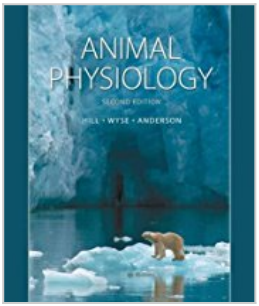

Animal Physiology, Second Edition

By Richard W. Hill, Gordon A. Wyse, Margaret Anderson

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Animal Physiology presents all the branches of modern animal physiology with a strong emphasis on integration of physiological knowledge, ecology, and evolutionary biology. Integration extends from molecules to organ systems and from one physiological discipline to another. The book takes an entirely fresh approach to each topic. Its full-color illustrations include many novel, visually effective features to help students learn. Each of the 24 main chapters starts with a brief animal example to engage student interest and demonstrate the value of the material that will be learned. The book includes five additional, briefer At Work chapters that apply students newfound physiological knowledge to curiosity-provoking and important topics, including diving by marine mammals, the mechanisms of navigation, and muscle plasticity in use and disuse. The book is committed to a comparative approach throughout. Whereas mammalian physiology is consistently treated in depth, emphasis is also given to the other vertebrate groups, arthropods, molluscs, and as appropriate additional invertebrates. Concepts and integrative themes are emphasized while giving students the specifics they need. The whole animal is the principal focus of this book. The pages are filled with information on everything from knockout mice and enzyme chemistry to traditional organ physiology, phylogenetic analysis, and applications to human affairs. Always, the central organizing principle for the array of topics presented is to understand whole animals in the environments where they live. Concepts from chemistry, physics, and mathematics are explained so the book will be accessible to science students at the sophomore or higher level. Complex principles are developed clearly and carefully, to help students understand important concepts in sufficient depth without being overwhelmed. Pedagogical aids include embedded summaries throughout chapters, study questions, partially annotated reference lists, an extensive glossary, appendices, and an upgraded index. For all three authors, teaching physiology to undergraduate students has been a lifelong priority. The opening four chapters provide background material on physiological basics, cell molecular concepts, genomics, transport of solutes and water, ecology, and evolutionary biology. The remaining chapters are organized into five sections: * Food, Energy, and Temperature * Integrating Systems * Movement and Muscle * Oxygen, Carbon Dioxide, and Internal Transport * Water, Salts, and Excretion

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Editorial Review

Review
The authors have done a great job of outlining the major issues important for understanding metabolism in a variety of animals (invertebrate and vertebrate) and environmental stresses. They make excellent use of figures and balloon captions that capture the reader's attention. There are also several nice examples from the current and classic literature that will appeal to many students. --Grant McClelland, McMaster University (on Chapter 7)

About the Author
RICHARD W. HILL is Professor in the Department of Zoology at Michigan State University, USA and a frequent Guest Investigator at Woods Hole Oceanographic Institution. His research interests include: temperature regulation and energetics in birds and mammals, especially neonates; and marine sulphur physiology, especially in the contexts of biogeochemistry and animal--algal symbioses. GORDON A. WYSE is Professor of Biology and Associate Dean for Academic Affairs, College of Natural Sciences and Mathematics, at the University of Massachusetts, Amherst, USA. His research uses caterpillars and Limulus as model organisms to explore the neural circuits and neurotransmitters underlying feeding behaviour and other behaviour patterns. MARGARET ANDERSON is Professor of Biological Sciences and Director of the Programme in Neuroscience at Smith College, USA. Her research interests include the functional properties of excitable cells.

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