Animal Physiology Hill Wyse And Anderson

Unlocking the puzzle of how animals behave and how they interact with their environments is impossible without understanding the physiological processes that determine their use of food resources. But long overdue is a user-friendly introduction to the subject that systematically bridges the gap between physiology and ecology. Ecologists--for whom such knowledge can help clarify the consequences of global climate change, the biodiversity crisis, and pollution--often find themselves wading through an unwieldy, technically top-heavy literature. Here, William Karasov and Carlos Martínez del Rio present the first accessible and authoritative one-volume overview of the physiological and biochemical principles that shape how animals procure energy and nutrients and free themselves of toxins--and how this relates to broader ecological phenomena. After introducing primary concepts, the authors review the chemical ecology of food, and then discuss how animals digest and process food. Their broad view includes symbioses and extends even to ecosystem phenomena such as ecological stochiometry and toxicant biomagnification. They introduce key methods and illustrate principles with wide-ranging vertebrate and invertebrate examples. Uniquely, they also link the physiological mechanisms of resource use with ecological phenomena such as how and why animals choose what they eat and how they participate in the exchange of energy and materials in their biological communities. Thoroughly up-to-date and pointing the way to future research, Physiological Ecology is an essential new source for upper-level undergraduate and graduate students-and an ideal synthesis for professionals. The most accessible introduction to the physiological and biochemical principles that shape how animals use resources Unique in linking the physiological mechanisms of resource use with ecological phenomena An essential resource for upper-level undergraduate and graduate students An ideal overview for researchers

Animal Physiology: An Environmental Perspective provides a broad review of animal physiology, demonstrating how an understanding of the physiology of animals in their natural habitats helps us to understand how and why animals evolved the way they did, as well as how we can protect them from the extreme effects of changes to their environments.The only text to take an evolutionary approach to show how physiological systems allow animals to adapt to their changing environmentsThe main narrative focuses on key concepts, and panels expand on particular topics or themes, helping students to grasp difficult concepts in a progressive, layered way.A robust yet accessible introduction to the physical and chemical properties of the environments in which animals live helps students to avoid a superficial or confused understanding of this often challenging aspect of the subjectCarefully chosen examples illustrate how different groups of animals have evolved different solutions to deal with the environmental problems they faceThe exploration of real world issues such as climate change and pollution from the point of view of their physiological effects on animals shows how our understanding of such topics can be translated into new approaches to conservation.Additional Resources:For students:- Original articles: a list of original articles consulted during the writing of each chapter so that you can explore the original research for yourself.- Additional case studies and experimental approach panels to augment those in the printed book.- Answers to numerical questions: full solutions to numerical questions so that you can verify your working. For registered adopters of the text:- Digital image library: Includes electronic files in JPG format of every illustration, photo, graph and table from the text

This classic animal physiology text focuses on comparative examples that illustrate the general principles of physiology at all levels of organisation—from molecular mechanisms to regulated physiological systems to whole organisms in their environment. This textbook is an authoritative and complete guide to the field of animal physiology which uses a threefold approach to teaching. The Comparative Approach emphasises basic mechanisms but allows patterns of physiological function in different species to demonstrate how evolution creates diversity. This approach encourages students to appreciate the underlying principles that govern physiological systems. The Experimental Emphasis helps students to understand the process of scientific discovery and shows how our knowledge of physiology continually increases and finally the Integrative Approach presents information about specific physiological systems at all levels of organisation, from molecular interactions to interactions between an organism and its environment.n included.

Organism and environment; Energy metabolism; Thermal relationship; Exchanges of salts and water: mechanisms; Exchanges of salts and water: integration; Nitrogen excretion and other aspects of nitrogen metabolism; Renal organs and excretion; Exchanges of oxygen and carbon dioxide: basic principles, respiratory anvironments, and external respiration; Exchanges of exygen and carbon dioxide: transport in body fluids; Circulation; Metabolic responses to oxygen deficiency and lowered availability of oxygen; The active animal.

Designed to provide students with a foundation in understanding and interpreting histologic and cytologic preparations, Color Atlas of Veterinary Histology is a practical benchside reference focusing on the normal histology of eight common domestic species. This Third Edition has been revised with new images, information, and updated terminology throughout. Introductory chapters have also been expanded to offer more complete coverage of the basic types of tissues, providing an even more thorough grounding in the principles of histology. For the first time, the more than 900 photomicrographs are available digitally in an interactive atlas on CD, offering images available for download with zoom capability. The new edition of this veterinary-specific histology atlas provides veterinary and veterinary technician students with an essential pictorial resource for interpreting histologic preparations.

This book examines three ways plants respond to their changing environment. The first example can be found in all plants. Despite the extreme changes in weather, plants have to stay where they are and respond to whatever nature produces. Plants have the capacity to respond quickly and yet they can evolve in a single generation. The second example addresses how an individual leaf has to respond rapidly and repeatedly to maintain the proper balance of carbon dioxide (CO2) and water so that it can photosynthesize but not dry out. This delicate balance is governed by a pair of cells that regulate the size of openings on leaves. The final chapter examines a unique example of a leaf that can move fast enough to trap insects and digest them. This book presents data that led to our understanding of how plants function on different time scales.

"For each of 32 currently recognized phyla, Invertebrates, Third Edition presents detailed classifications, taxonomic synopses, updated information on general biology and anatomy, and current phylogenetic hypotheses. Chapters are organized around the "new animal phylogeny," along with basic background on invertebrates. Illustrated with abundant line drawings, color photos, boxes, and tables"--

Over recent decades vast amounts of biological data have been accumulated. However, it is becoming increasingly difficult to

apply traditional theoretical methods to the formulation of coherent pictures of cell and organ function because it is no longer possible for a human theorist to integrate all of the available information. Instead, computer technologies must now be used to perform this integration. This book brings together contributions from many different fields to summarize the current status of computer-assisted modelling of biological processes. The initial chapters deal with fundamental developments in hardware, software and mathematics that underlie current approaches to biological modelling. Next, different approaches to collating data on gene structure and function are presented. These databases form a vital resource for any investigator trying to construct an integrated picture of particular biological systems. Cell signalling systems form a particularly complicated aspect of all cellular function and are important both in the understanding of basic cellular processes and in selecting targets for drugs. Recent approaches to integrating data on cell signalling into computer models are covered. Further chapters build on these approaches to show how computerized models of intact cells can be developed. Finally, approaches to the computer modelling of whole organs such as the heart are presented. The role of computer modelling in drug design is the subject of the final chapter and is also touched on throughout the discussions.

In this comprehensive introduction to animal ethics, Lori Gruen weaves together poignant and provocative case studies with discussions of ethical theory, urging readers to engage critically and empathetically reflect on our treatment of other animals. In clear and accessible language, Gruen provides a survey of the issues central to human-animal relations and a reasoned new perspective on current key debates in the field. She analyses and explains a range of theoretical positions and poses challenging questions that directly encourage readers to hone their ethical reasoning skills and to develop a defensible position about their own practices. Her book will be an invaluable resource for students in a wide range of disciplines including ethics, environmental studies, veterinary science, women's studies, and the emerging field of animal studies and is an engaging account of the subject for general readers with no prior background in philosophy.

The new and updated edition of this accessible text provides a comprehensive overview of the comparative physiology of animals within an environmental context. Includes two brand new chapters on Nerves and Muscles and the Endocrine System. Discusses both comparative systems physiology and environmental physiology. Analyses and integrates problems and adaptations for each kind of environment: marine, seashore and estuary, freshwater, terrestrial and parasitic. Examines mechanisms and responses beyond physiology. Applies an evolutionary perspective to the analysis of environmental adaptation. Provides modern molecular biology insights into the mechanistic basis of adaptation, and takes the level of analysis beyond the cell to the membrane, enzyme and gene. Incorporates more varied material from a wide range of animal types, with less of a focus purely on terrestrial reptiles, birds and mammals and rather more about the spectacularly successful strategies of invertebrates. A companion site for this book with artwork for downloading is available at: www.blackwellpublishing.com/willmer/

For sample chapters, a video interview with David Hillis, and more information, visit www.whfreeman.com/hillispreview. Sinauer Associates and W.H. Freeman are proud to introduce Principles of Life. Written in the spirit of the reform movement that is reinvigorating the introductory majors course, Principles of Life cuts through the thicket of excessive detail and factual minutiae to focus on what matters most in the study of biology today. Students explore the most essential biological ideas and information in the context of the field’s defining experiments, and are actively engaged in analyzing research data. The result is a textbook that is hundreds of pages shorter (and significantly less expensive) than the current majors introductory books.

Principles of Animal Physiology, Second Edition continues to set a new standard for animal physiology textbooks with its focus on animal diversity, its modern approach and clear foundation in molecular and cell biology, its concrete examples throughout, and its fully integrated coverage of the endocrine system. Carefully designed, full-color artwork guides students through complex systems and processes while in-text pedagogical tools help them learn and remember the material. The book includes the most up-to-date research on animal genetics and genomics, methods and models, and offers a diverse range of vertebrate and invertebrate examples, with a student-friendly writing style that is consistently clear and engaging.

Written by experts in different areas, this book presents an up-to-date account of the behavioral biology of dogs. Split in three parts, the book addresses the specific aspects of behavioral biology. The first part deals with the evolution and development of the dog, whereas the next part deals with basic aspects of dog behavior. The final part emphasizes on the behavioral problems, their prevention and cure.

Volume 2 of the Textbook of Neural Repair and Rehabilitation stands alone as a clinical handbook for neurorehabilitation.

An introductory psychology text that covers the core concepts in behavioural neuroscience, this book makes the topic accessible for students in a wide range of disciplines. Its engaging, informal style will pique the curiosity of students without sacrificing accuracy. Also including full-colour art and new pedagogical features.

"Comprehensive, contemporary, and engaging, Animal Physiology provides evolutionary and ecological context to help students make connections across all levels of physiological scale"--

Promoting a conceptual understanding and taking an integrative systems approach, ANIMAL PHYSIOLOGY 2E illustrates the individual organization as well as the collective interdependence of each complete physiological system. The text begins with chapters on integrative principles and on the genomic, molecular, and cellular basis of physiology, then proceeds to chapters on individual organ systems. For each organ system, evolutionary forces as well as current cellular and molecular research are discussed. To clearly illustrate system interdependence, each systems chapter contains a summary, titled Making Connections. To make the text even more accessible to students, the authors also incorporate a comparative approach to animal physiology, examining the basic physiology of many vertebrate and nonvertebrate animals as well as their primary diseases and ability to respond to environmental changes. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Mammals are the so-called "pinnacle" group of vertebrates, successfully colonising virtually all terrestrial environments as well as the air (bats) and sea (especially pinnipeds and cetaceans). How mammals function and survive in these diverse environments has long fascinated mammologists, comparative physiologists and ecologists. Ecological and Environmental Physiology of Mammals explores the physiological mechanisms and evolutionary necessities that have made the spectacular adaptation of mammals possible. It summarises our current knowledge of the complex and sophisticated physiological approaches that mammals have for survival in a wide variety of ecological and environmental contexts: terrestrial, aerial, and aquatic. The authors have a strong comparative and quantitative focus in their broad approach to exploring mammal ecophysiology. As with other books in the Ecological and Environmental Physiology Series, the emphasis is on the unique physiological characteristics of mammals, their adaptations to extreme environments, and current experimental techniques and future research directions are also considered. This accessible text is suitable for graduate level students and researchers in the fields of mammalian comparative physiology and physiological ecology, including specialist courses in mammal ecology. It will also be of value and use to the many professional mammologists requiring a concise overview of the topic.

Animal Physiology, Fourth Edition presents all the branches of modern animal physiology with a strong emphasis on integration of

physiological knowledge, ecology, and evolutionary biology.

The abiotic characteristics of the environment—including temperature, oxygen availability, salinity, and hydrostatic pressure—present challenges to all biochemical structures and processes. This volume first examines the nature of these perturbations to biochemical systems and then elucidates the major adaptive strategies that enable organisms from all Domains of Life—Archaea, Bacteria, and Eukarya—to conserve common types of biochemical structures and processes across a wide range of environments. In addition to these conservative adaptations that foster a biochemical unity among diverse species, other adaptations can be viewed as innovative changes that enable organisms to exploit new features of the environment that may themselves be the result of biological activities.

This text presents all the branches of modern animal physiology with a strong emphasis on integration among physiological disciplines, ecology, and evolutionary biology.

The Dissection of Vertebrates covers several vertebrates commonly used in providing a transitional sequence in morphology. With illustrations on seven vertebrates – lamprey, shark, perch, mudpuppy, frog, cat, pigeon – this is the first book of its kind to include high-quality, digitally rendered illustrations. This book received the Award of Excellence in an Illustrated Medical Book from the Association of Medical Illustrators. It is organized by individual organism to facilitate classroom presentation. This illustrated, full-color primary dissection manual is ideal for use by students or practitioners working with vertebrate anatomy. This book is also recommended for researchers in vertebrate and functional morphology and comparative anatomy. The result of this exceptional work offers the most comprehensive treatment than has ever before been available. * Received the Award of Excellence in an Illustrated Medical Book from the Association of Medical Illustrators * Expertly rendered award-winning illustrations accompany the detailed, clear dissection direction * Organized by individual organism to facilitate classroom presentation * Offers coverage of a wide range of vertebrates * Full-color, strong pedagogical aids in a convenient lay-flat presentation

Significant advances have been made in Endocrinology relating to developmental biology, environmental physiology, chronobiology, photobiology, reproductive biology, circulatory and digestive physiology, molecular biology, metabolic physiology, clinical and medical biology, etc. Comparative points of view have also accelerated the advancement of endocrinology. This book covers various topics of endocrinology from comparative, experimental, developmental, reproductive and clinical endocrine aspects. Another important feature of this book is that more than half the chapters are described in relation to the function of melatonin and the structure of the pineal organ. These trials of this book are reasonable and timely. Melatonin physiology has been reviewed from several points of view such as antioxidant and scavenger of hydroxyl radical, circadian clock and photoperiodic gonadal response including photoreceptor system, and development of vertebrates.

Widely regarded as the most captivating, accessible and comprehensive text for undergraduate marine biology courses, Marine Biology examines the subject from a unique global and evolutionary perspective. Written in clear, conversational style, this highly acclaimed volume emphasizes the principles and processes that underlie - and unify - vastly different marine communities.

From the New York Times bestselling author of Mama's Last Hug and Are We Smart Enough to Know How Smart Animals Are?, a provocative argument that apes have created their own distinctive cultures In The Ape and the Sushi Master, eminent primatologist Frans de Waal corrects our arrogant assumption that humans are the only creatures to have made the leap from the natural to the cultural domain. The book's title derives from an analogy de Waal draws between the way behavior is transmitted in ape society and the way sushi-making skills are passed down from sushi master to apprentice. Like the apprentice, young apes watch their group mates at close range, absorbing the methods and lessons of each of their elders' actions. Responses long thought to be instinctive are actually learned behavior, de Waal argues, and constitute ape culture. A delightful mix of intriguing anecdote, rigorous clinical study, adventurous field work, and fascinating speculation, The Ape and the Sushi Master shows that apes are not human caricatures but members of our extended family with their own resourcefulness and dignity.

Severe sepsis is among the most common causes of death in the United States and the most common cause of death in the Intensive Care Units worldwide, and its recognition and treatment remain the most important challenges of critical care medicine. Severe sepsis and septic shock have a profound effect on kidney function and the function of other organs through complex mechanisms, which involve the immune response, multiple pro and anti-inflammatory pathways, intracellular dysfunction and hemodynamic instability. Their optimal management requires complex knowledge of general medicine, immunology, nephrology, extra-corporeal technology, fluid resuscitation and critical care endocrinology. In order to deliver optimal patient care, nephrologists and intensive care medicine specialists need to understand and be highly knowledgeable in the epidemiology of sepsis, the mechanisms of injury which determine outcome and the fundamental aspects of new insights into fluid resuscitation, acid-base physiology and glucose control. They also need to have a clear appreciation of new technical developments in the monitoring of critically ill patients and in the delivery of advanced extra-corporeal blood purification therapies.Experts from the fields of intensive care medicine, nephrology, endocrinology, acid-base physiology, extra-corporeal blood purification technology and immunology have contributed to the present book, providing a cutting edge view of developments in each field which contribute to the care of patients with severe sepsis, acute renal failure and multiple organ failure. The resulting mix of fundamental knowledge and recent developments from clinical trials and laboratory research constitute a valuable tool for all professionals involved in the care of the critically ill patient.

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Microbial ecology is the study of interactions among microbes in natural environments and their roles in biogeochemical cycles, food web dynamics, and the evolution of life. Microbes are the most numerous organisms in the biosphere and mediate many critical reactions in elemental cycles and biogeochemical reactions. Because microbes are essential players in the carbon cycle and related processes, microbial ecology is a vital science for understanding the role of the biosphere in global warming and the response of natural ecosystems to climate change. This novel textbook discusses the major processes carried out by viruses, bacteria, fungi, protozoa and other protists - the microbes - in freshwater, marine, and terrestrial ecosystems. It focuses on biogeochemical processes, starting with primary production and the initial fixation of carbon into cellular biomass, before exploring how that carbon is degraded in both oxygen-rich (oxic) and oxygen-deficient (anoxic) environments. These biogeochemical processes are affected by ecological interactions, including competition for limiting nutrients, viral lysis, and predation by various protists in soils and aquatic habitats. The book neatly connects processes occurring at the micron scale to events happening at the global scale, including the carbon cycle and its connection to climate change issues. A final chapter is devoted to symbiosis and other relationships between microbes and larger organisms. Microbes have huge impacts not only on biogeochemical cycles, but also on the ecology and evolution of more complex forms of life, including Homo sapiens..

A study of comparative physiology that explains the ways in which specific bodily systems function in different species

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