PREFACE

What a triumph! Today, biologists offer us a sweeping story of life's unity and diversity—how living things are built, how they work, how they got that way, and where they came from. In that story are fabulous clues to human health, reproduction, our connections with everything else on Earth, even our collective survival.

With this book, we offer a coherent introduction to that story. We weave examples of problem solving and experiments through its pages to show the power of thinking critically about the natural world. We highlight core concepts, current understandings, and research trends for major fields of biological inquiry. We explain the structure and function of a broad sampling of organisms in enough detail so students can develop a working vocabulary about life's parts and processes. We selectively introduce applications that may help students sense the value of learning the core concepts.

Teachers of many millions of students already know about the effectiveness of an approach that integrates current topics with take-home lessons. They recognize, as we do, that nearly all students will stick with lively, relevant, easy-to-follow writing. Students can "get" the big picture of life—and become confident enough to think critically about the past, present, and future on their own. This is biology's greatest gift.

Make It Relevant

Biological inquiry now reaches into our lives in many direct and indirect ways. *What students learn today will have impact on how they make decisions tomorrow*—in the voting booth as well as in their personal lives.

HOW WOULD YOU VOTE? Each chapter opens with a current issue that relates to its content. For instance, protein synthesis chapter starts with how a bioweapon in the news—ricin—kills by unraveling ribosomes. The microevolution chapter starts with how a selective agent —a rodenticide—favors "super rats." Recognizing that the current generation is at ease with music videos, we created a custom *videoclip* about each introductory issue. These unique videos, in the student CD *and* instructor's Media Manager, are dynamic lecture launchers.

We ask students, *How would you vote on research or on an application related to such issues?* We return to the question in more depth at the end of the chapter. All over the country, students will vote *on-line* and access campuswide, statewide, and nationwide tallies. This interactive approach to issues reinforces the premise that individual actions can make a difference.

Make It Easy To Follow

THE BIG PICTURE As students start each chapter, they get *"the big picture"*—a mini-overview on-page and in video format. Each big-picture concept has a boxed green title. We repeat these titles at the top of appropriate text pages as ongoing reminders of how core concepts fit together.

HIGHLIGHTED KEY POINTS Students often complain that their textbooks are dry and boring. We opt for a conversational style that holds their attention, without sacrificing clarity. We encourage them to focus on the flow of content rather than hunting for bits they may be tested on. How? By highlighting the key points for them, in blue boxes at the end of each section. We keep them on target with a *running in-text summary*, and with a *section-by-section summary* at the chapter's end.

READ-ME-FIRST ART *Read-me-first diagrams* help students who are comfortable with visual learning as well as with reading. For a preview of where their reading will take them, students can first walk step by step through the art in each text section. We offer the same art in narrated, animated form on the Media Manager lecture tool and the student CD. Repeated exposure to visual material reinforces understanding, engages multiple learning styles, and allows self-paced review of challenging biological concepts.

Make It Brief, With Clear Explanations

To keep book length manageable, we were selective about which topics to include while allocating enough space to explain those topics clearly. If something is worth reading about, why reduce it to a factoid? Factoids invite mind-numbing memorization, a study habit that will not help students develop their capacity to think critically about the world and their place in it.

For instance, you can safely bet that most nonmajors simply do not want to memorize each catalytic step of crassulacean acid metabolism. They *do* want to learn about the biological basis of sex, and many female students want to know what will be going on inside them if and when they get pregnant. Good explanations can help them make their own informed decisions on many biology-related issues, including STDs, fertility drugs, prenatal diagnoses of genetic disorders, gene therapies, and abortions. Over the years, a number of student readers have written to tell us they devoured such material even when it was not assigned.

Our choices for which topics to condense, expand, or delete were not arbitrary. They reflect three decades of feedback from teachers throughout the world.

Offer Easy-to-Use Media Tools

Each chapter ends with a *Media Menu*. The menu directs students to the free CD, which starts with an issues-oriented *video* and an animation of *the big picture*. The menu also lists all *read-me-first animations*, and most of the additional animations and interactions.

Our readers have free access to an exclusive online database—*InfoTrac College Edition*, a full-text library of more than 4,000 periodicals. The Media Menu also lists sample articles, examples of *web sites* relevant to that chapter, and an expanded *How-Would-You-Vote* question.

A free *BiologyNow* CD-ROM in each book is a portal to all CD- and web-based learning tools. It is an easy, integrated way for students to do homework and assess how well they understand it. After reading a chapter, students go to http://biology.brookscole.com/starr6, enter the access code packaged with their book, and take a *diagnostic pre-test*. Based on their individual answers, a personalized learning plan directs them to text sections, art, and animations that explain questions they answer incorrectly. Students can e-mail pre-test and *post-test* results to instructors. Ideal for homework assignments, the self-grading pre-tests also can flow directly into WebCT or Blackboard gradebooks when the instructor uses the WebTutor™ ToolBox course management tool that is offered free with this book.

vMentor is a free online biology tutorial service available from 6 AM to 12 PM Monday through Saturday. For review, *interactive flashcards* define all of the book's boldface terms and have audio pronunciation guides.

InfoTrac and an annotated list of web sites make research on the pros and cons of an issue a snap. After students research the *How-Would-You-Vote* question, they can cast their vote and also see at once how others have voted. They can email information about their research into the issue, and their vote, to instructors.

MEDIA TOOLS

Media Menu End-of-chapter menu listing art on the CD-Rom, InfoTrac links, web site links, how-would-you vote question instructor, by section.

Resources Integrator All of the media for the book integrated for instructors, by section.

BiologyNow™ Diagnoses which topics students have not yet mastered and creates customized learning plans to focus their study and review.

How Would You Vote? Invitation to research and vote on a controversial question.

vMentor Free on-line help with homework, through two-way voice communication and through a computer whiteboard. Restrictions apply.*

InfoTrac College Edition Exclusive online, searchable database of periodical, plus exercises that can help guide student research.

Interactive Flashcards Definitions and audio guides to pronouncing all boldface terms in the text.

Web Sites Section-by-section annotated lists to the best biology on the Web. Internet exercises to guide research.

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CECIE STARR, *November 2004*

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