

INTRODUCTION TO

# Anatomy & Physiology

THIRD EDITION



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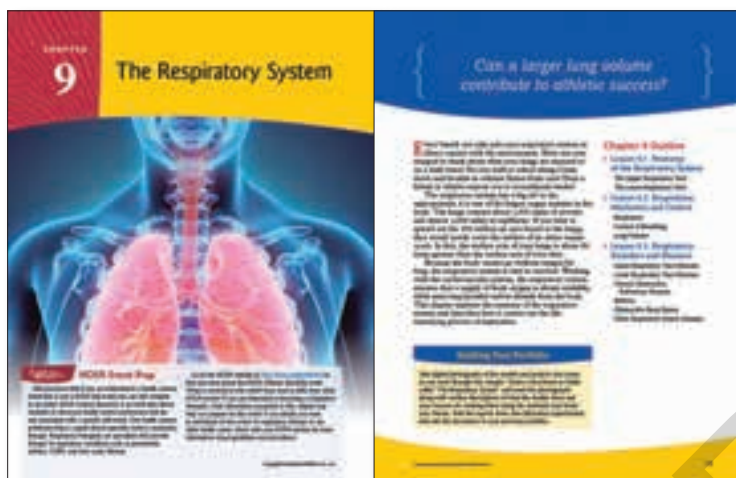
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# Guided Tour

The instructional design includes student-focused learning tools to help students succeed. This visual guide highlights the features designed for the textbook.



**HOSA Event Prep activity** identifies related HOSA events related to this chapter.

**Thought-Provoking question** provides a starting point for thinking about the material in the chapter.

**Building Your Portfolio** prompts you to add to your portfolio as you work through the chapter.

**Chapter Outline** provides an overview of the topics discussed in the chapter.

**Before You Read** helps focus your attention on the topics covered in each lesson.

**Learning Outcomes** clearly identify the knowledge and skills to be obtained when the lesson is completed.

**Key Terms** list the key terms to be learned in the lesson.

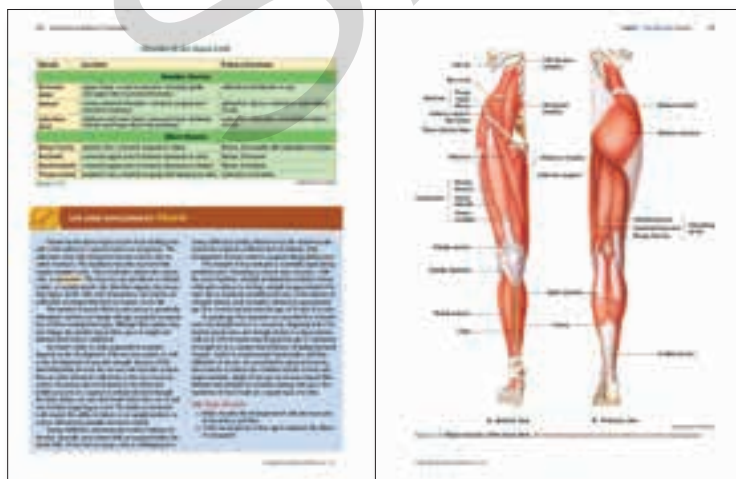
**Clinical Case Study** describes a real-world clinical scenario, with questions to consider while you read about diseases related to each body system.



**Memory Tips** provide tips and tricks for understanding and remembering terminology associated with unfamiliar terms.



**What Research Tells Us** describes current research into areas related to chapter content.

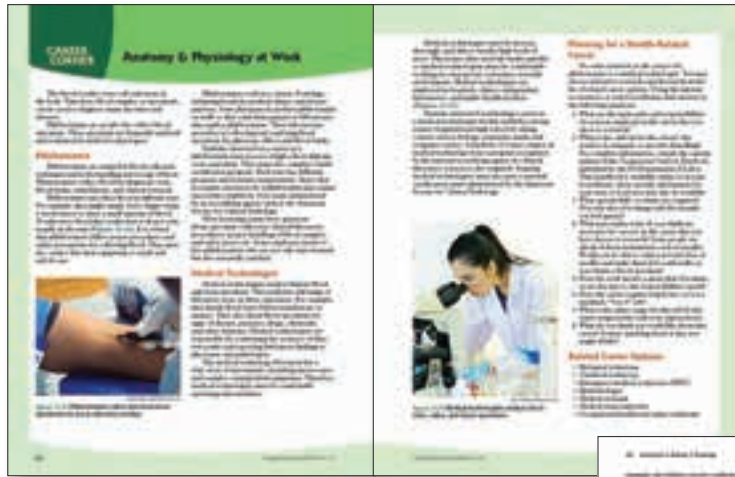


**Life Span Development** provides an overview of each body system throughout various stages of life.

**Tables** highlight details of trauma, diseases, and disorders, including how they are diagnosed and how they can be either treated or prevented.

**Illustrations** include anatomically exact drawings with great use of color, simplified labeling, and teaching captions.

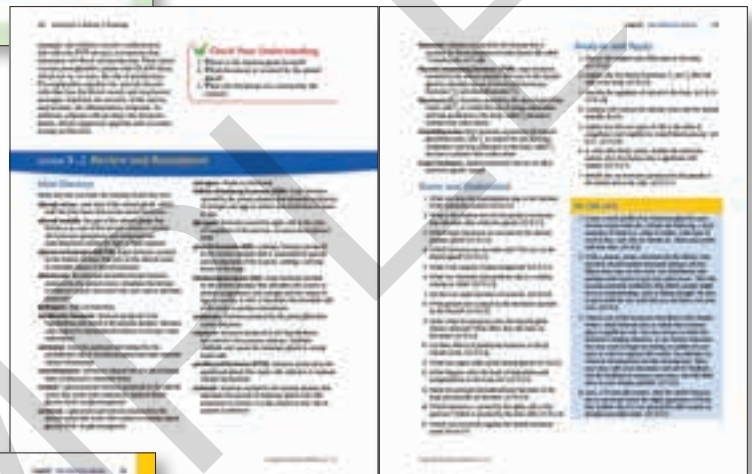




**Career Corner** features information about potential career opportunities associated with each body system.

**Check Your Understanding** questions appear at the end of each major section in each lesson to provide a quick check of your comprehension of the topic discussed.

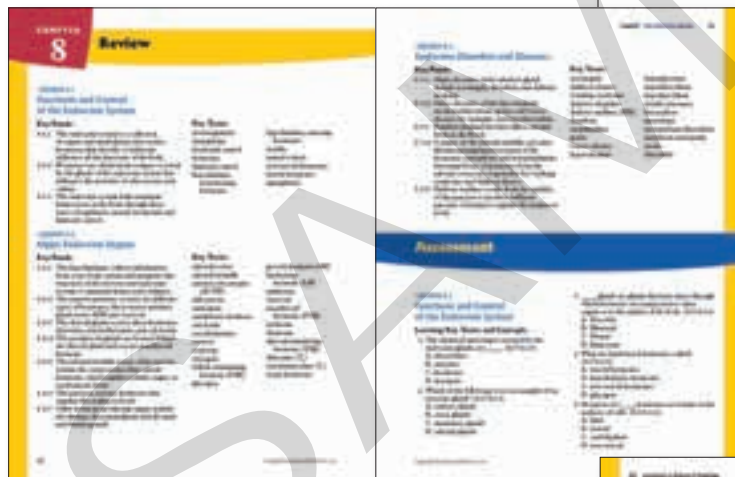
**Lesson Review and Assessments** at the end of each lesson provide definitions of key terms and provide questions and lab activities to extend your learning and help you apply knowledge.



**Lesson-by-Lesson Summary** provides an additional review tool for you and reinforces key learning objectives.

**Learning Key Terms and Concepts Questions** allow you to demonstrate knowledge, identification, and comprehension of chapter material.

**Thinking Critically** questions develop higher-order thinking and problem-solving, personal, and workplace skills.



**Building Skills and Connecting Concepts** provides analysis, communication, and lab investigation activities that enable you to demonstrate knowledge, identification, and comprehension of chapter material; many of these activities can also be used to prepare for HOSA events.

**Apply and Analyze** questions extend learning and develop your abilities to use learned material in new situations and to break down material into its component parts.

**Activities** extend your learning and help you apply knowledge.

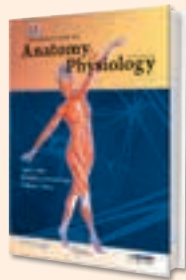


# TOOLS FOR STUDENT AND INSTRUCTOR SUCCESS

## Student Tools

### Student Text

*Introduction to Anatomy & Physiology* covers all body systems using a student-friendly writing style that makes complex subjects easier to understand. Clear, easy-to-read tables about diseases, disorders, and trauma, along with real-world Clinical Case Studies, provide students with information about the connections between anatomy and physiology and disease. The following supplemental materials are available for students with access to digital resources.



### Workbook/Lab Manual

- Hands-on practice includes questions and activities.
- Organized to follow the textbook lessons to help students achieve key learning outcomes.

### Companion Website

- E-flash cards and vocabulary exercises allow interaction with content to create opportunities to increase achievement.
- Labeling activities offer students opportunities to practice identifying parts of the body systems.

## Instructor Tools

### G-W Ignite

G-W Ignite provides a seamless user experience for both you and your students. The easy-to-navigate interface and class rostering capabilities make setting up a course easy and intuitive. Instructors can quickly and easily share assignments with students. Auto-graded activities and assessments make grading easier than ever, and rubrics are provided for ease of grading when required. Extensive reporting capabilities allow instructors to view students' progress and evaluate performance against learning outcomes and key standards. Students have their own My Progress dashboard where they can view grades and comments from their instructor.

G-W Ignite provides a complete learning package for you and your students. The included digital resources help your students remain engaged and learn effectively:

- The **Online Textbook** is a reflowable digital textbook that works well on all devices. It also works well with screen readers and accessibility tools.
- The Online **Workbook/Lab Manual content** in digital format provides opportunities for students to reinforce understanding of learning outcomes in the text. Instructors can easily assign lab activities and grade student work using the rubrics provided.
- **Videos** demonstrate important procedures or dive deeper into key concepts from the text. These videos clarify steps and aid students in visualizing important skills. Guided worksheets are provided to help students take notes as they watch each video. Video quiz questions help assess student comprehension in real time.
- **Drill and Practice Vocabulary Activities**, which are provided for all key terms in every lesson, provide an active, engaging, and effective way for students to learn the required terminology.

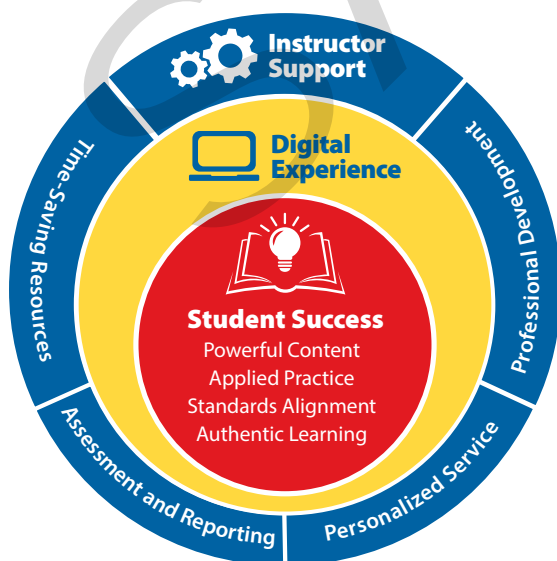
Use the **Pretests, Posttests, and Exams** to assess students' knowledge of learning outcomes and key standards. These prebuilt assessments help you measure student knowledge and track progress in achieving learning outcomes.

- The **Instructor Resources** provide instructors with time-saving preparation tools such as answer keys, editable lesson plans, and other teaching aids.
- **Instructor's Presentations for PowerPoint®** are fully customizable, richly illustrated slides that help you teach and visually reinforce the key concepts from each chapter.

See [www.g-w.com/introduction-anatomy-physiology-2024](http://www.g-w.com/introduction-anatomy-physiology-2024) for a list of all available resources.

### Professional Development

- Expert Content Specialists
- Research-Based Pedagogy and Instructional Practices
- Options for virtual and in-person Professional Development





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## LIFE SPAN DEVELOPMENT

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# To the Student

Have you ever wondered why you have curly, wavy, or straight hair? Or why you may have to wear corrective lenses for your eyes? Or why diseases strike some people but not others?

Do you ever wonder if certain dietary and health habits might reduce your risk of having diabetes and coronary heart disease in later life? Did you know that it is important to maximize your bone density during early and teenage years to prevent developing osteoporosis? How can your lifestyle choices at 16 affect your body at 60? These are all considerations related to your anatomical and physiological makeup, and they are topics discussed in this book.

People have been curious about the human body for centuries. It is quite natural, since it is the body you live in. The more you know and understand about your body, the more you can choose to make intelligent choices about your own health and longevity. Knowledge about these topics can also help you to help your family and friends understand their health issues.

This textbook is your road map to understanding all of the fascinating intricacies of the human body. In addition to providing the basics of how your body works, the text highlights some of the latest research on topics of interest. Since many of you are probably curious about career opportunities in human health and healthcare, this text also features descriptions of job opportunities encompassing the ladder of jobs in healthcare.

This textbook will answer questions you have had and raise other questions you may never have thought about. As you discover the answers on these pages, we believe you will agree with us that the human body is the most interesting topic in all of science. We wish you happy reading!

Susan J. Hall

Michelle A. Provost-Craig

William C. Rose



# HOSA—Future Health Professionals



HOSA—Future Health Professionals is a global, student-led organization empowering future health professionals through collaboration, education, and experience. This organization introduces students to health careers and provides opportunities to build key leadership, communication, interpersonal, and healthcare skills.

Available at the middle school, secondary, and post-secondary levels, HOSA is a powerful instructional tool for equipping and educating future health professionals. If there is a HOSA chapter at your school, this course and text can help prepare you to participate, demonstrate your knowledge, and earn recognition through competitive events. If there is not a HOSA chapter at your school, you can talk with your instructor about starting one.

Throughout *Introduction to Anatomy & Physiology*, HOSA Event Prep icons identify activities specifically crafted to help you practice for competitive events. Some examples of how this program supports HOSA events follow:

- HOSA Event Prep features at the beginning of every chapter suggest HOSA events related to chapter content. Examples include *Sports Medicine* in Chapter 4, “The Skeletal System” and *Epidemiology* in Chapter 12, “The Lymphatic and Immune Systems.”
- Every chapter provides information about diseases and disorders, prevention, and treatment. This content supports a variety of HOSA competitive events, from *Pathophysiology* to *Pharmacology*.
- Activities at the end of each chapter help prepare you for Leadership Events such as *Prepared Speaking*, *Research Poster*, and *Speaking Skills*, as well as many different Teamwork Events.