

Animal Physiology. By Richard W. Hill, Gordon A. Wyse, and Margaret Anderson. 2nd edition. Sunderland, Massachusetts: Sinauer Associates; 2008, 770 pp. \$119.95, Hardcover. ISBN: 978-0878933174.

Animal Physiology differs from the typical physiology textbook in that it describes the principles of physiology that underlie all animals, rather than focusing exclusively on humans. It provides a comprehensive overview of physiological systems in a well-organized and concise manner by moving between description of general principles of physiology and specific examples of these principles from a variety of animal species. It is a wonderful textbook for any student of physiology.

The introduction begins by describing the importance of the interaction between an animal and its environment. Animals adapt to their environments, and understanding to what the animal must adapt guides our understanding of that animal's physiology. For example, animals that live in the desert must be able to tolerate extreme heat and dehydration. The next three chapters provide background material about membranes, enzymes, experimental techniques, and transport mechanisms.

The rest of the book is organized into sections based on function of different systems, which provide coherence between the systems discussed. For example, the Integrating Systems section includes chapters on the nervous, endocrine, and reproductive systems. This textbook provides astoundingly clear and detailed descriptions of physiological principles, despite the fact that it is describing all of animal physiology. The figures are well placed within the text and range from simple diagrams illustrating structural principles to figures from primary literature illustrating a change in our understanding of a system. A short list of references at the end of each chapter allows the interested reader a place to begin searching for more information, which can be supplemented by a much more extensive list of references in the back of the textbook. Summaries after each section within a chap-

ter and study questions after each chapter allow the student to ensure he or she is not missing any major concepts. In short, *Animal Physiology* is an excellent learning tool.

What distinguishes *Animal Physiology* from other physiology textbooks is its extensive use of examples from a wide variety of species to illustrate physiological principles. Each chapter begins with an example of the physiological system presented in action. For example, the chapter on digestion begins with a discussion of lactose intolerance and its variability across different human populations. Additional examples are integrated throughout the text in every chapter. There are also five "At Work" chapters, one after each part, to describe a particular example of that physiological system in much more detail, such as how marine mammals have respiratory adaptations that allow them to dive for more than an hour at a time and to depths greater than 600m. Through these examples, the concepts presented are placed into a greater context, elevating them from scientific facts to be learned to interesting ideas to be investigated further.

In summary, *Animal Physiology* is the textbook for any student of physiology who is as interested in learning answers as he or she is in finding new questions.

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Heart Failure: A Practical Approach to Treatment. Edited by William T. Abraham and Henry Krum. New York: McGraw-Hill Medical; 2007, 322 pp. \$90.95 Hardcover. ISBN: 978-0071443159.

The management of chronic diseases is one of the great triumphs and one of the great discouragements in modern American medicine. Heart failure is no exception. With its sharp increase in prevalence, every clinician will encounter patients with this condition. It is estimated that more than 5 million

Americans have been diagnosed with heart failure. This leads to an annual cost exceeding \$33 billion. Luckily, the progression of heart failure can be greatly reduced by early treatment. Abraham and Krum have contributed a nicely concise, yet comprehensive review of the evidence-based treatment modalities.

The book is cleanly divided into 22 exceedingly readable chapters of 10 to 20 pages, written by various experts in each field. The early chapters provide a background and historical framework to discuss the definitions of heart failure along with the epidemiology, pathophysiology, and clinical presentation. However, the true substance and strength of the work revolves around the individual chapter discussions of each particular treatment modality from non-pharmacologic treatments to specific medications to surgery and transplantation options.

Each chapter is thoroughly referenced with all of the relevant and up-to-date clinical studies should the clinician want to refer to the detailed primary literature. I particularly appreciated the concluding chapter, which served as a very helpful recapitulation of the main objectives of each section. This chapter included efficient “at-a-glance” algorithms for the clinician to follow with regard to establishing an accurate diagnosis and subsequent treatment approach.

Additionally, I was impressed by the lengthy chapter on the use of digitalis in heart failure patients, since guidelines in this area have previously been muddled. The medication and its pharmacodynamics are discussed in impressive detail while still staying on point for the busy clinician. The authors successfully distill the relevant clinical trials and subsequently consolidate the findings into a clear set of recommendations for each patient population.

However, one weakness is the chapter on the use of diuretics, which stands out with its convoluted sentence structure and relatively poor organization. This difficulty is exacerbated by overly complicated figures that contribute little and seem at odds with the otherwise succinct nature of this book. In fact, the entire book’s graphics are visu-

ally uninteresting black-and-white figures and tables. I found this disappointing, as they do not draw the reader’s attention.

Despite these shortcomings, *Heart Failure: A Practical Approach to Treatment* succeeds handsomely in exactly what it sets out to accomplish. The book provides a crisp and inclusive one-stop clinical resource for the management of patients with heart failure.

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Genomics and Evolution of Microbial Eukaryotes. By Laura Katz and Debashish Bhattacharya. Oxford, UK: Oxford University Press; 2008, 256 pp. \$60, Paperback. ISBN: 978-0199229055.

Genomics and Evolution of Eukaryotic Microbes by Laura A. Katz and Debashish Bhattacharya is a concise, up-to-date text on microbial eukaryotic (protists) diversity and genome evolution. Understanding the diversity of protists is of paramount importance, considering that these microorganisms affect both our environment and health. Indeed, this group of organisms contains some of the deadliest known pathogens to men, such as the causative agent of malaria: *Plasmodium falciparum*.

With a goal to convey a basic appreciation and understanding of the topic to a wide scientific community, the authors have assembled a volume of 15 articles representing the analyses and interpretations of leaders in the field. The first section provides an overview of the tremendous diversity and phylogeny of protists, which amount to approximately 200,000 described species. This section sets the stage for the proceeding sections by presenting current hypotheses in the field. Part two addresses the evolutionary genomics of protists via the examination of a few examples that exemplify the unique genomic architecture represented within the different clades. Finally, the third section of the text aims to provide the reader with an in-depth knowledge of synthesized data from the completed genomes of protists, in-

