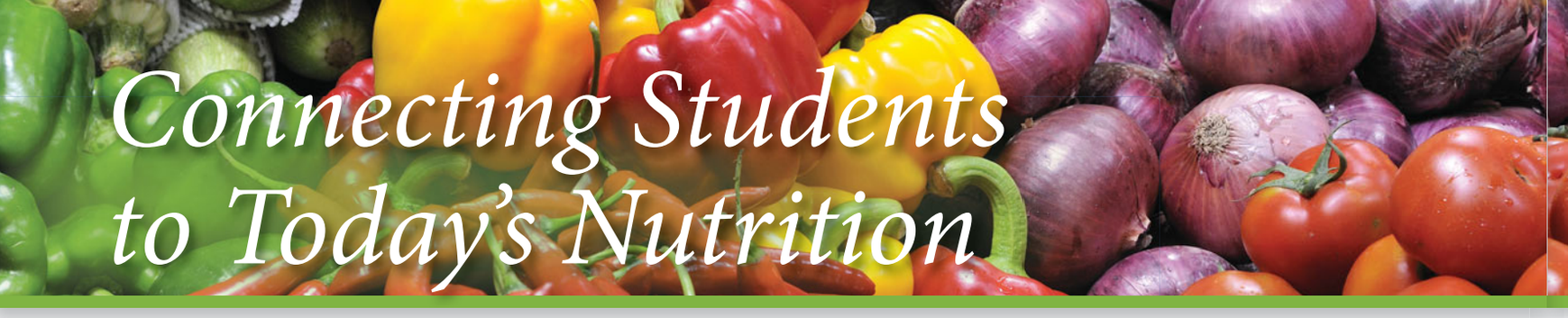
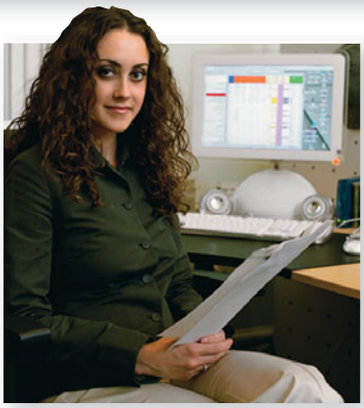


Connecting Students to Today's Nutrition



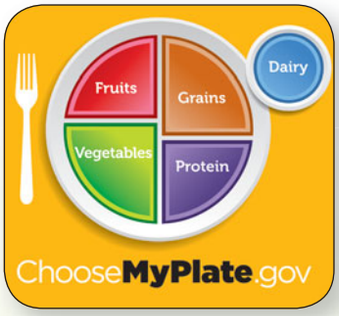
Our Intended Audience

This textbook was developed for students pursuing nutrition and health science careers as well as those wanting a better understanding of how nutrition affects their lives. Because this course often attracts students from a broad range of majors, we have been careful to include examples and explanations that are relevant to them and to include sufficient scientific background to make the science accessible to them. The appendices help students who wish to learn more or need assistance with the science involved in human physiology, chemistry, and metabolism.

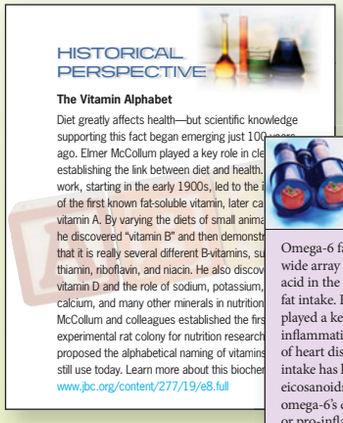
To better bridge the span of differing science backgrounds and to enhance student interest and achievement of course objectives, we organized the presentation of the material within chapters to flow seamlessly from concrete to abstract learning. In chapters focusing on nutrients, for example, concrete concepts, such as food sources of the nutrients and recommended intakes, are introduced early in the chapter to create a framework for more abstract concepts, such as digestion and absorption.

Accurate, Current Science that Engages Students

A key goal of this text is to present scientific content that is reliable, accurate, and up-to-date. This text incorporates coverage of recent nutrition research, as well as the recent updates to consumer guidelines—Dietary Guidelines for Americans 2010, MyPlate, and *Healthy People 2020*. It also provides the in-depth coverage students need to fully understand and appreciate the role of nutrition in overall health and to build the scientific knowledge base needed to pursue health-related careers or simply live healthier lives. To enhance these strengths and promote greater comprehension, current research findings and peer-reviewed references are incorporated along with artwork that complements the discussions. The presentation of complex concepts was scrutinized to ensure that they are presented using clear, streamlined, precise, and student-friendly language. Timely and intriguing examples, illustrative analogies, clinical insights, historical notes, and thought-provoking photos make the text enjoyable and interesting to students and instructors alike.



Up-to-date Guidelines



HISTORICAL PERSPECTIVE

The Vitamin Alphabet

Diet greatly affects health—but scientific knowledge supporting this fact began emerging just 100 years ago. Elmer McCollum played a key role in cle establishing the link between diet and health. work, starting in the early 1900s, led to the i of the first known fat-soluble vitamin, later ca vitamin A. By varying the diets of small anima he discovered "vitamin B" and then demonstr that it is really several different B-vitamins, su thiamin, riboflavin, and niacin. He also discov vitamin D and the role of sodium, potassium, calcium, and many other minerals in nutrition. McCollum and colleagues established the firs experimental rat colony for nutrition research proposed the alphabetical naming of vitamins still use today. Learn more about this biochem www.jbc.org/content/277/19/e8.full

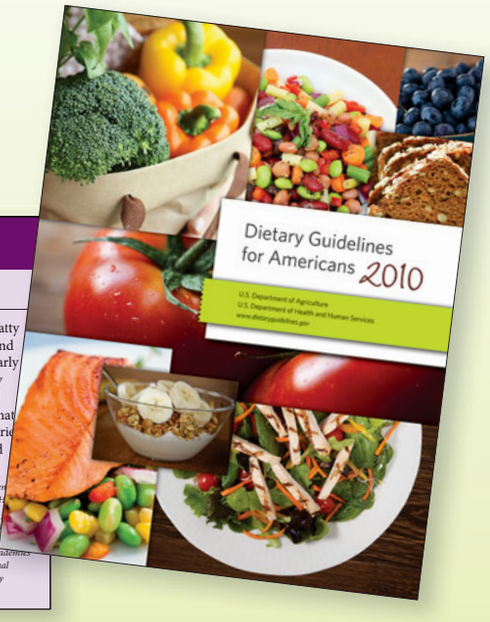
Expert Perspective from the Field

Omega-6 Fatty Acids: Harmful or Healthful?

Omega-6 fatty acids are essential fatty acids used to produce a wide array of eicosanoids. Linoleic acid is the main omega-6 fatty acid in the diet, accounting for about 90% of total polyunsaturated fat intake. For some time, it was thought that linoleic acid played a key role in the production of eicosanoids that cause inflammation and, as a result, promoted the onset and progression of heart disease. However, new evidence indicates that omega-6 intake has little effect on the production of these inflammatory eicosanoids. Additionally, the eicosanoids that are produced from omega-6's can be converted into a variety of anti-inflammatory or pro-inflammatory compounds. According to Dr. Penny Kris-Etherton,* all metabolites derived from omega-6 fatty acids need to be considered when evaluating their health benefits.[15]

Dr. Kris-Etherton also points out that several studies have reported that low omega-6 intakes were associated with an increased risk of heart disease and that replacing saturated fat with omega-6 fatty acids reduced that risk. She stated, "Omega-6 fatty acids have independent cholesterol-lowering properties beyond the simple removal of saturated fats." Omega-6 fatty acids clearly provide health benefits. For instance, replacing saturated fatty acids with omega-6's reduces heart disease risk.[30] For optimal heart health, the American Heart Association recommends that omega-6 fatty acid intake account for at least 5 to 10% of calorie intake. Reducing omega-6 intake below this level likely would increase the risk of heart disease.[31]

*Penny Kris-Etherton, PhD, RD is Distinguished Professor of Nutrition in the Department Nutritional Sciences at Pennsylvania State University and a Fellow of the American H Association. She is the recipient of the Lederle Award for Human Nutrition Research the American Society for Nutritional Sciences and the Foundation Award for Excelle Research and the Marjorie Hulsizer Copher Award from the American Dietetic Asso (now called Academy of Nutrition and Dietetics). She has served on the National Academies Panel on Macronutrients, American Heart Association Nutrition Committee, National Cholesterol Education Program Second Adult Treatment Panel, and the 2005 Dietary Guidelines for Americans Advisory Committee.



Current Research

Connecting with a Personal Focus

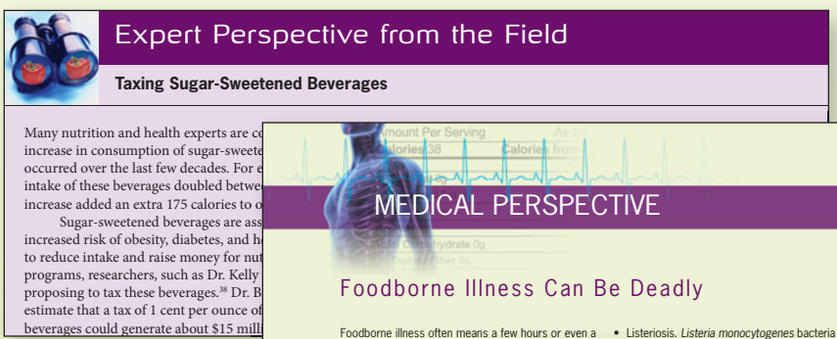
Applying Nutrition on a Personal Level

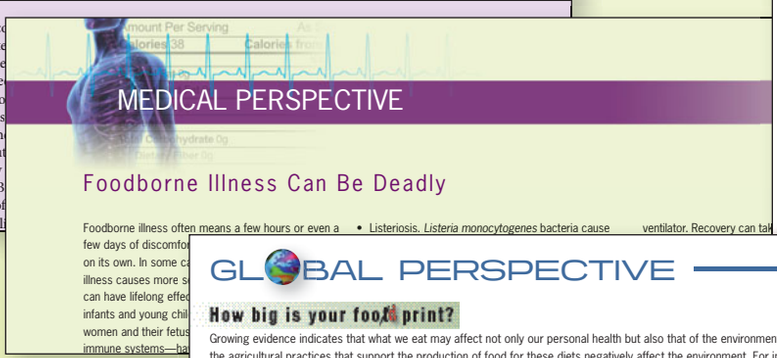
A key objective in nearly all introductory courses is for students to apply their new knowledge of nutrition to their own lives. Practical applications clearly linked to nutritional science concepts are woven throughout each chapter to help students apply their knowledge to improving and maintaining their own health and that of others for whom they are responsible, such as future patients or offspring.

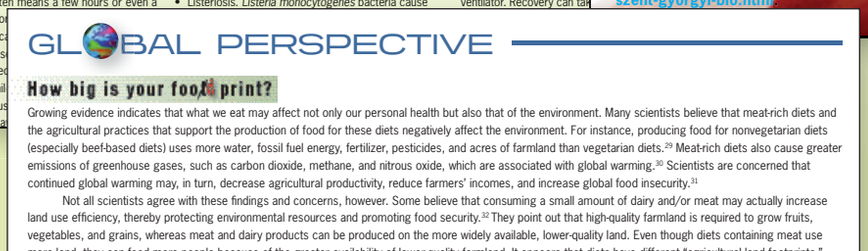
- *Take Action* features in each chapter allow students to examine their own diets and health issues.
- **Case studies** showcase realistic scenarios and thought-provoking questions.
- Discussion of the Nutritional Care Process (Ch. 1) outlines for students the benefits of working with a nutrition professional to improve their health and diet.

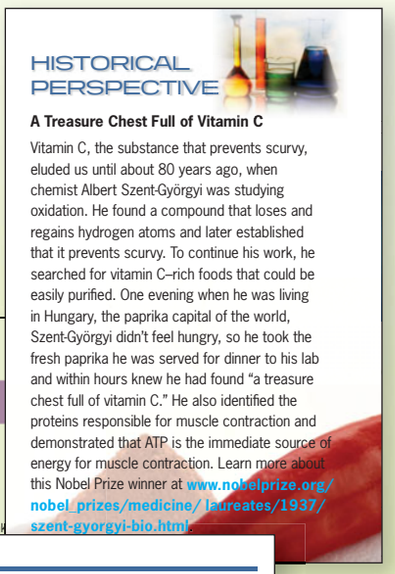
Applying Nutrition to Career and More

- ***Expert Perspectives from the Field*** features examine cutting-edge topics and demonstrate how emerging, and sometimes controversial, research results affect nutrition knowledge and practice.
- ***Medical Perspective*** features highlight the role of nutrition in the prevention and treatment of disease. These topics will be especially interesting to students planning careers in dietetics or health-related fields.
- ***Global Perspective*** features discuss concepts related to critical health and nutrition issues around the world. These timely features also aim to engage students with thought-provoking challenges.
- ***Historical Perspective*** features heighten awareness of critical discoveries and events that have affected our understanding of nutritional science.
- Each major heading in the chapters is numbered and cross-referenced to the end-of-chapter summary and study questions to make it easy to locate and prioritize important concepts.





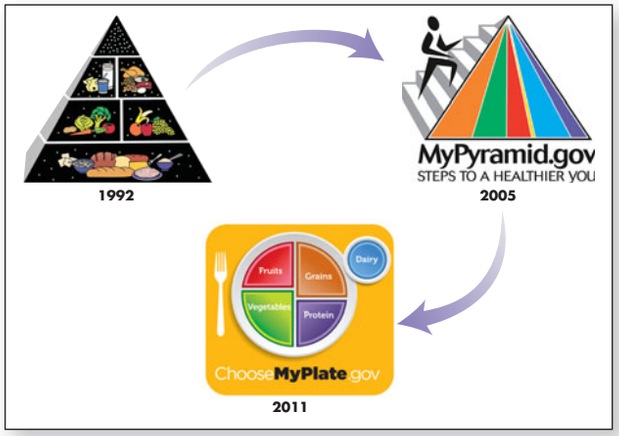




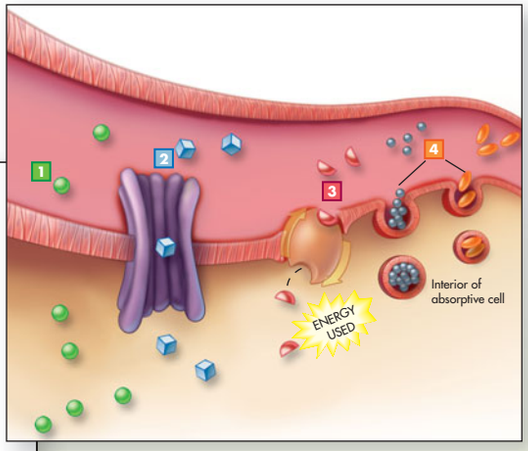
Making Visual Connections

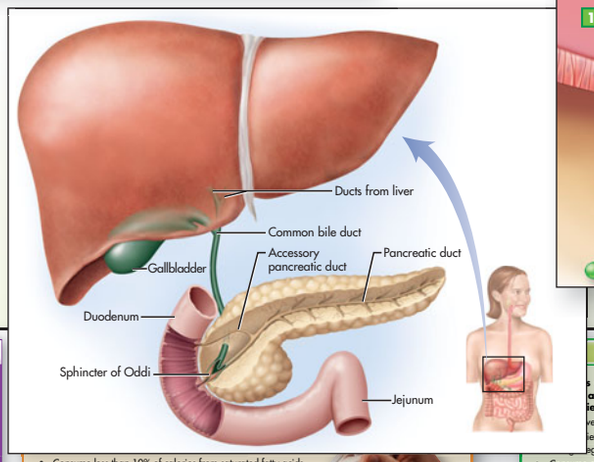
Dynamic, Accurate Artwork

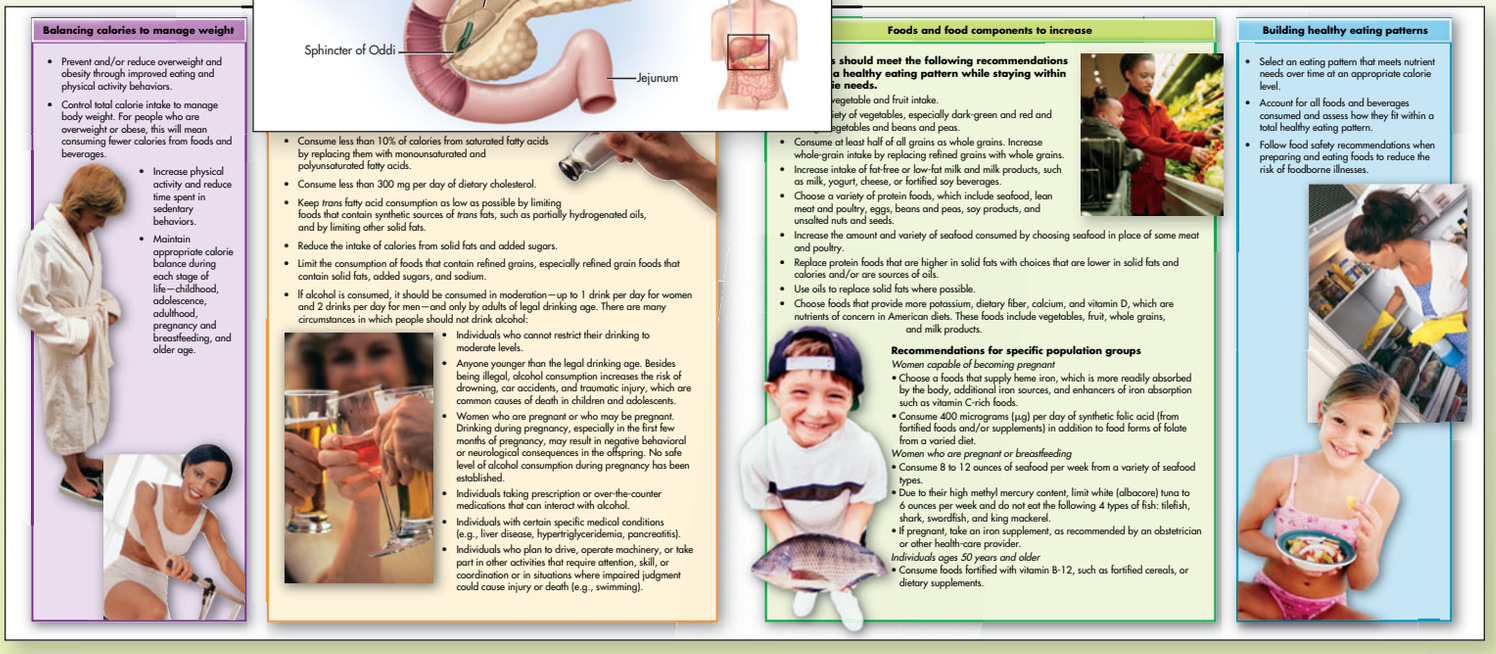
More than 1000 drawings, photographs, and tables in the text were created and critically analyzed to identify how each could be enhanced and refined to help students more easily master complex scientific concepts.

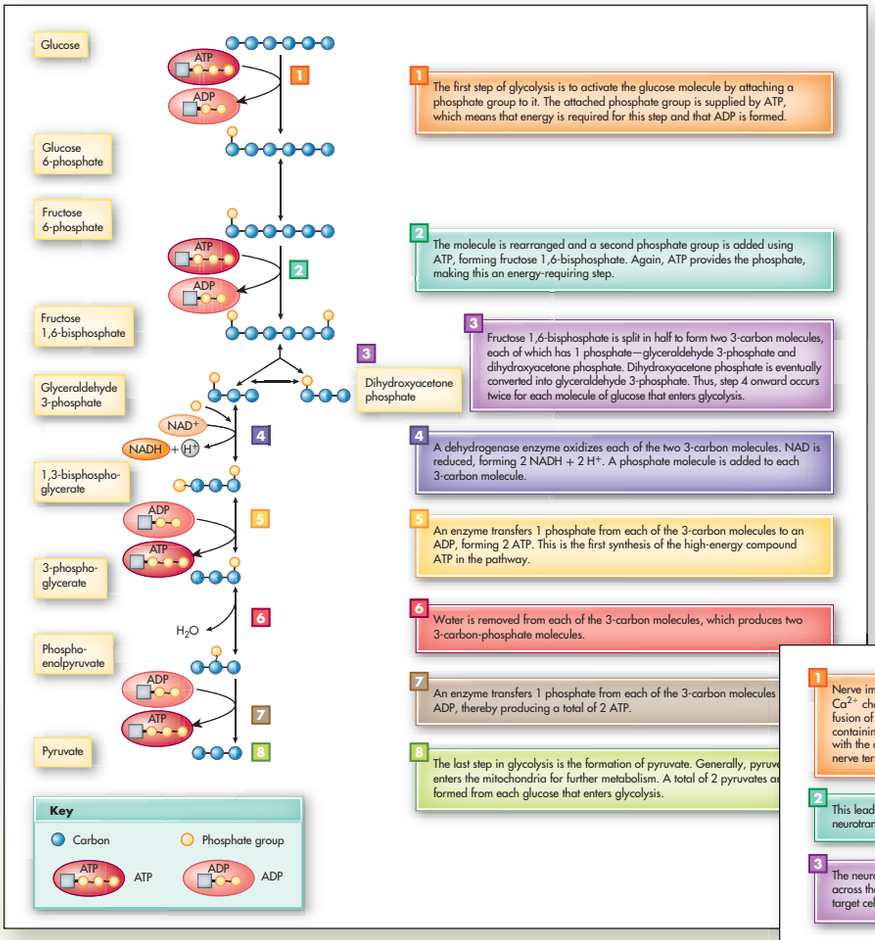


- Many illustrations were designed to inspire student inquiry and comprehension and to promote interest and retention of information.
- Illustrations use bright colors and an attractive, contemporary style. Throughout the development process, illustrations were fine-tuned to make them clear and easy to follow. Navigational aids show where a function occurs and put it in perspective of the whole body.

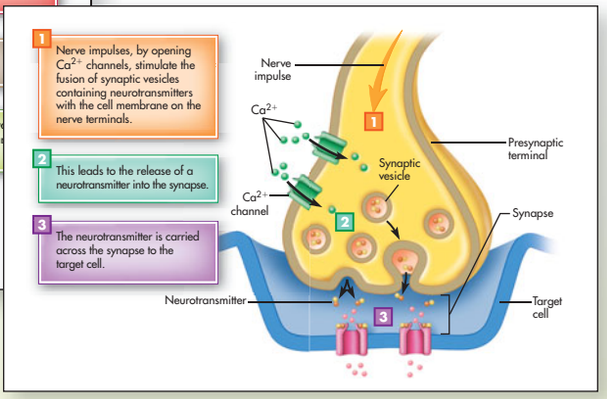




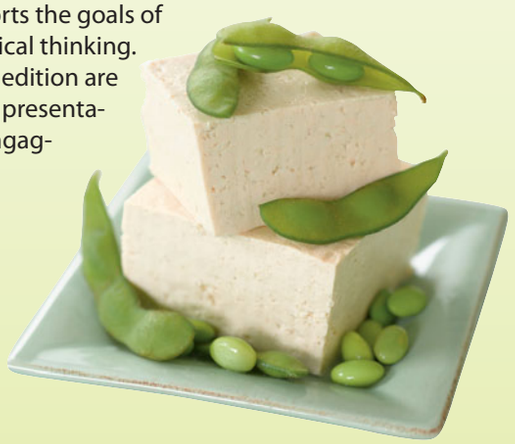




- Coordinated color schemes and drawing styles keep presentations consistent and strengthen the educational value of the artwork. Color-coding and directional arrows in figures make it easier to follow events and reinforce interrelationships.
- In many figures, process descriptions appear in the body of the figure. This pairing of the action and an explanation walks students step-by-step through the process and increases the teaching effectiveness of these figures.
- Intriguing chapter opening photos pique students' curiosity by featuring seemingly unrelated topics that draw connections between the photo and nutrition.



Finally, a careful comparison of artwork with its corresponding text was done to ensure that they are completely coordinated and consistent. The final result is a striking visual program that holds readers' attention and supports the goals of clarity, ease of comprehension, and critical thinking. The attractive layout and design of this edition are clean, bright, and inviting. This creative presentation of the material is geared toward engaging today's visually oriented students.



Connections that Suit Your Needs

Logical Organization, Flexible Sequencing

This new text, with a functional organization of the vitamins and minerals, is an alternate version of the highly successful *Wardlaw's Perspectives in Nutrition*. Vitamins and minerals can often be a challenge for students, and they end up simply memorizing each vitamin and mineral and their characteristics. This functional approach presents vitamins and minerals organized by their function so that students can make the connections to their effects on the body.

This text addresses the curricular realities of today's college coursework by organizing and consolidating the content into 5 main parts and 18 chapters. This organization presents the core content in a thorough yet manageable fashion. To give instructors even greater flexibility in tailoring reading assignments to course requirements and cross-referencing lectures to the book, each major section in the chapters is numbered. If, for example, an instructor plans to address only part of a chapter on a certain day, he or she can direct students to focus on just those sections.

Assessment and Evaluation of Learning

One of our primary goals as nutrition educators is to ensure that students leave our courses with a meaningful understanding of the nutrition principles and concepts they need to advance their education and improve their diets and health. Determining how well we have met this goal requires assessment, on both the student and instructor levels. To this end, we have built in assessment tools that allow both students and instructors to measure their success:

- Student Learning Outcomes at the beginning of each chapter
- Online test bank questions correlated to individual student learning outcomes
- Knowledge Check questions after each major section
- Study Questions at the end of each chapter
- Critical Thinking questions in the margins

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Acknowledgments

We offer a hearty and profound thank you to the many individuals who have supported and guided us along the way.

To our loved ones: Without your patience, understanding, assistance, and encouragement, this work would not have been possible.

To our wonderful students—past, present, and future: The lessons you have taught us over the years have enlightened us and sustained our desire to provide newer, better opportunities to help you successfully launch your careers and promote healthful lifelong living.

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To Your Health!

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Gaile Moe
Donna Beshgetoor
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Danita Kelley

Thank You, Reviewers, Contributors, and Symposium Participants

To our conscientious, dedicated expert reviewers and instructors: Thank you for sharing your insightful and constructive comments with us. We truly appreciate the time you committed to reviewing this book and discussing your thoughts and goals for this course. We especially appreciate the assistance provided by Angie Tagtow, Cynthia Kupper, Stephanie Atkinson, Maureen Story, Penny Kris-Etherton, Wahida Karmally, Robert P. Heaney, Judith Rodriguez, Clare Hasler, Kelly Brownell, Margo Wootan, and Judi Adams, those who shared their expertise in compiling the *Expert Perspective from the Field* features. Your suggestions and contributions clearly reflect dedication to excellence in teaching and student learning and were invaluable to this edition.

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