Biological Science (With CD-ROM)

Scott Freeman
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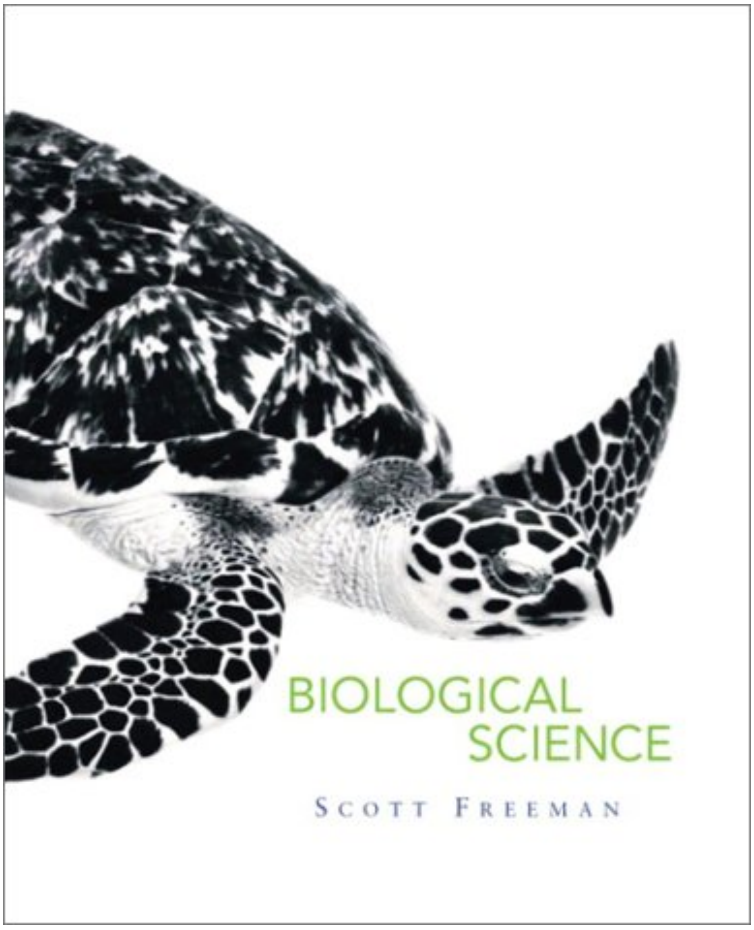

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Scott Freeman : Biological Science (With CD-ROM) before purchasing it in order to gage whether or not it would be worth my time, and all praised Biological Science (With CD-ROM):

6 of 6 people found the following review helpful. I love this text!By S SquaredI've only been using this book for 2 weeks and I already enjoy it, which is a big thing to say for a textbook. The last general bio book I had was full of information that drowned out the overall point each section within the chapter was trying to bring. It was full of biochem and technical talk that wasn't needed for this level of class.Freeman's book brings a refreshing approach to writing about biology. Each chapter and section within each chapter, provides the student with the "meat and bones" of what they need to know. It's not hard to comprehend the take home message and to see how each little component adds up to make a larger component. This book has made me love biology again and understand why I returned to school. Good job Scott Freeman!2 of 2 people found the following review helpful. excellent illustrations and multimedia materialBy D. A. Redolar RipollBiological Science is acclaimed for its clear. The book has a friendly style, excellent

illustrations and multimedia material. Connect with real-life biological applications and scientific problems through boxes. In my opinion, Biological Science is the best textbook regarding life and biology.0 of 0 people found the following review helpful. Excellent for deeper study of an important topicBy DmanFor the price this book will get you up to speed on all the fairly current thought processes that are now being worked on by the scientific community with regard to modern biological study. I'm using it to take a free- self directed -online biology course offered by MIT. Even though it's a few years old I am blow away at how in depth this text goes compare to Biology 101 I took in college.The book was only 50 cents with prime shipping... How could I go wrong.

Infused with the spirit of inquiry, Freeman's Biological Science helps teach readers the fundamentals while introducing them to the excitement that drives the science. By presenting unifying concepts and methods of analysis, this book helps its readers learn to think like biologists and gives them the tools they need for success in understanding more advanced subjects. A nine-part organization covers topics under the general headings of: the origin and early evolution of life, cell functions, gene structure and expression, developmental biology, evolutionary patterns and processes, the diversification of life, how plants work, how animals work, and ecology. For science enthusiasts who want to be inspired with a sense of wonder and excitement that makes learning about biology interesting and fun.

From the Back CoverInfused with the spirit of inquiry, Freeman's Biological Science helps teach readers the fundamentals while introducing them to the excitement that drives the science. By presenting unifying concepts and methods of analysis, this book helps its readers learn to think like biologists and gives them the tools they need for success in understanding more advanced subjects. A nine-part organization covers topics under the general headings of: the origin and early evolution of life, cell functions, gene structure and expression, developmental biology, evolutionary patterns and processes, the diversification of life, how plants work, how animals work, and ecology. For science enthusiasts who want to be inspired with a sense of wonder and excitement that makes learning about biology interesting and fun.About the Author Scott Freeman received his Ph.D. in Zoology from the University of Washington and was nominated for an Excellence in Teaching Award in 1989. He was subsequently awarded an Albert Sloan Postdoctoral Fellowship in Molecular Evolution at Princeton University to investigate how generation time affects the rate of molecular evolution. Dr. Freeman's research publications explore a range of topics from the behavioral ecology of nest parasitism to the molecular systematics of the blackbird family. As an affiliate faculty member at the University of Washington, he has taught courses in evolution and has played an active role in the redesign of the general biology course. He is currently teaching the majors general biology course using an inquiry-based approach that emphasizes the logic of experimental design and the mastery of core concepts required for success in upper-level courses. Dr. Freeman is the co-author of Evolutionary Analysis, which presents evolutionary principles in the same spirit of inquiry that drives research. Excerpt. Reprinted by permission. All rights reserved. Faculty who teach introductory biology may have the most exciting and difficult job on campus. The excitement springs from the breathtaking pace of advances in the biological sciences and the wide array of training and career options that are now open to prospective majors; the difficulty lies in introducing students to an already imposing and rapidly increasing number of facts and concepts. When I took introductory biology as an undergraduate in 1975, faculty members were coping with the information explosion by extending the length of their introductory courses and using ever-larger textbooks. Today we don't have those options. Course length is capped at one year and most texts already run in excess of 1100 pages. Over the past decade in particular, presenting a fact-based, synoptic overview of what we know about biology has become increasingly untenable. In short, the information explosion has changed our jobs. Instead of asking students to focus primarily on memorizing facts, more and more instructors are focusing their course on teaching students how to think like a biologist. Why a New Introductory Textbook? I wrote Biological Science to support professors who want their students to experience a more inquiry-driven approach in introductory biology. My goal was to write a book infused with the questions and the enthusiasm for learning that drive biological research. To help students understand how biologists think, each chapter is built around a series of questions that are fundamental to the topic being addressed. While exploring each question, the presentation incorporates data for students to interpret, offers evidence for competing hypotheses, introduces contemporary researchers, refers to work in progress, and highlights what researchers don't yet know. My aim was to help you teach biology the way you do biologyby asking questions and analyzing data to find answers. At the same time, I made a strong commitment to covering the basics. We teach students who want to become doctors, researchers, science journalists, teachers, and conservationists. We have an obligation to prepare them for success in upper division courses, MCATs, and GREs, and to introduce the canon of facts and concepts that they must master to major in biology. Instead of listing these facts and concepts in an encyclopedic manner, however, Biological Science introduces them in the context of answering a question. In this textbook, facts become tools for understandingnot ends in themselves. In addition to finding an appropriate balance between covering facts and exploring the scientific process, the level of the presentation is crafted to be appropriate for introductory Students. Sections and sub-sections in the text begin with an overview of what question is being asked and end with commentary that helps students pull the material together. Instead of getting lost in the details of how an

experiment was done, the text emphasizes why it was done and what the data mean. Because beginning students are concerned about themselves and their world, most chapters explore how the topic relates to human welfare and all chapters end with an essay inspired by medical, commercial, or environmental concerns. The Forest and the Trees: Helping Students to Synthesize and Unify In addition to coping with an enormous amount of content in this course, instructors have to manage its diversity. In Biological Science, the emphasis on inquiry and experimentation provides ,a unifying theme from biochemistry through ecosystem ecology. In addition, the text highlights the fundamental how and why questions of biology. How does this event or process occur at the molecular level? In an evolutionary context, why does it exist? The majority of chapters include at least one case history of an analysis done at the molecular level. Natural selection is introduced by exploring the evolution of antibiotic resistance via point mutations in. the RNA polymerase gene of Mycobacterium tuberculosis. In the diversity unit, students learn about extracellular digestion in fungi by exploring experiments on the regulation of cellulase genes. A section of the behavior chapter features research on a gene involved in fruit fly foraging behavior. These are just three of many examples. Similarly, evolutionary analyses do not begin and end with the evolution unit. Concepts like adaptation, homology, natural selection, and tree thinking are found in virtually every chapter. Unit 1, for example, presents traditional content in biochemistryranging from covalent bonding to the structure and function of macromoleculesin the context of chemical evolution and the origin of life. Meiosis is analyzed in terms of its consequences for generating genetic variation and making natural selection possible. Shared mechanisms of DNA repair and pattern formation are explained in the context of gene homologies. The overriding idea is that molecular and evolutionary analyses can help unify introductory biology courses, just as molecular tools and evolutionary questions are helping to unify many formerly disparate research fields within biology. Supporting Visual Learners Clear, attractive, and extensive graphics are critical to our success in the classroom. To emphasize the importance of analyzing figures in biology and to support students who learn particularly well visually, the book's art program is both extensive and closely interwoven with the manuscript. Each figure originated with rough sketches that I made while working on the first draft manuscript, which Dr. Kim Quillin then revised to increase clarity and improve appearance. Throughout this process, our intent was to build an 4rt program that is easy to read and that supports the book's focus on thinking like a biologist. A quick glance through the book should convince you that the art is as distinctive as the text. Color is used judiciously to highlight the main teaching points. Layouts flow from top to bottom and left to right, and extensive labeling lets students work through each figure in a step-by-step manner. Questions and exercises in the captions challenge students to actively interpret the graphics. The overall look and feel of the art is clean, clear, and inviting. Serving a Community of Teachers By de-emphasizing the encyclopedic approach to learning biology and focusing more on the questions and experimental tools that make biology come alive, our hope was to offer a book that is more readable and attractive to students and teachers alike. Embarking on an introductory course that launches a career in biology should be exciting, not anxiety-ridden. Learning concepts well enough to apply them to new examples and datasets may be more challenging for some students than memorizing facts, but it is also more compelling. By motivating the presentation with questions, and then using facts as tools to find answers, students of biology may come to think and feel more like the people who actually do biology. I've always viewed working on this project as a gift, because it was a chance to serve the community of bright, enthusiastic, and dedicated people who teach this course. Thank you for your devotion to biology, for your commitment to your students, and for considering Biological Science. Teachers change lives. For Students It's difficult to imagine a more exciting time to launch a career related to biology. The advent of whole-genome sequencing and a rising interest in conservation biology are giving new momentum to a knowledge explosion that began several decades ago. From biochemistry, cell biology, and genetics to physiology, ecology, and evolution, the pace of discovery in the biological sciences is nothing short of astonishing. Your instructors are introducing you to what may currently be the most dynamic of all human endeavors. Delving into biology through this introductory course should help you further two important goals. The first involves personal growth. The topics you'll be learning about pervade your life. Biology is about the food you eat and the air you breathe. It's about the history of life on Earth and the organisms that share the planet with us now. You'll be learning why we get sick, how we reproduce, how plants make food from sunlight. Biology is so basic that understanding it is a fundamental part of becoming an educated person. Taking this course can open your eyes, help you see and think about life in a new way, and fuel a lifelong curiosity about the natural world. The second goal of a course like this involves a potential career path. By preparing you for more advanced classes and a major in the biological sciences, this introductory course will be a crucial first step in acquiring the background you'll need to enter a biology-related profession and help solve pressing problems in health, conservation, or agriculture. Many of the great challenges facing us todayfrom climate change and species extinctions to antibiotic resistance and emerging virusesdemand expertise in biology. The purpose of this text is to help you make that important first step toward majoring in the biological sciences andtpursuing a career related to biology. Its goal is not only to be a valuable reference for the fundamentals but also to introduce you to the excitement that drives this science. The presentation focuses on the questions that biologists ask about the natural world and how they go about answering them. Its objective is to introduce the core ideas that biologists use to make sense of the massive amount of information emerging from laboratories around the world. The overall theme in this text is to help

you learn how to think like a biologist. No matter what path your career takes, it is virtually certain that you will need to evaluate new hypotheses, analyze new types of data, and draw conclusions that change the direction of your work almost daily. Many of the facts you learn ...