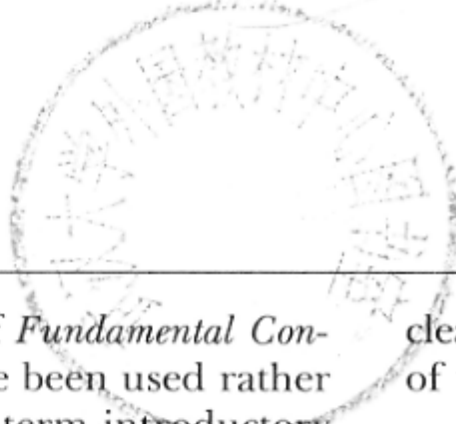


Preface



Previous editions of *Fundamental Concepts of Biology* have been used rather extensively in one-term introductory courses that emphasize a principles approach. We are grateful for this wide acceptance and believe it signifies that many instructors agree with the basic philosophy and goals that underlie our book.

Our philosophy is, simply, that a knowledge of biology is important and useful in the life of every person. To support and enhance this philosophy, we have tried to adhere to a set of specific goals. One of these is to present major topics that are of great importance in the field of biology and that also may have an important impact on our everyday lives. Toward this endeavor we emphasize, throughout the text, the fundamental concepts underlying these major topics rather than dwelling on technical terminology or inundating the reader with countless facts. We do not deny the great importance of facts in science, but believe that it is more meaningful to students in an introductory course to

clearly see the forest before learning the names of the trees.

Another goal is to provide a background to the subject matter that will help the reader interpret and evaluate the types of biological information that appear frequently in the news media and in popular periodicals. For example, a basic knowledge of the principles of genetics, nutrition, and cell biology greatly help a person understand cloning, gene splicing, diet fads, and new cancer drugs.

A third goal is to emphasize readability so that the text material would flow smoothly, be clearly expressed, and maintain reader interest. It is our intent that average college freshmen be able to read and comprehend this book with no additional help.

Finally, we have tried to provide a variety of study aids, such as frequent concept summaries throughout each chapter, study questions at the ends of the chapters, and an extensive glossary and index. A study guide with chapter outlines and quizzes is also available to the student.

Previous users may wish to know how this edition differs from the previous one. This revision encompassed three areas. First, an extensive, new illustration program was introduced to better support the text material. Consequently, much of the line art in the text is original and, we believe, unusual.

Second, all material retained from the previous edition was closely examined and brought up to date with new information if necessary.

Finally, we rearranged the placement of a few chapters, added new material on major organ systems, nutrition, photosynthesis, development, the biosphere, organismic interactions, and pollution problems. We also included human examples wherever they seemed appropriate.

As instructors and authors, we welcome feedback from users of the textbook, whether from students or teachers. The publisher helps us by having our manuscript reviewed by other biologists prior to publication; nevertheless, we welcome additional suggestions for improvements or changes.

One final note on the text. We have made a sincere effort to show equal treatment of the sexes; however, we also wished to avoid awkward word constructions. If an occasional "he" has slipped by us, we hope the reader will realize our good intentions.

We owe a debt of gratitude to many individuals in preparing this edition, especially Fred Corey, Stella Kupferberg, Linda Indig, and Kathy Bendo at John Wiley for guiding the text through the many steps required for publication. Jeff Erickson, our freelance artist, provided most of the line art illustrations in the text. For reviewing and editing the manuscript we thank Drs. Dean Beckwith, George M. Bleekman, Jr., Elmer R. Brown, Roy D. Dick, Ann Marie DiLorenzo, Laurence A. Larson, and S. K. Mankan. Without the help of these individuals, textbooks would never get published.

Gideon E. Nelson

Gerald G. Robinson