

PREFACE



Anatomy and Physiology with Integrated Study Guide, third edition, is designed for students who are enrolled in a one-semester course in human anatomy and physiology.

The scope, organization, writing style, depth of presentation, and pedagogical aspects of the text have been tailored to meet the needs of students preparing for a career in one of the allied health professions.

These students usually have diverse backgrounds, including limited exposure to biology and chemistry, and this presents a formidable challenge to the instructor. To help meet this challenge, this text is written in clear, concise English and simplifies the complexities of anatomy and physiology in ways that enhance understanding without diluting the essential subject matter.

Themes

There are two unifying themes in this presentation of normal human anatomy and physiology: (1) the relationships between structure and function of body parts and (2) the mechanisms of homeostasis. In addition, interrelationships of the organ systems are noted where appropriate and useful.

Organization

The sequence of chapters progresses from simple to complex. The simple-to-complex progression also is used within each chapter. Chapters covering an organ system begin with anatomy to ensure that students are well prepared to understand the physiology that follows. Each chapter concludes with a brief consideration of common disorders that the student may encounter in the clinical setting. An integrated study guide, unique among anatomy and physiology texts, is located between the text proper and the appendices.

Study Guide

The *Study Guide* is a proven mechanism for enhancing learning by students and features full-color line art. There is a study guide of four to eight pages for each chapter. Students demonstrate their understanding of the chapter by labeling diagrams and answering

completion, matching, and true/false questions. The completion questions “force” students to write and spell correctly the technical terms that they must know. Each chapter study guide concludes with a few critical-thinking, short-answer essay questions where students apply their knowledge to clinical situations.

Answers to the *Study Guide* are included in the *Instructor’s Manual* to allow the instructor flexibility: (1) answers may be posted so students can check their own responses, or (2) they may be graded to assess student progress. Either way, prompt feedback to students is most effective in maximizing learning.

Other Learning Aids

A variety of additional learning aids are incorporated to facilitate the learning process and to stimulate interest in the subject.

Chapter Preview and Learning Objectives

Each chapter begins with a list of major topics discussed in the chapter, and under each topic the learning objectives are noted. This informs students of the major topics to be covered and their minimal learning responsibilities.

Key Terms

Several features have been incorporated to assist students in learning the necessary technical terms that often are troublesome for beginning students.

1. A list of *Selected Key Terms* with definitions, and including derivations where helpful, is provided at the beginning of the chapter to inform students of some of the key terms to watch for in the chapter.
2. Throughout the text, key terms are in bold or italic type for easy recognition, and they are defined at the time of first usage. A *phonetic pronunciation* follows where students need help in pronouncing the term. Experience has shown that students learn only terms that they can pronounce.

3. *Keys to Medical Terminology* in appendix A explains how technical terms are structured and provides a list of prefixes, suffixes, and root words to further aid an understanding of medical terminology.
4. At the end of each chapter, a section titled *Building Your Vocabulary* provides a list of *Selected New Terms* that allows students to review their understanding of the new terms. Also, a few *Related Clinical Terms* are defined with phonetic pronunciations to help students to start building a clinical vocabulary.

Figures and Tables

Over 350 high quality, full-color illustrations are coordinated with the text to help students visualize anatomical features and physiological concepts. Tables are used throughout to summarize information in a way that is more easily learned by students.

Clinical Boxes

Numerous boxes containing related clinical information are strategically placed throughout the text. They serve to provide interesting and useful information related to the topic at hand. The clinical boxes are identified by a *stethoscope icon* for easy recognition.

In-Text Review Questions

Review questions at the end of major sections challenge students to assess their understanding before proceeding.

Chapter Summary

Each chapter summary consists of a numerical listing of key concepts for each major heading of the chapter. The summary provides a quick review of each chapter for the student.

Check Your Understanding

A brief quiz, composed of completion questions, allows students to evaluate their understanding of chapter topics. Answers are provided in appendix B for immediate feedback.

Critical Thinking

Each chapter concludes with several critical thinking questions, which further challenge students to apply their understanding of key chapter topics.

Changes in the Third Edition

The third edition has been substantially improved to help beginning students understand the basics of human anatomy and physiology.

1. Portions of most chapters have been rewritten to update the information and to clarify the narrative.
2. Many new figures augment the text and will further facilitate student learning.
3. New clinical boxes focus on current topics to pique student interest.
4. Critical thinking questions have been added at the end of each chapter to help students integrate their knowledge.

Ancillaries

Instructor's Testing and Resource CD-ROM

The Instructor's Testing and Resource CD-ROM provides the following:

1. The **instructor's manual** content which includes lecture outlines and instructional suggestions for each chapter.
2. **Answers to the study guide.**
3. A **test bank** of 40 to 50 multiple-choice questions with answers for each chapter.
4. A **computerized test bank** utilizing McGraw-Hill's EZ Test software. This user-friendly program allows instructors to quickly create customized exams. Instructors can sort questions by format, edit existing questions or add new ones, and scramble questions for multiple versions of the same test.
5. The **image bank website** contains line art images and numerous photos that are posted as PPT slides. Instructors can simply cut and paste the artwork into customized classroom presentations for their instructional needs. The url for the image bank website is <http://www.mhhe.com/gunstream3>

Laboratory Manual

Anatomy and Physiology Laboratory Textbook, Essentials Version by Stanley E. Gunstream, Harold J. Benson, Arthur Talaro, and Kathleen P. Talaro, all of

Pasadena City College. This excellent lab text presents the fundamentals of human anatomy and physiology in an easy-to-read manner that is appropriate for students in allied health programs. It is designed especially for the one-semester course; it features a simple, concise writing style, 37 self-directing exercises, full-color photomicrographs in the Histology Atlas, and numerous illustrations in each exercise. Contact your McGraw-Hill sales representative for access to the online instructor's manual.

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Their suggestions have been very helpful, and I am grateful for their input.

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S.E.G.

NOTE TO STUDENTS



You are starting a fascinating and challenging study of human anatomy and physiology. The course will be rigorous, but you can improve your chances of success by taking advantage of the learning aids found in this text. The suggestions noted below have been helpful to many students. Consider incorporating them into your study habits.

1. You can best profit from your instructor's lecture if you have prepared for it by studying the reading assignment *before* you attend the lecture. If you do this, you will know the new terms that will be encountered and at least the general aspects of the subject matter. This will enable you to better understand the lecture and take better lecture notes. It will save you study time later on.
2. Before you read a chapter, you need to do two things. First, examine the *Chapter Preview and Learning Objectives*. This will inform you of the sequence of major topics to be covered and your minimal learning responsibilities. Second, study the list of *Selected Key Terms* to learn their meanings. After you have done these two things, you will be prepared to learn effectively as you read the chapter.
3. As you read a chapter, watch for new terms and be sure to learn their pronunciation and meaning before going on. Use the *Glossary* and *Keys to Medical Terminology* as necessary to assist you. Key terms are in bold or italic print so that you can easily recognize them. Where pronunciation help is needed, a *phonetic pronunciation* immediately follows in parentheses to help you pronounce the term correctly. Say the term out loud a few times to be sure that you know the correct pronunciation. This will help you remember the term.

The phonetic pronunciation breaks terms into syllables and includes marks denoting long vowel sounds and major accents. Vowels marked with a line above the letter are pronounced with a long sound—the same sound as when saying the letter. Some examples follow:

- ā as in take
- ē as in be
- ī as in time
- ō as in hole

Vowels without these marks are pronounced with short sounds as in the following examples:

- a as in above
- e as in pet
- o as in pot
- u as in mud
- i as in hip

The accent mark indicates the major accent in the term, such as in terminology (ter-min-ol'-ō-jē) and anatomy (a-nat'-ō-mē).

You can best learn new terms and their meanings by preparing *flash cards* from 3 × 5 index cards. Place the term on one side and the definition on the other. *Place only one term on each card.*

4. Use a highlighter pen liberally to mark the key statements in each paragraph as you read. This will help you identify the key points to study later on. You may want to make flash cards to help you learn these key points.
5. Review questions are strategically located in the text to allow you to check your understanding of each major section. It is important to be able to answer these questions correctly before proceeding.
6. After reading the chapter, review the *Chapter Summary* to be sure that you understood the key points of the chapter. This section will give you a quick review of the chapter later on as well.
7. Learning new terms is one of the more difficult aspects of a course in anatomy and physiology. After reading a chapter, use *Building Your Vocabulary* to help you master the terminology. Review the list of *Selected New Terms* to be sure that you know their meanings. If not, look them up in the chapter or in the glossary. Then learn the *Related Clinical Terms* to start building your clinical vocabulary.
8. After you think that you understand the topics pretty well, complete the *Study Guide* for the chapter you are studying. It covers the major points of the chapter, and it includes a few critical thinking questions that apply your knowledge to clinical situations. You may find it easier to remove the chapter study guide from the text before completing it. You can keep the study guides in a loose-leaf notebook. Your instructor has the answer key so you can check your responses.
9. Complete the *Check Your Understanding* self-test. The answers to the questions are located in appendix B for immediate feedback.
10. Finally, complete the *Critical Thinking* section, which will help you integrate and apply your understanding of the chapter topics.

If you have completed all of the above learning aids and have completely answered the questions correctly, you may be confident of your understanding.