

Eckert Animal Physiology Mechanisms And Adaptations 5th Edition

A respected resource for decades, the Guide for the Care and Use of Laboratory Animals has been updated by a committee of experts, taking into consideration input from the scientific and laboratory animal communities and the public at large. The Guide incorporates new scientific information on common laboratory animals, including aquatic species, and includes extensive references. It is organized around major components of animal use: Key concepts of animal care and use. The Guide sets the framework for the humane care and use of laboratory animals. Animal care and use program. The Guide discusses the concept of a broad Program of Animal Care and Use, including roles and responsibilities of the Institutional Official, Attending Veterinarian and the Institutional Animal Care and Use Committee. Animal environment, husbandry, and management. A chapter on this topic is now divided into sections on terrestrial and aquatic animals and provides recommendations for housing and environment, husbandry, behavioral and population management, and more. Veterinary care. The Guide discusses veterinary care and the responsibilities of the Attending Veterinarian. It includes recommendations on animal procurement and transportation, preventive medicine (including animal biosecurity), and clinical care and management. The Guide addresses distress and pain recognition and relief, and issues surrounding euthanasia. Physical plant. The Guide identifies design issues, providing construction guidelines for functional areas; considerations such as drainage, vibration and noise control, and environmental monitoring; and specialized facilities for animal housing and research needs. The Guide for the Care and Use of Laboratory Animals provides a framework for the judgments required in the management of animal facilities. This updated and expanded resource of proven value will be important to scientists and researchers, veterinarians, animal care personnel, facilities managers, institutional administrators, policy makers involved in research issues, and animal welfare advocates.

Intraspecific communication involves the activation of chemoreceptors and subsequent activation of different central areas that coordinate the responses of the entire organism—ranging from behavioral modification to modulation of hormones release. Animals emit intraspecific chemical signals, often referred to as pheromones, to advertise their presence to members of the same species and to regulate interactions aimed at establishing and regulating social and reproductive bonds. In the last two decades, scientists have developed a greater understanding of the neural processing of these chemical signals. Neurobiology of Chemical Communication explores the role of the chemical senses in mediating intraspecific communication. Providing an up-to-date outline of the most recent advances in the field, it presents data from laboratory and wild species, ranging from invertebrates to vertebrates, from insects to humans. The book examines the structure, anatomy, electrophysiology, and molecular biology of pheromones. It discusses how chemical signals work on different mammalian and non-mammalian species and includes chapters on insects, Drosophila, honey bees, amphibians, mice, tigers, and cattle. It also explores the controversial topic of human pheromones. An essential reference for students and researchers in the field of pheromones, this is also an ideal resource for those working on behavioral phenotyping of animal models and persons interested in the biology/ecology of wild and domestic species.

Physical inactivity is a key determinant of health across the lifespan. A lack of activity increases the risk of heart disease, colon and breast cancer, diabetes mellitus, hypertension, osteoporosis, anxiety and depression and others diseases. Emerging literature has suggested that in terms of mortality, the global population health burden of physical inactivity approaches that of cigarette smoking. The prevalence and substantial disease risk associated with physical inactivity has been described as a pandemic. The prevalence, health impact, and evidence of changeability all have resulted in calls for action to increase physical activity across the lifespan. In response to the need to find ways to make physical activity a health priority for youth, the Institute of Medicine's Committee on Physical Activity and Physical Education in the School Environment was formed. Its purpose was to review the current status of physical activity and physical education in the school environment, including before, during, and after school, and examine the influences of physical activity and physical education on the short and long term physical, cognitive and brain, and psychosocial health and development of children and adolescents. Educating the Student Body makes recommendations about approaches for strengthening and improving programs and policies for physical activity and physical education in the school environment. This report lays out a set of guiding principles to guide its work on these tasks. These included: recognizing the benefits of instilling life-long physical activity habits in children; the value of using systems thinking in improving physical activity and physical education in the school environment; the recognition of current disparities in opportunities and the need to achieve equity in physical activity and physical education; the importance of considering all types of school environments; the need to take into consideration the diversity of students as recommendations are developed. This report will be of interest to local and national policymakers, school officials, teachers, and the education community, researchers, professional organizations, and parents interested in physical activity, physical education, and health for school-aged children and adolescents.

Snustad's 6 th edition of Principles of Genetics offers many new and advanced features including boxed sections with the latest advances in Genetics, a streamlined roster of topics, a more reader-friendly layout, and new problem-solving supplements. Furthermore, this new edition includes more problem solving within each chapter through the Test Your Problem Solving Skills feature and a Solve It icon to prompt readers to go online to WileyPlus for animated tutorials. A new one-column design better showcases important pieces of art and avoids the "overwhelmed" reaction readers have to the crowded layouts found in many other texts. Boxed sections reduce in size to help maintain the flow of the text and the Focus On boxes are revised to include the most current developments in genetics as well as most relevant topics.

Vertebrate Gas Exchange
Physiological Ecology
Principles and Mechanisms
Mechanisms and Adaptations
Taking Physical Activity and Physical Education to School
Animal Physiology

Brimming with more than more than 1700 references, this reader-friendly and extensively revised Fourth Edition will prove invaluable to instructors and students alike—providing a unified approach to the anatomical, physiological, and perceptual aspects of audition with updated chapters on the latest developments in the field.

Obstructive sleep apnea (OSA) is a common and progressive chronic disease. It is responsible for a high number of comorbidities and is linked with increased mortality, including a rise in the rate of sudden cardiac death. It is widely acknowledged that OSA now affects millions of people worldwide. This Monograph considers this high-impact condition from four different perspectives: pathogenesis; at-risk populations; clinical scenarios; and treatment and management. Comprehensive and up-to-date chapters provide the reader with a concise overview of OSA, making this book a useful reference for pulmonologists concerned with the management of this disease.

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.

John Tyler Bonner, one of our most distinguished and creative biologists, here offers a completely new perspective on the role of size in biology. In his hallmark friendly style, he explores the universal impact of being the right size. By examining stories ranging from Alice in Wonderland to Gulliver's Travels, he shows that humans have always been fascinated by things big and small. Why then does size always reside on the fringes of science and never on the center stage? Why do biologists and others ponder size only when studying something else—running speed, life span, or metabolism? Why Size Matters, a pioneering book of big ideas in a compact size, gives size its due by presenting a profound yet lucid overview of what we know about its role in the living world. Bonner argues that size really does matter—that it is the supreme and universal determinant of what any organism can be and do. For example, because tiny creatures are subject primarily to forces of cohesion and larger beasts to gravity, a fly can easily walk up a wall, something we humans cannot even begin to imagine doing. Bonner introduces us to size through the giants and dwarfs of human, animal, and plant history and then explores questions including the physics of size as it affects biology, the evolution of size over geological time, and the role of size in the function and longevity of living things. As this elegantly written book shows, size affects life in its every aspect. It is a universal frame from which nothing escapes.

From Bacteria to Blue Whales

Animal Physiology: Mechanisms and Adaptations, 2e (PB)

A Public Health Problem of Global Concern

Plant Physiology

The Physiology of Fishes, Third Edition

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 Río 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 stoichiometry 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

Published by Sinauer Associates, an imprint of Oxford University Press.

Principles of Animal Physiology, by Chris Moyes and Trish Schulte, is designed to provide second- and third-year, undergraduate university students enrolled in animal physiology courses with an approach that balances its presentation of comparative physiology with mechanistic topics. The book delivers the fundamentals of animal physiology, while providing an integrative learning experience, drawing on ideas from chemistry, physics, mathematics, molecular biology and cell biology for its conceptual underpinnings.

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/

Rheostasis

Rome, Italy, 31 August - 3 September 2003

Environmental Physiology of Animals

Hearing

Molecular, Biochemical, and Cellular Perspectives

Multiple Sclerosis

This work offers a comprehensive re-examination and elaboration of homeostasis, a guiding principle in physiology that has received surprisingly little critical evaluation. Among the key topics addressed are questions concerning the competing demands of different regulatory systems within the body and the problem of maintaining equilibrium in such circumstances. The author makes the important point that the body does not always seek constancy of its internal environment, nor does it always react in ways that prevent change. On the contrary, sometimes physiological mechanisms actively promote change. These changes in regulated levels—termed rheostasis—are seen as having an adaptive value beyond a simple failure of homeostasis. This book compares and categorizes examples of rheostasis for a variety of physiological variables, and presents what is known about conflicts between different regulatory systems and their role in promoting the occurrence of rheostasis. Among other topics covered are weight loss during hibernation, calcium storage and reproduction, fever, and rates of fat deposition in adults. The work is an outstanding scholar, this integrative study represents a refreshing and essential new approach to one of the basic concepts in physiological science.

Significant changes have taken place in the policy landscape surrounding cannabis legalization, production, and use. During the past 20 years, 25 states and the District of Columbia have legalized cannabis and/or cannabidiol (a component of cannabis) for medical conditions or retail sales at the state level and 4 states have legalized both the medical and recreational use of cannabis. These landmark changes in policy have impacted cannabis use patterns and perceived levels of risk. However, despite this changing landscape, evidence regarding the short- and long-term health effects of cannabis use remains elusive. While a myriad of studies have examined cannabis use in all its various forms, often these research conclusions are not appropriately synthesized, translated for, or communicated to policy makers, health care providers, state health officials, or other stakeholders who have been charged with influencing and enacting policies, procedures, and laws related to cannabis use. Unlike other controlled substances such as alcohol or tobacco, no accepted standards for safe use or appropriate dose are available to help guide individuals as they make choices regarding the issues of if, when, where, and how to use cannabis safely and, in regard to therapeutic uses, effectively. Shifting public sentiment, conflicting and impeded scientific research, and legislative battles have fueled the debate about what, if any, harms or benefits can be attributed to the use of cannabis or its derivatives, and this lack of aggregated knowledge has broad public health implications. The Health Effects of Cannabis and Cannabinoids provides a comprehensive review of scientific evidence related to the health effects and potential therapeutic benefits of cannabis. This report provides a research agenda outlining gaps in current knowledge and opportunities for providing additional insight into these issues that summarizes and prioritizes pressing research needs.

Multiple sclerosis is a chronic and often disabling disease of the nervous system, affecting about 1 million people worldwide. Even though it has been known for over a hundred years, no cause or cure has yet been discovered—but now there is hope. New therapies have been shown to slow the disease progress in some patients, and the pace of discoveries about the cellular machinery of the brain and spinal cord has accelerated. This book presents a comprehensive overview of multiple sclerosis today, as researchers seek to understand its processes, develop therapies that will slow or halt the disease and perhaps repair damage, offer relief for specific symptoms, and improve the abilities of MS patients to function in their daily lives. The panel reviews existing knowledge and identifies key research questions, focusing on: Research strategies that have the greatest potential to understand the bio-logical mechanisms of recovery and to translate findings into specific strategies for therapy. How people adapt to MS and the research needed to improve the lives of people with MS. Management of disease symptoms (cognitive impairment, depression, spasticity, vision problems, and others). The committee also discusses ways to build and financially support the MS research enterprise, including a look at challenges inherent in designing clinical trials. This book will be important to MS researchers, research funders, health care advocates for MS research and treatment, and interested patients and their families.

The structural and chemical limitations to respiratory gas exchange existing between the ambient medium and the cell are comprehensively treated. Beginning with an examination of the natural oscillations of respiratory gases in both terrestrial and aquatic environments, Vertebrate Gas Exchange details the structures involved in connecting the medium (air or water), the morphometrics of capillary gas transfers, and gas transfer kinetics. Important features include details on measurement techniques associated with tissue capillary supply and gas exchange kinetics.

Fundamentals of Biomechanics

Centrarchid Fishes

Why Size Matters

The Complete Guide to Affiliate Marketing on the Web

Diversity, Biology and Conservation

Scientific Frontiers in Developmental Toxicology and Risk Assessment

Eckert Animal Physiology

Herbal Medicine

Neurobiology of Chemical Communication

Eckert Animal Physiology

Aquatic Toxicology

Genetics

Current Status and Strategies for the Future

Scientific Frontiers in Developmental Toxicology and Risk Assessment reviews advances made during the last 10-15 years in fields such as developmental biology, molecular biology, and genetics. It describes a novel approach for how these advances might be used in combination with existing methodologies to further the understanding of mechanisms of developmental toxicity, to improve the assessment of chemicals for their ability to cause developmental toxicity, and to improve risk assessment for developmental defects. For example, based on the recent advances, even the smallest, simplest laboratory animals such as the fruit fly, roundworm, and zebrafish might be able to serve as developmental toxicological models for human biological systems. Use of such organisms might allow for rapid and inexpensive testing of large numbers of chemicals for their potential to cause developmental toxicity; presently, there are little or no developmental toxicity data available for the majority of natural and manufactured chemicals in use. This new approach to developmental toxicology and risk assessment will require simultaneous research on several fronts by experts from multiple scientific disciplines, including developmental toxicologists, developmental biologists, geneticists, epidemiologists, and biostatisticians.

"Plant Physiology, Fifth Edition continues to set the standard for textbooks in the field, making plant physiology accessible to virtually every student. Authors Lincoln Taiz and Eduardo Zeiger have again collaborated with a stellar group of contributing plant biologists to produce a current and authoritative volume that incorporates all the latest findings. Changes for the new edition include: A newly updated chapter (Chapter 1) on Plant Cells, including new information on the endomembrane system, the cytoskeleton, and the cell cycle, A new chapter (Chapter 2) on Genome Structure and Gene Expression, A new chapter (Chapter 14) on Signal Transduction. Updates on recent developments in the light reactions and the biochemistry of photosynthesis, respiration, ion transport, and water relations. In the phytochrome, blue-light, hormone and development chapters, new information about signaling pathways, regulatory mechanisms, and agricultural applications. Coverage of recent breakthroughs on the control of flowering. Three new Appendices on Concepts of Bioenergetics, Plant Kinematics, and Hormone Biosynthetic Pathways As with prior editions, the Fifth Edition is accompanied by a robust Companion Website. New material has been added here as well, including new Web Topics and Web Essays."--P. 4 de la couv.

Aquatic Toxicology examines research findings on the chronic effects of pollutants on aquatic species. Understanding these chronic effects is vital to determining the impact of small concentrations of pollutants on aquatic life in rivers, estuaries, lakes, and coastal waters. Featuring research from renowned experts in the field, this book evaluates modern techniques in the fields of molecular biology and biochemistry. It is indispensable to aquatic toxicologists, aquatic biochemists, aquatic biochemists, fisheries scientists, industrial chemists, and researchers at federal, state, and university levels.

Centrarchid Fishes, also known as freshwater sunfishes, include such prominent species as the Largemouth Bass, Smallmouth Bass and Bluegill. They are endemic to Eastern North America where they form part of a multi-million dollar sports fishing industry, but they have also been widely introduced around the globe by recreational anglers, in aquaculture programs and by government fisheries agencies. Centrarchid Fishes provides comprehensive coverage of all major aspects of this ecologically and commercially important group of fishes. Coverage includes diversity, ecomorphology, phylogeny and genetics, hybridization, reproduction, early life history and recruitment, feeding and growth, ecology, migrations, bioenergetics, physiology, diseases, aquaculture, fisheries management and conservation. Chapters have been written by well-known and respected scientists and the whole has been drawn together by Professors Cooke and Philipp, themselves extremely well respected in the area of fisheries management and conservation. Centrarchid Fishes is an essential purchase for all fish biologists, ecologists, fisheries managers and fish farm personnel who work with centrarchid species across the globe.

Educating the Student Body

Cases and Problems

Biomolecular and Clinical Aspects, Second Edition

Principles of Animal Physiology

How Animals Process Energy, Nutrients, and Toxins

The Current State of Evidence and Recommendations for Research

An extensively revised third edition of this introduction to neuroethology – the neuronal basis of animal behaviour – for zoology, biology and psychology undergraduate students. The book focuses on the roles of individual nerve cells in behaviour, from simple startle responses to complex behaviours such as route learning by rats and singing by crickets and birds. It begins by examining the relationship between brains and behaviour, and showing how study of specialised behaviours reveals neuronal mechanisms that control behaviour. Information processing by nerve cells is introduced using specific examples, and the establishing roles of neurons in behaviour is described for a predator-prey interaction, toads versus cockroaches. New material includes: vision by insects, which describes sensory filtering; hunting by owls and bats, which describes sensory maps; and rhythmic movements including swimming and flying, which describes how sequences of movements are generated. Includes stunning photographs which capture the detail of the behaviour.

Building on their last revision of Roger Eckert's best-selling text, the author team of Randall, Burggren, and French are back and breathing new life into "Animal Physiology." The "Fifth Edition" highlights the latest breakthroughs in the field and offers refreshing new themes, all the while staying true to the enduring strengths that have made the book a longtime market-leader. With this edition more student help has also been included.

This collection of 60 cases covers the clinically relevant physiology topics that first- and second-year medical students need to know for a first-year physiology course and for USMLE Step 1. Organized by body system, the book presents case studies with questions and problems, followed by complete explanations and solutions including diagrams, graphs, and charts. This edition includes four new cases and more illustrations and flowcharts. A companion Website will offer the fully searchable online text.

Affiliate marketing is a highly profitable online advertising method in which Web site merchants pay independent third parties to promote the products or services of an advertiser on their Web site. In other words, affiliate marketing involves posting a company's banner on your Web site or blog and attempting to send visitors to their Web site. If someone clicks on that banner or goes to that site and buys something, you will be paid a commission. Affiliate marketing is now viewed as a key component of a company's online marketing strategy. In this new book you will learn how to master the art and science behind affiliate marketing. The keys to success in affiliate marketing are knowing what you are doing, devising a comprehensive and well-crafted advertising plan, and knowing the relationships between your Web site, search engines, PPC advertising, and campaign methodology. This exhaustively researched new book will provide everything you need to know to get you started.–From publisher description.

Eight Edition

Nerve Cells and Animal Behaviour

The Physiology of Change

WHO/OIE Manual on Echinococcosis in Humans and Animals

The Health Effects of Cannabis and Cannabinoids

Physiology

The global popularity of herbal supplements and the promise they hold in treating various disease states has caused an unprecedented interest in understanding the molecular basis of the biological activity of traditional remedies. Herbal Medicine: Biomolecular and Clinical Aspects focuses on presenting current scientific evidence of biomolecular or physiological systems from simple to complex animals. Comparisons show the similarities and differences in how animals function, but stress fundamentally similar adaptations in very different animals.

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. Included.

This volume is the newest release in the authoritative series issued by the National Academy of Sciences on dietary reference intakes (DRIs). This series provides recommended intakes, such as Recommended Dietary Allowances (RDAs), for use in planning nutritionally adequate diets for individuals based on age and gender. In addition, a new reference intake, the Tolerable Upper Intake Level (UL), has also been established to assist an individual in knowing how much is "too much" of a nutrient. Based on the Institute of Medicine's review of the scientific literature regarding dietary micronutrients, recommendations have been formulated regarding vitamins A and K, iron, iodine, chromium, copper, manganese, molybdenum, zinc, and other potentially beneficial trace elements such as boron to determine the roles, if any, they play in health. The book also: Reviews selected components of food that may influence the bioavailability of these compounds. Develops estimates of dietary intake of these compounds that are compatible with good nutrition throughout the life span and that may decrease risk of chronic disease where data indicate they play a role. Determines Tolerable Upper Intake levels for each nutrient reviewed where adequate scientific data are available in specific population subgroups. Identifies research needed to improve knowledge of the role of these micronutrients in human health. This book will be important to professionals in nutrition research and education.

Comparative Animal Physiology

Guide for the Care and Use of Laboratory Animals

From Environment to Cell

An Introduction to Psychological and Physiological Acoustics, Fourth Edition

Animal Osmoregulation

Obstructive Sleep Apnoea