Preface

It is not an exaggeration to say that there has never been a better time to study biology. Nearly every one of us is curious about the natural world; that is why ou popular culture is filled with books, movies, TV shows, comic strips, and video g that display biological wonders and challenge us to think about important biolo concepts. While some people *say* that they don't like biology (or, more often, scie in general), nearly all will admit that the subject *does* have a significant impact o their life through its connections to medicine, agriculture, environmental issues, psychology, forensics, and myriad other areas. And yet, despite this inherent inte it can be a struggle for nonscientists to engage in the subject. One reason is that today's students have a wide variety of learning styles. Some enjoy reading, while others prefer to study pictures; still others learn best from listening to explanatio writing *Campbell Essential Biology*, the authors hope to help instructors motivat educate the next generation of citizens by tapping into the inherent love of natu that we all share and the various learning styles that we all display.

Goals of the Book

While our world is rich with "teachable moments" and learning opportunities, the ongoing growth of knowledge threatens to suffocate a curious person under an avalanche of information. Neil Campbell conceived of *Essential Biology* as a tool for helping instructors and students focus on the most important areas of biology within a single semester by organizing the material within four core areas: cells, genes, evolution, and ecology. Neil's vision, which we carry on and extend in this edition, has enabled us to keep *Campbell Essential Biology* manageable in size without being superficial in developing the concepts that are most fundamental to understanding life. As Neil did, we take the "less is more" mantra in education today to mean fewer topics and more focused explanations, not content that is more diluted.

In conversations with instructors and students around the nation, we have noticed some important trends in how biology is taught. In particular, many instructors voice a desire to achieve three goals in their course: to engage students by relating the core content to their lives, to clarify the process of science (that is, the scientific method in action), and to demonstrate how evolution is the overarching theme of biology. To help achieve these goals, each chapter of our book includes three important features. First, an opening section called Biology and Society highlights a connection between the chapter subject and students' lives. Second, a section called The Process of Science describes the key steps in the scientific process using a classic or modern experiment (this new edition has one such section in every chapter). And third, a concluding Evolution Connection section relates the chapter to biology's unifying theme.

New to This Edition

In this edition of *Campbell Essential Biology*, we go eve ther to help students grapple with the pedagogical goa edition:

- **Chapter Threads** Every chapter in *Campbell Essenti Biology* has its own unifying chapter thread woven throughout. A chapter thread is a high-interest topic helps to demonstrate the relevance of the chapter sub example, Chapter 3 ("The Molecules of Life") opens Biology and Society section on lactose intolerance. T is expanded upon at several points in the chapter. At appropriate point, a Process of Science section explai biologists tracked an important mutation related to l tolerance to a chromosomal spot outside the gene its Finally, the chapter ends with an Evolution Connecti section that describes the recent evolution of lactose and intolerance. By relating this compelling topic to pedagogical goals for this edition, the chapter thread reinforces the relevance of the chapter's content.
- **Appealing New Look** We all know that learning b with engagement. Students only learn when their at is focused on the material—in other words, to learn content, you must want to read the book! Accordin have significantly updated the look and layout of C *Essential Biology* through a new partnership with th acclaimed publishing house Dorling Kindersley Ltd ("DK"). DK is famous for books that grab and keep attention, and we believe that our partnership with significantly improved the look of *Campbell Essenti Biology*, providing a more inviting reading experien

r Navigation of the Book We all know that biology g topic with a lot of details. Another goal of our new esign is to help readers find the information they want ly so that they spend less time searching, more time ng. The layout of the book has been revised in several that increase the efficiency of studying. For example, ed tabs help readers quickly locate chapters and the topics within them; major sections nearly always at the top of a left-hand page (the most logical place); equent Checkpoint boxes—linked to a check icon n the text—are located in the corners of pages and the f sections. The Checkpoints help readers assess their ng as they read.

gy Revamped Ecology is gaining importance within ology curriculum and is one of the best ways to interest nts in the world around them. In this edition of *bell Essential Biology*, the ecology unit has been largely tten by new coauthor Jean Dickey, of Clemson rsity. Jean used her expertise as an experienced teacher riter to breathe fresh life into this topic. By making a connection between ecological principles and nmental issues, the ecology chapters show students *hey* can have an impact on the environment and our s future.

oved Illustration Program Through conversations tudents and instructors, we know that many students be themselves as visual learners. To try to help those who learn best from pictures, we have created a new f figure. Called *visual organizer figures*, these new s group information into categories using strong s and short descriptive phrases, allowing students to a glance how information can be organized. ionally, references to figures within the text are d near the figure itself and are highlighted in a bold color, enabling students to navigate quickly between xt and figures. And 75% of the photographs in this n are new, helping to create an engaging visual ience for the reader.

r eBook For students who prefer to study online, an ved eBook provides full access to the text wherever is an Internet connection. The online textbook is cal to the printed version in appearance, and it allows nts to add annotations, consult an interactive glossary, follow links to new information, and use a Google-based search function.

- **More BioFlix™ 3-D Animations** With this edition, we continue to expand and update the resources and supplements available to instructors and students. Accordingly, we have expanded our suite of BioFlix 3-D Animations, which use dynamic, cutting-edge, three-dimensional graphics to help students visualize complex processes. Our newest BioFlix animations focus on the mechanisms of evolution, the carbon cycle, population ecology, and homeostasis.
- **Video Tutor Sessions** For the last edition, we introduced a set of MP3 Tutor Sessions intended to help students learn vocabulary by hearing it used in context by lead author Eric Simon. New to this edition is a suite of Video Tutor Sessions hosted by Eric Simon. Featuring graphics clearly explained by Eric's narration, these new video podcasts walk students through difficult topics—for example, demonstrating how a DNA profile is generated, working through genetics problems, and manipulating models of DNA. Because both the MP3 Tutor Sessions and Video Tutor Sessions are hosted by the textbook's lead author, students can learn from a single, consistent voice.
- **MasteringBiology™** Many instructors wish to assess student learning outside the classroom. To help address this need, we have created a new version of MasteringBiology, a powerful study and assessment tool that is proving highly successful with the Campbell majors textbook. The *Campbell Essential Biology* version of MasteringBiology is loaded with content from the book and can provide instructors with previously unavailable insights into student effort and comprehension.

The simple fact that nonscientists greatly outnumber scientists reminds us of the importance of students who are not science majors. And attitudes about science and scientists are often shaped by a single required science course—*this* course. We hope we can tap into the innate love of nature that nearly all of us feel and nurture it into a genuine love of biology. In this spirit, we hope that this textbook and its supplements will help every reader make biological perspectives a part of his or her personal worldview. Please let us know how we are doing and how we can improve the next edition of *Campbell Essential Biology*.

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