understanding Evolution: A Comprehensive Guide Based on Bergstrom and Dugatkin

Outline:

Introduction: Defining evolution, its scope, and the significance of Bergstrom and Dugatkin's work.
Chapter 1: Mechanisms of Evolution: Natural selection, genetic drift, gene flow, mutation. Detailed explanations and examples from the book.
Chapter 2: The Evidence for Evolution: Fossil record, comparative anatomy, molecular biology, biogeography. Supporting evidence presented with analysis.
Chapter 3: Evolutionary Applications: Medicine, agriculture, conservation biology. Practical applications of evolutionary principles.
Chapter 4: Misconceptions and Controversies: Addressing common misunderstandings and criticisms of evolutionary theory.
Chapter 5: The Future of Evolutionary Biology: Emerging fields and unanswered questions.
Conclusion: Summarizing key concepts and emphasizing the ongoing relevance of evolutionary biology.

Understanding Evolution: A Comprehensive Guide Based on Bergstrom and Dugatkin

Evolutionary biology, the study of life's history and the processes that have shaped it, is a cornerstone of modern biology. Understanding its principles is crucial for comprehending the diversity of life on Earth and for tackling numerous challenges facing humanity, from the development of new medicines to the conservation of biodiversity. This comprehensive guide delves into the core concepts of evolution, drawing heavily on the insights and perspectives offered by Carl T. Bergstrom and Lee Dugatkin's influential work. Their accessible yet rigorous approach makes their text an ideal starting point for anyone seeking to grasp the intricacies of this fundamental biological discipline.

Chapter 1: Mechanisms of Evolution: The Driving Forces of Change

This chapter explores the four primary mechanisms that drive evolutionary change: natural selection, genetic drift, gene flow, and mutation. Bergstrom and Dugatkin provide clear and concise explanations of these processes, avoiding overly technical jargon while maintaining scientific accuracy.

Natural Selection: The cornerstone of Darwinian evolution, natural selection operates on the variation within populations. Individuals with traits that enhance their survival and reproductive success in a given environment are more likely to pass on their genes to the next generation. This differential reproductive success leads to a gradual shift in the genetic makeup of the population over time. The book presents numerous examples, ranging from the evolution of antibiotic resistance in bacteria to the adaptation of Darwin's finches to diverse food sources. Understanding natural selection requires grasping the concepts of heritability, variation, and differential fitness. The book expertly explains how these factors interact to shape evolutionary trajectories.

Genetic Drift: Unlike natural selection, genetic drift is a random process that can alter gene frequencies within populations, particularly in small populations. Bottleneck effects and founder effects, discussed in detail, illustrate how chance events can significantly impact genetic diversity. The book emphasizes the importance of understanding random processes in evolutionary change, showing how they can counteract or even override the effects of natural selection.

Gene Flow: This mechanism involves the transfer of genetic material between populations. Migration and interbreeding can introduce new alleles into a population, increasing genetic diversity and potentially altering the adaptive landscape. The book provides examples of gene flow influencing the evolution of species and highlights its role in maintaining genetic homogeneity across geographically dispersed populations.

Mutation: Mutations, changes in the DNA sequence, are the ultimate source of new genetic variation. While most mutations are neutral or deleterious, some can be beneficial, providing the raw material upon which natural selection can act. The book explores the different types of mutations and their potential consequences, emphasizing the crucial role mutations play in driving evolutionary change.

Chapter 2: The Evidence for Evolution: A Multifaceted Approach

This chapter provides compelling evidence supporting the theory of evolution from diverse fields of biology.

Fossil Record: The fossil record provides a chronological sequence of life's history, revealing the gradual appearance of new species and the extinction of others. The book examines transitional fossils, demonstrating the evolutionary links between different groups of organisms. It also discusses the limitations of the fossil record and emphasizes the importance of interpreting fossil evidence within a broader evolutionary context.

Comparative Anatomy: Similarities in the anatomical structures of different species, such as homologous structures (e.g., the forelimbs of mammals, birds, and reptiles), provide strong evidence for common ancestry. The book explores homologous and analogous structures, highlighting the distinctions and their implications for understanding evolutionary relationships.

Molecular Biology: The study of DNA and protein sequences provides powerful evidence for evolutionary relationships. Homologous genes and proteins, shared by different species, reveal evolutionary connections not always apparent from anatomical studies. Phylogenetic trees,

constructed using molecular data, illustrate evolutionary relationships and provide insights into the evolutionary history of life. The book explains how molecular data are used to build phylogenetic trees and how these trees can be used to test evolutionary hypotheses.

Biogeography: The geographic distribution of species provides further evidence for evolution. The book examines biogeographic patterns, such as the unique flora and fauna of isolated islands, demonstrating how geographic isolation can lead to the evolution of new species. The influence of continental drift and other geological events on the distribution of organisms is also discussed.

Chapter 3: Evolutionary Applications: Relevance to Human Endeavors

This section showcases the practical applications of evolutionary principles in diverse fields.

Medicine: Understanding evolution is crucial in combating infectious diseases. The evolution of antibiotic resistance in bacteria necessitates the development of new strategies for combating infections. The book discusses how evolutionary principles are applied to the design of new drugs and vaccines, emphasizing the importance of considering the evolutionary dynamics of pathogens. It also explores the evolution of human diseases and how evolutionary insights can be used to develop preventative measures and treatments.

Agriculture: Evolutionary principles are central to agricultural practices, including crop improvement and livestock breeding. The book explains how artificial selection, a human-directed form of natural selection, is used to enhance the desirable traits of crops and livestock. It also discusses the challenges of pest and weed control, highlighting how an understanding of evolutionary processes is crucial for developing sustainable agricultural practices.

Conservation Biology: Evolutionary biology plays a vital role in conservation efforts. Understanding the evolutionary history and genetic diversity of endangered species is crucial for designing effective conservation strategies. The book examines the role of evolutionary principles in managing populations, preserving biodiversity, and mitigating the impacts of habitat loss and climate change.

Chapter 4: Misconceptions and Controversies: Addressing Common Misunderstandings

This chapter addresses common misconceptions and criticisms of evolutionary theory.

The nature of scientific theories: The book clarifies the distinction between scientific theories and everyday use of the word "theory". It explains how evolutionary theory, like any scientific theory, is supported by extensive evidence and is constantly being refined and improved.

Irreducible complexity: The book refutes the argument of irreducible complexity, which claims that

some biological systems are too complex to have evolved gradually. It shows how complex systems can arise through a series of incremental steps, each favored by natural selection.

The role of chance and necessity: The book explains the interplay between chance events (e.g., mutations) and deterministic processes (e.g., natural selection) in driving evolutionary change. It shows how chance events can create new opportunities for selection, and how selection can shape the outcome of these chance events.

Chapter 5: The Future of Evolutionary Biology: Exploring Uncharted Territories

This chapter explores emerging fields and unanswered questions in evolutionary biology.

Evo-devo: The field of evolutionary developmental biology (evo-devo) explores the relationship between evolutionary change and developmental processes. The book discusses how changes in developmental genes can lead to major evolutionary transitions, such as the origin of novel body plans.

The evolution of cooperation: Cooperation is a widespread phenomenon in the natural world, yet it poses a challenge to the traditional view of evolution as a struggle for individual survival. The book explores the evolutionary basis of cooperation, discussing the various mechanisms that can promote cooperation, such as kin selection and reciprocal altruism.

Evolutionary medicine: The integration of evolutionary principles into medicine is a rapidly growing field. The book discusses how an evolutionary perspective can provide insights into the origin and evolution of human diseases, leading to the development of more effective prevention and treatment strategies.

Conclusion: The Enduring Legacy of Evolutionary Thought

This guide has explored the core principles of evolution, drawing upon the insights of Bergstrom and Dugatkin. Evolutionary biology is not a static field; it is a dynamic and ever-evolving discipline. Understanding its fundamental principles is essential for addressing many of the pressing challenges confronting humanity in the 21st century. From combating infectious diseases to preserving biodiversity, the insights of evolutionary biology provide invaluable tools for navigating the complex world in which we live.

FAQs

1. What is the main focus of Bergstrom and Dugatkin's book on evolution? Their book provides a comprehensive overview of evolutionary theory, focusing on the mechanisms of evolution, the evidence supporting it, and its applications in various fields.

2. Is this book suitable for beginners? Yes, the book is written in an accessible style, making it suitable for those with little prior knowledge of evolutionary biology.

3. What are the key mechanisms of evolution discussed in the book? Natural selection, genetic drift, gene flow, and mutation are the four key mechanisms discussed.

4. What types of evidence support the theory of evolution? The book presents evidence from the fossil record, comparative anatomy, molecular biology, and biogeography.

5. How is evolution applied in medicine? Understanding evolution is crucial for combating antibiotic resistance and developing new treatments for infectious diseases.

6. What is the role of evolution in agriculture? Evolutionary principles are used in crop improvement and livestock breeding, as well as in pest and weed control.

7. How does evolution relate to conservation biology? Understanding evolutionary history and genetic diversity is crucial for effective conservation strategies.

8. What are some common misconceptions about evolution? The book addresses misconceptions about the nature of scientific theories, irreducible complexity, and the role of chance and necessity in evolution.

9. What are some emerging areas of evolutionary research? The book explores emerging areas such as evo-devo, the evolution of cooperation, and evolutionary medicine.

Related Articles:

1. The Modern Synthesis of Evolutionary Theory: A detailed exploration of the integration of Darwinian natural selection with Mendelian genetics.

2. Phylogenetic Analysis and Evolutionary Trees: A guide to constructing and interpreting phylogenetic trees to understand evolutionary relationships.

3. The Evolution of Human Behavior: An examination of the evolutionary origins of human social behaviors and cognitive abilities.

4. The Evolution of Sex: An exploration of the evolutionary origins and benefits of sexual reproduction.

5. The Evolution of Cooperation and Altruism: A discussion of the evolutionary mechanisms that promote cooperative behaviors, even in the face of selfishness.

6. The Impact of Climate Change on Evolution: An examination of how climate change is altering

evolutionary trajectories and impacting biodiversity.

7. Evolutionary Arms Races: The Dynamics of Predator-Prey Interactions: A study of the ongoing evolutionary interactions between predators and prey.

8. Evolutionary Developmental Biology (Evo-Devo): A New Synthesis: A review of the rapidly developing field of evo-devo and its implications for understanding evolutionary change.

9. The Application of Evolutionary Principles in Conservation: Case studies illustrating how evolutionary principles are used to inform conservation strategies.

evolution bergstrom and dugatkin pdf: Evolution Carl T. Bergstrom, Lee Alan Dugatkin, 2016-02-25 Evolution presents foundational concepts through a contemporary framework of population genetics and phylogenetics that is enriched by current research and stunning art. In every chapter, new critical thinking questions and expanded end-of-chapter problems emphasizing data interpretation reinforce the Second Edition's focus on helping students think like evolutionary biologists.

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evolution bergstrom and dugatkin pdf: A Cooperative Species Samuel Bowles, Herbert Gintis, 2011-05-31 A fascinating look at the evolutionary origins of cooperation Why do humans, uniquely among animals, cooperate in large numbers to advance projects for the common good? Contrary to the conventional wisdom in biology and economics, this generous and civic-minded behavior is widespread and cannot be explained simply by far-sighted self-interest or a desire to help close genealogical kin. In A Cooperative Species, Samuel Bowles and Herbert Gintis—pioneers in the new experimental and evolutionary science of human behavior—show that the central issue is not why selfish people act generously, but instead how genetic and cultural evolution has produced a species in which substantial numbers make sacrifices to uphold ethical norms and to help even total strangers. The authors describe how, for thousands of generations, cooperation with fellow group members has been essential to survival. Groups that created institutions to protect the civic-minded from exploitation by the selfish flourished and prevailed in conflicts with less cooperative groups. Key to this process was the evolution of social emotions such as shame and guilt, and our capacity to internalize social norms so that acting ethically became a personal goal rather than simply a prudent way to avoid punishment. Using experimental, archaeological, genetic, and ethnographic data to

calibrate models of the coevolution of genes and culture as well as prehistoric warfare and other forms of group competition, A Cooperative Species provides a compelling and novel account of how humans came to be moral and cooperative.

evolution bergstrom and dugatkin pdf: Signals Brian Skyrms, 2010-04-08 Brian Skyrms offers a fascinating demonstration of how fundamental signals are to our world. He uses various scientific tools to investigate how meaning and communication develop. Signals operate in networks of senders and receivers at all levels of life, transmitting and processing information. That is how humans and animals think and interact.

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evolution bergstrom and dugatkin pdf: Mathematical Models of Social Evolution Richard McElreath, Robert Boyd, 2008-09-15 Over the last several decades, mathematical models have become central to the study of social evolution, both in biology and the social sciences. But students in these disciplines often seriously lack the tools to understand them. A primer on behavioral modeling that includes both mathematics and evolutionary theory, Mathematical Models of Social Evolution aims to make the student and professional researcher in biology and the social sciences fully conversant in the language of the field. Teaching biological concepts from which models can be developed, Richard McElreath and Robert Boyd introduce readers to many of the typical mathematical tools that are used to analyze evolutionary models and end each chapter with a set of problems that draw upon these techniques. Mathematical Models of Social Evolution equips behaviorists and evolutionary biologists with the mathematical knowledge to truly understand the models on which their research depends. Ultimately, McElreath and Boyd’s goal is to impart the fundamental concepts that underlie modern biological understandings of the evolution of behavior so that readers will be able to more fully appreciate journal articles and scientific literature, and start building models of their own.

evolution bergstrom and dugatkin pdf: Moral Sentiments and Material Interests Herbert Gintis, 2005 Moral Sentiments and Material Interests presents an innovative synthesis of research in different disciplines to argue that cooperation stems not from the stereotypical selfish agent acting out of disguised self-interest but from the presence of strong reciprocators in a social group. Presenting an overview of research in economics, anthropology, evolutionary and human biology, social psychology, and sociology, the book deals with both the theoretical foundations and the policy implications of this explanation for cooperation. Chapter authors in the remaining parts of the book discuss the behavioral ecology of cooperation in humans and nonhuman primates, modeling and testing strong reciprocity in economic scenarios, and reciprocity and social policy. The evidence for strong reciprocity in the book includes experiments using the famous Ultimatum Game (in which two players must agree on how to split a certain amount of money or they both get nothing.)

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have produced a thoroughly revised new edition of their widely praised evolution textbook. Emlen, an award-winning evolutionary biologist at the University of Montana, has infused Evolution: Making Sense of Life with the technical rigor and conceptual depth that today's biology majors require. Zimmer, an award-winning New York Times columnist, brings compelling storytelling to the book, bringing evolutionary research to life. Students will learn the fundamental concepts of evolutionary theory, such as natural selection, genetic drift, phylogeny, and coevolution. The book also drives home the relevance of evolution for disciplines ranging from conservation biology to medicine. With riveting stories about evolutionary biologists at work everywhere from the Arctic to tropical rainforests to hospital wards, the book is a reading adventure designed to grab the imagination of students, showing them exactly why it is that evolution makes such brilliant sense of life.--

evolution bergstrom and dugatkin pdf: Current Ornithology Volume 17 Charles F. Thompson, 2010-09-09 Current Ornithology publishes authoritative, up-to-date, scholarly reviews of topics selected from the full range of current research in avian biology. Topics cover the spectrum from the molecular level of organization to population biology and community ecology. The series seeks especially to review (1) fields in which an abundant recent literature will benefit from synthesis and organization, or (2) newly emerging fields that are gaining recognition as the result of recent discoveries or shifts in perspective, or (3) fields in which students of vertebrates may benefit from comparisons of birds with other classes. All chapters are invited, and authors are chosen for their leadership in the subjects under review.

evolution bergstrom and dugatkin pdf: The Tangled Bank Carl Zimmer, 2019-01-30 Used widely in non-majors biology classes, The Tangled Bank is the first textbook about evolution intended for the general reader. Zimmer, an award-winning science writer, takes readers on a fascinating journey into the latest discoveries about evolution. In the Canadian Arctic, paleontologists unearth fossils documenting the move of our ancestors from sea to land. In the outback of Australia, a zoologist tracks some of the world's deadliest snakes to decipher the 100-million-year evolution of venom molecules. In Africa, geneticists are gathering DNA to probe the origin of our species. In clear, non-technical language, Zimmer explains the central concepts essential for understanding new advances in evolution, including natural selection, genetic drift, and sexual selection. He demonstrates how vital evolution is to all branches of modern biology—from the fight against deadly antibiotic-resistant bacteria to the analysis of the human genome.

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evolution bergstrom and dugatkin pdf: Game Theory and Animal Behavior Lee Alan Dugatkin, Hudson Kern Reeve, 2000-03-23 Game theory has revolutionized the study of animal behavior. The fundamental principle of evolutionary game theory--that the strategy adopted by one individual depends on the strategies exhibited by others--has proven a powerful tool in uncovering the forces shaping otherwise mysterious behaviors. In this volume, the first since 1982 devoted to evolutionary game theory, leading researchers describe applications of the theory to diverse types of behavior, providing an overview of recent discoveries and a synthesis of current research. The volume begins with a clear introduction to game theory and its explanatory scope. This is followed by a series of chapters on the use of game theory to understand a range of behaviors: social foraging, cooperation, animal contests, communication, reproductive skew and nepotism within

groups, sibling rivalry, alternative life-histories, habitat selection, trophic-level interactions, learning, and human social behavior. In addition, the volume includes a discussion of the relations among game theory, optimality, and quantitative genetics, and an assessment of the overall utility of game theory to the study of social behavior. Presented in a manner accessible to anyone interested in animal behavior but not necessarily trained in the mathematics of game theory, the book is intended for a wide audience of undergraduates, graduate students, and professional biologists pursuing the evolutionary analysis of animal behavior.

evolution bergstrom and dugatkin pdf: *Remarkable Creatures* Sean B. Carroll, 2014-10-16 National Book Award Finalist: A biologist's "thoroughly enjoyable" account of the expeditions that unearthed the history of life on our planet (Publishers Weekly). Not so long ago, most of our world was an unexplored wilderness. Our sense of its age was vague and vastly off the mark, and much of the knowledge of our own species' history was a set of fantastic myths and fairy tales. But scientists were about to embark on an amazing new era of understanding. From the New York Times–bestselling author of The Big Picture, this book leads us on a rousing voyage that recounts the most important discoveries in two centuries of natural history: from Darwin's trip around the world to Charles Walcott's discovery of pre-Cambrian life in the Grand Canyon; from Louis and Mary Leakey's investigation of our deepest past in East Africa to the trailblazers in modern laboratories who have located a time clock in our DNA. Filled with the same sense of adventure that spurred on these extraordinary men and women, Remarkable Creatures is a "stirring introduction to the wonder of evolutionary biology" (Kirkus Reviews). "Charming and enlightening." —San Francisco Chronicle "As fast-paced as a detective story." —Nature

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between host organisms and their associated microorganisms-only a tiny fraction of which act as pathogens. Despite their obvious importance, very little is actually known about the processes and factors that influence the assembly, function, and stability of microbial communities. Gaining this knowledge will require a seismic shift away from the study of individual microbes in isolation to inquiries into the nature of diverse and often complex microbial communities, the forces that shape them, and their relationships with other communities and organisms, including their multicellular hosts. On March 6 and 7, 2012, the Institute of Medicine's (IOM's) Forum on Microbial Threats hosted a public workshop to explore the emerging science of the social biology of microbial communities. Workshop presentations and discussions embraced a wide spectrum of topics, experimental systems, and theoretical perspectives representative of the current, multifaceted exploration of the microbial frontier. Participants discussed ecological, evolutionary, and genetic factors contributing to the assembly, function, and stability of microbial communities; how microbial communities adapt and respond to environmental stimuli; theoretical and experimental approaches to advance this nascent field; and potential applications of knowledge gained from the study of microbial communities for the improvement of human, animal, plant, and ecosystem health and toward a deeper understanding of microbial diversity and evolution. The Social Biology of Microbial Communities: Workshop Summary further explains the happenings of the workshop.

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