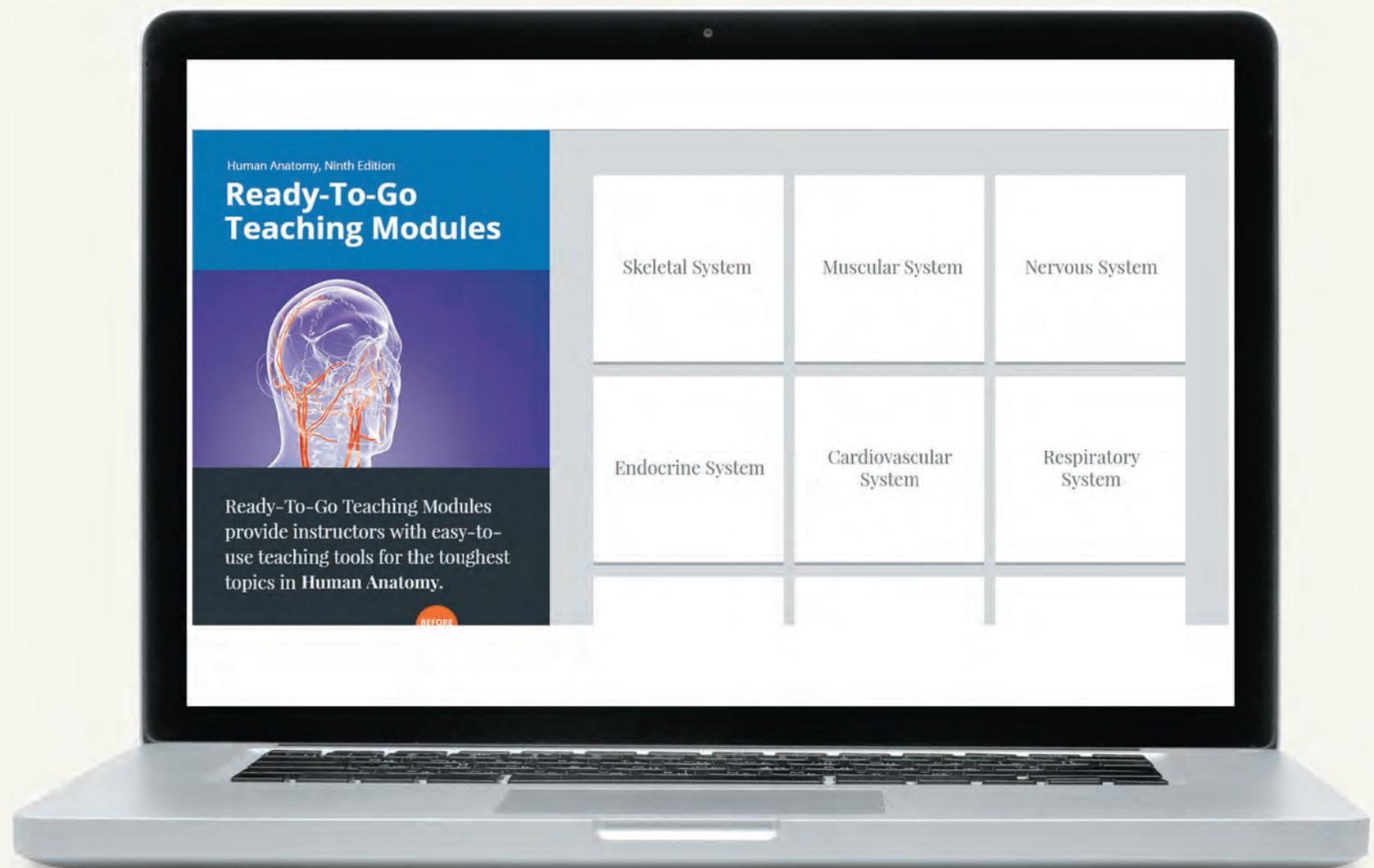


Get Ready for a Whole New Human Anatomy Experience

Celebrated author Judi Nath (*Fundamentals of Anatomy & Physiology* and *Visual Anatomy & Physiology*) brings a fresh voice and a clear, engaging writing style to the **Ninth Edition** of **Human Anatomy**. The Ninth Edition continues the Martini legacy of a visually stunning presentation with exceptionally clear photographs, detailed illustrations, and captivating clinical content.

NEW! Ready-to-Go Teaching Modules

help instructors find the best assets to use before, during, and after class to teach the toughest topics in Human Anatomy. Created by teachers for teachers, these curated sets of teaching tools save you time by highlighting the most effective and engaging animations, videos, quizzing, coaching and active learning activities from MasteringA&P.



Prepare for the Classroom

New Study Tools

throughout each chapter help students understand and navigate the content.

NEW! Summary Boxes

at the beginning of each section outline the key points from that reading.

► **KEY POINT** Dermal ridges form friction ridges, ensuring a secure grip on objects. Dermal ridges also form fingerprints, a unique genetic identifier of an individual.

► **KEY POINT** The position of the wrist affects the functioning of the hand. Many muscles of the forearm, therefore, affect the actions of the wrist because (1) all of the muscles that flex or extend the wrist originate on the humerus, radius, and/or ulna and (2) many muscles that flex or extend the fingers originate on the radius and/or ulna.

TIPS & TOOLS

Remembering the names of the epidermal layers of thick skin

A mnemonic to help you remember the names of the epidermal layers of thick skin, from deep to superficial, is “Brent Spiner gained Lieutenant Commander” (basale, spinosum, granulosum, lucidum, corneum).

NEW! Tips & Tools

offer advice on how to approach some of the toughest topics.

TIPS & TOOLS

Here is a simple trick to remember the four anterior superficial forearm muscles originating from the medial epicondyle of the humerus. Hold both arms out, palms touching. Then slide your right hand proximally until your palm reaches your elbow with your fingers pointing toward your wrist. With each finger representing one of the four muscles, think PFPF: **P**ronator teres (index finger), **F**lexor carpi radialis (middle finger), **P**almaris longus (ring finger), and **F**lexor carpi ulnaris (little finger).

and Future Careers

NEW! Clinical Cases

help motivate students for their future careers. Each chapter opens with a story-based Clinical Case related to the chapter content and ends with a Clinical Case Wrap-Up.



CLINICAL NOTE

Skin Cancer

SKIN CANCER, the abnormal growth of skin cells, is often caused by exposure to UV radiation, primarily sunlight.

Basal cell carcinoma originates in the stratum basale. This is the most common skin cancer and the slowest growing, and it most often arises in areas that receive UV exposure. Although basal cell carcinomas almost never metastasize, they should be treated quickly to prevent local spread.



Squamous cell carcinoma

Squamous cell carcinoma, the second most common skin cancer, is an uncontrolled growth of abnormal squamous cells in the epidermis. They most often occur in UV-exposed areas of skin, but tobacco can also be a trigger. They can metastasize to tissues, bones, and nearby lymph nodes, and they often cause local disfigurement.

Malignant melanoma develops in melanocytes in the basal layer. These cancerous melanocytes multiply rapidly and metastasize to distant sites. Malignant melanomas cause the most deaths from skin cancer.

Clinical Notes appear within every chapter, expand upon topics just discussed, and present diseases and pathologies along with their relationship to normal function.



CLINICAL CASE

A Neuroanatomist's Stroke of Insight

Dr. Jill Taylor, a neuroanatomist, is 37 and at the top of her field. One morning she develops a throbbing headache behind her left eye. She then notices that her thoughts and movements are slowing down. Soon she realizes her right arm is paralyzed, and she is barely able to call for help. When she arrives at the hospital, she cannot walk, talk, read, write, or recall anything. She feels her spirit surrender and braces for death.

Dr. Taylor awakes later that day, shocked to be alive. She still cannot speak or understand speech, or recognize or use numbers. She can, however, appreciate the irony of her situation: a neuroscientist (scientist who studies the brain) witnessing her very own brain emergency, an evolving cerebrovascular accident (CVA) or stroke. Doctors perform open brain surgery to remove a large blood clot that was pressing on the left side of her brain near her language area.

Will Dr. Taylor's **CLINICAL CASE WRAP-UP** return to the Clinical Case Wrap-Up on p. 448.

A Neuroanatomist's Stroke of Insight

While her stroke affected the left side of Dr. Taylor's brain, the right side continued functioning. Because language and thoughts are typically controlled in the left hemisphere (the dominant hemisphere of a right-handed person), Dr. Taylor "sat in an absolutely silent mind" for the first month. Since the center for mathematical calculation is situated in the left hemisphere, she had to learn to use numbers all over again. And because the primary motor cortex governing the right side of the body resides in the precentral gyrus of the left hemisphere, she had to learn to use her right arm again. Full recovery took 8 years.

The stroke destroyed some brain cells, but others were able to form new neuronal connections. Neuroplasticity, this ability of nerve cells to make new connections, allows the brain to reorganize itself after injury.

Dr. Taylor wants anatomy students to know two things. First, "if you study the brain, you will never be bored." Second, "if you treat stroke patients like they will recover, they are more likely to recover." She has written a best-selling memoir about her experience, *My Stroke of Insight: A Brain Scientist's Personal Journey*.



1. How would you know, based on signs and symptoms, which side of Dr. Taylor's brain was injured by the stroke?
2. What is neuroplasticity, and why was it important in Dr. Taylor's recovery?

See the blue Answers tab at the back of the book.

Clinical Terms end every chapter with a list of relevant clinical terms and definitions.

Related Clinical Terms

aphasia: A neurological condition caused by damage to the portions of the brain that are responsible for language.

ataxia: Loss of muscle coordination in the arms or legs due to cerebellar dysfunction.

chronic traumatic encephalopathy (CTE): A traumatic brain injury resulting from repeated sports-related head trauma.

concussion: A mild traumatic brain injury that may be accompanied by a period of unconsciousness.

dementia: A chronic or persistent disorder of the mental processes caused by brain disease or injury and marked by memory

disorders, personality changes, and impaired reasoning.

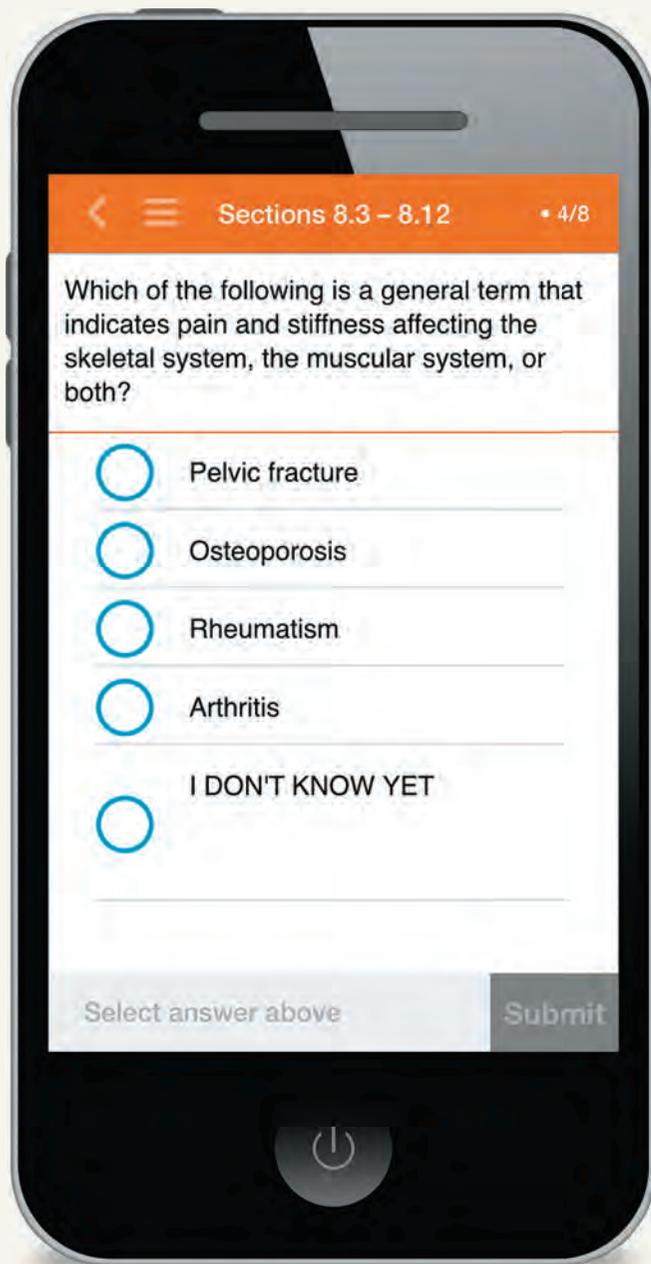
epidural hematoma: The accumulation of blood between the inner table of the skull and the dura mater.

hydrocephalus: A condition marked by an excessive accumulation of cerebrospinal fluid within the brain ventricles.

microcephaly: A birth defect in which the head circumference is much smaller than expected for the age and sex of the child.

Parkinson's disease: A neurological disorder resulting from a degeneration of the dopaminergic neurons in the substantia nigra.

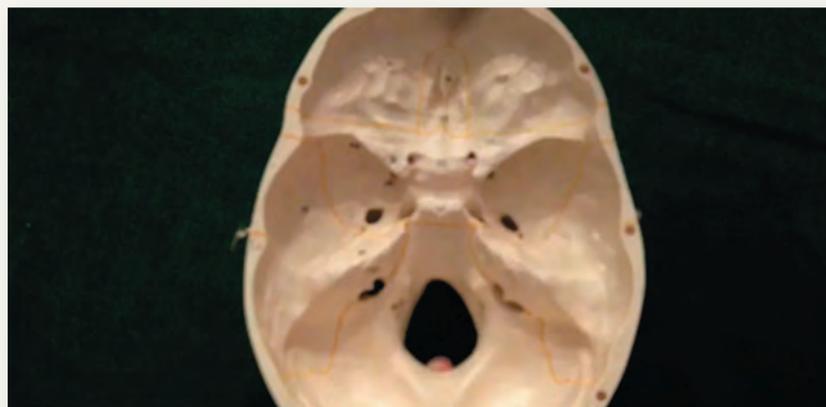
Continuous Learning Before, During, and After Class



Dynamic Study Modules

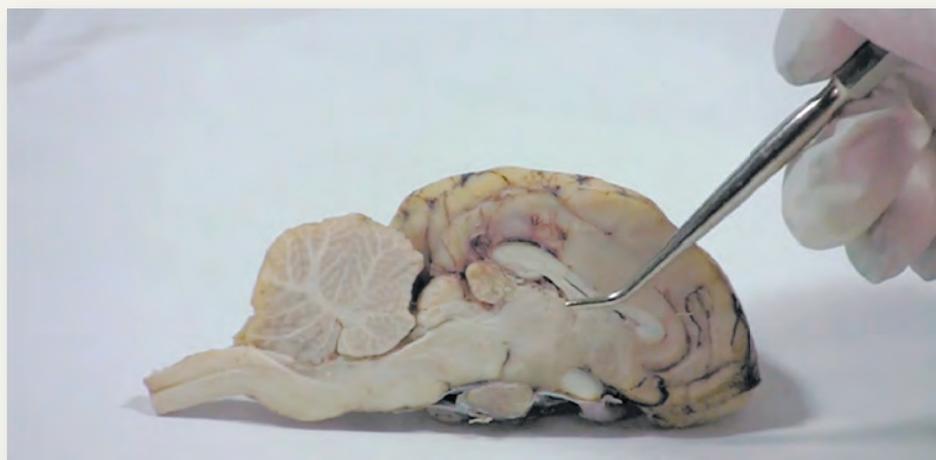
enable students to study more effectively on their own. With the Dynamic Study Modules mobile app, students can quickly access and learn the concepts they need to be more successful on quizzes and exams.

NEW! Instructors can now select which questions to assign to students.

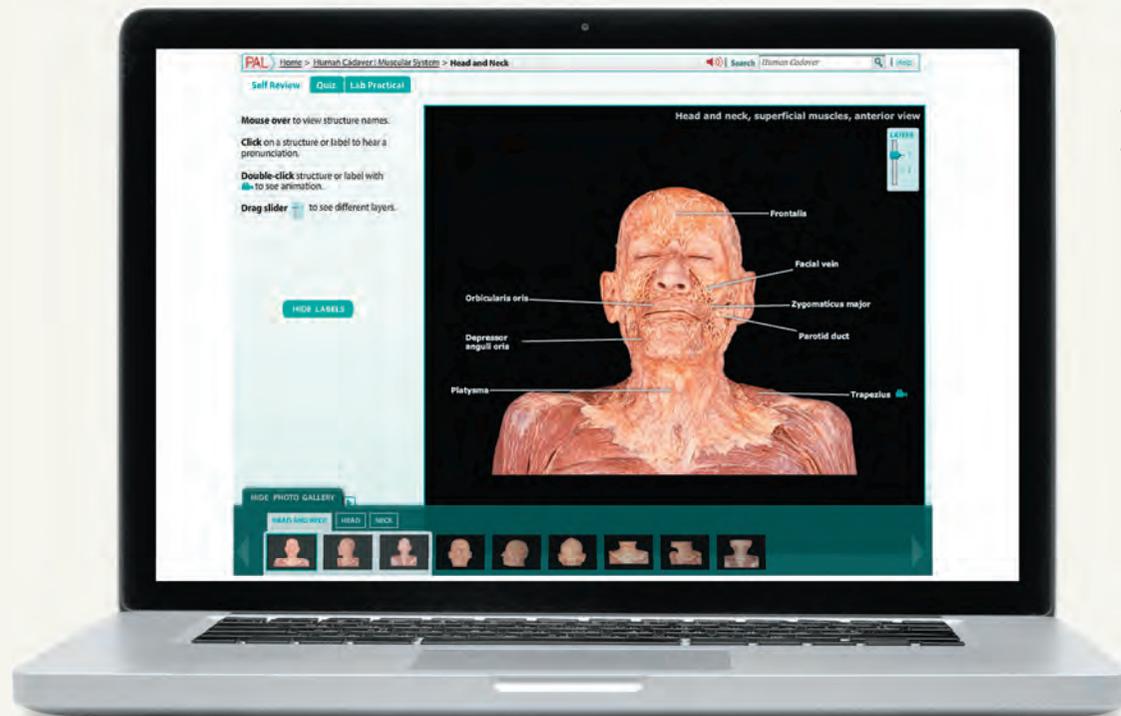


Bone and Dissection Videos

help students identify bones and learn how to do organ dissections.



with MasteringA&P™

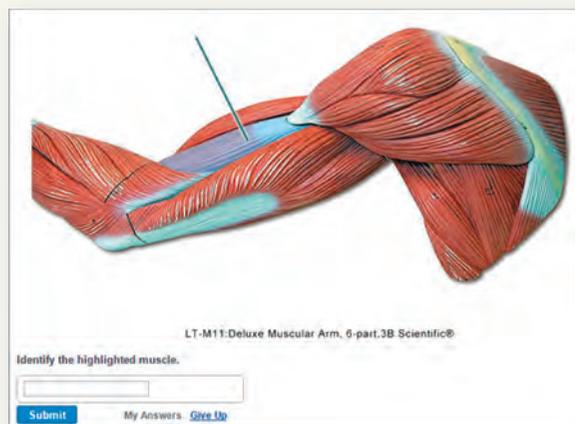


Practice Anatomy Lab (PAL™ 3.0)

is a virtual anatomy study and practice tool that gives students 24/7 access to the most widely used lab specimens, including the human cadaver, anatomical models, histology, cat, and fetal pig. PAL 3.0 is easy to use and includes built-in audio pronunciations, rotatable bones, and simulated fill-in-the-blank lab practical exams.

Additional assignable MasteringA&P activities include:

- Bone & Dissection Coaching Activities
- A&P Flix Activities for Anatomy Topics
- Spotlight Figure Coaching Activities
- Clinical Case Activities
- PAL Assessments
- Art-Labeling Questions
- And More!



A&P Flix: Trapezius

Watch the animation, then answer the questions



Anterior View

Part A

The trapezius muscle may be separated into all of the following groups, except _____

inferior
 lateral
 superior
 middle

[Submit](#) [My Answers](#) [Give Up](#)

Incorrect; Try Again; 5 attempts remaining
Inferior is a correct grouping.

Part B

All fibers of the trapezius muscle are innervated by the _____

coxal nerve
 spinal accessory nerve
 scapular nerve
 axillary nerve

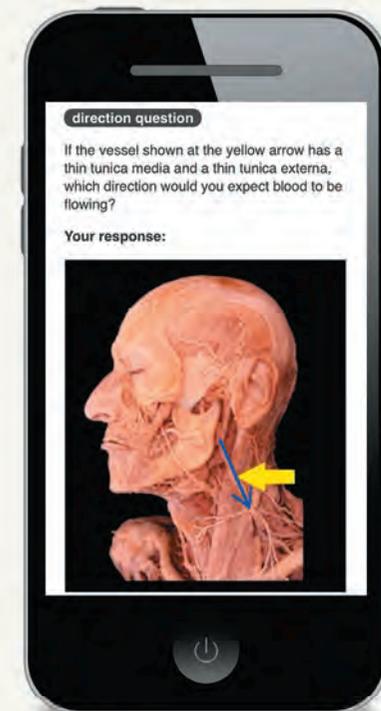
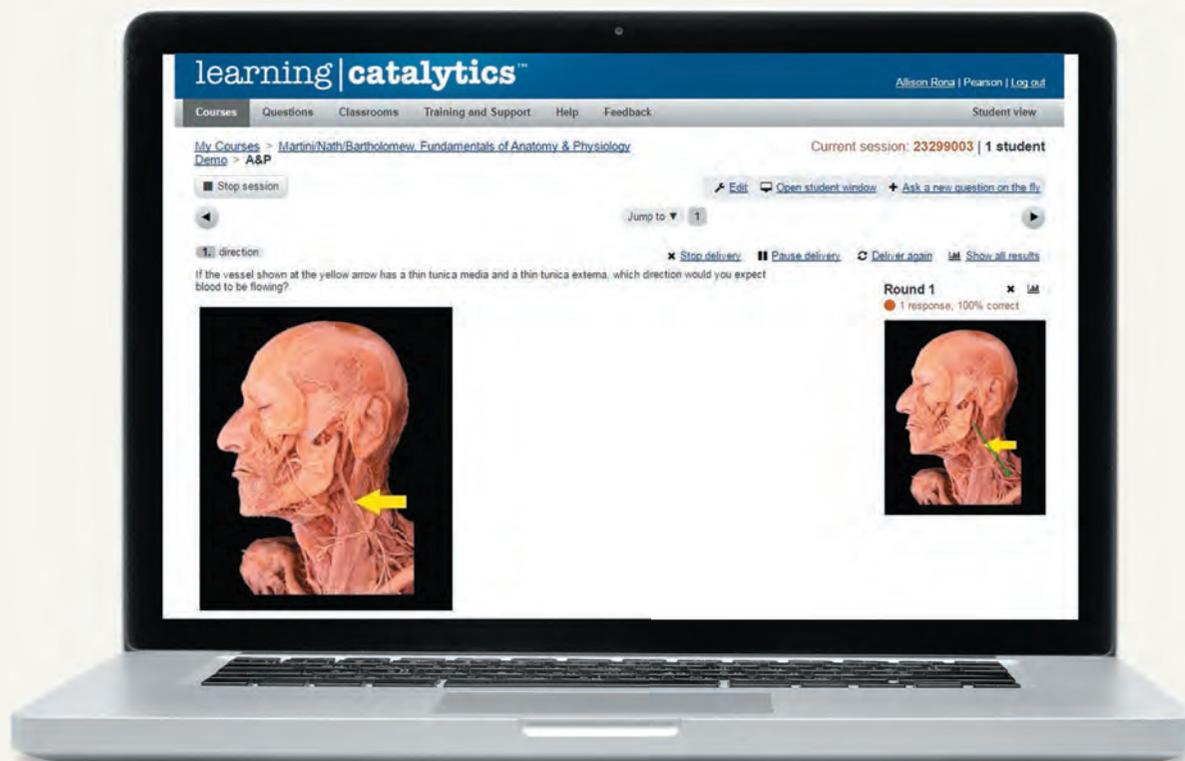
[Submit](#) [My Answers](#) [Give Up](#)

MasteringA&P™

Learning Catalytics is a “bring your own device” (laptop, smartphone, or tablet) engagement, assessment, and classroom intelligence system. Students use their device to respond to open-ended questions and then discuss answers in groups based on their responses.

“My students are so busy and engaged answering Learning Catalytics questions during lecture that they don't have time for Facebook.”

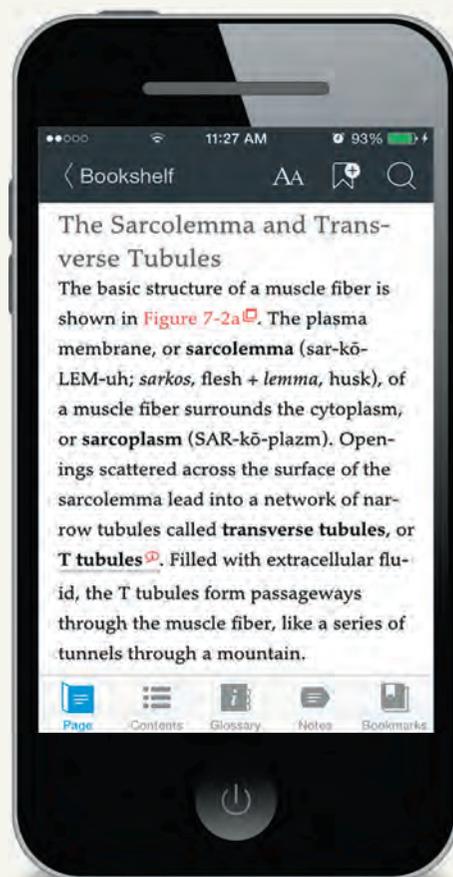
—Declan De Paor, Old Dominion University



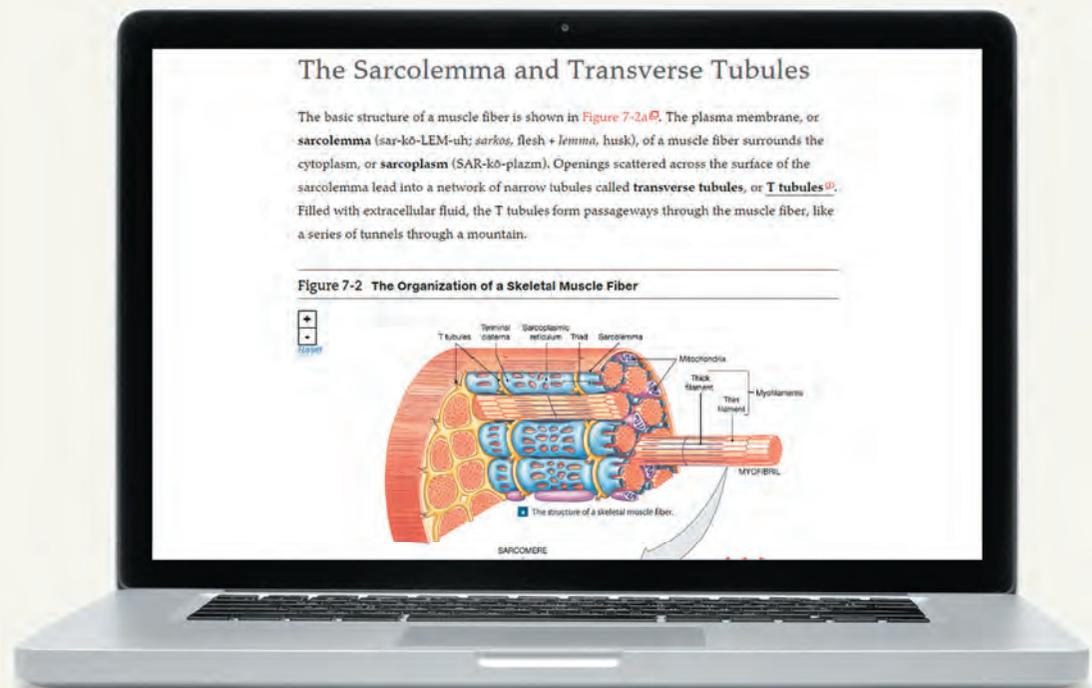
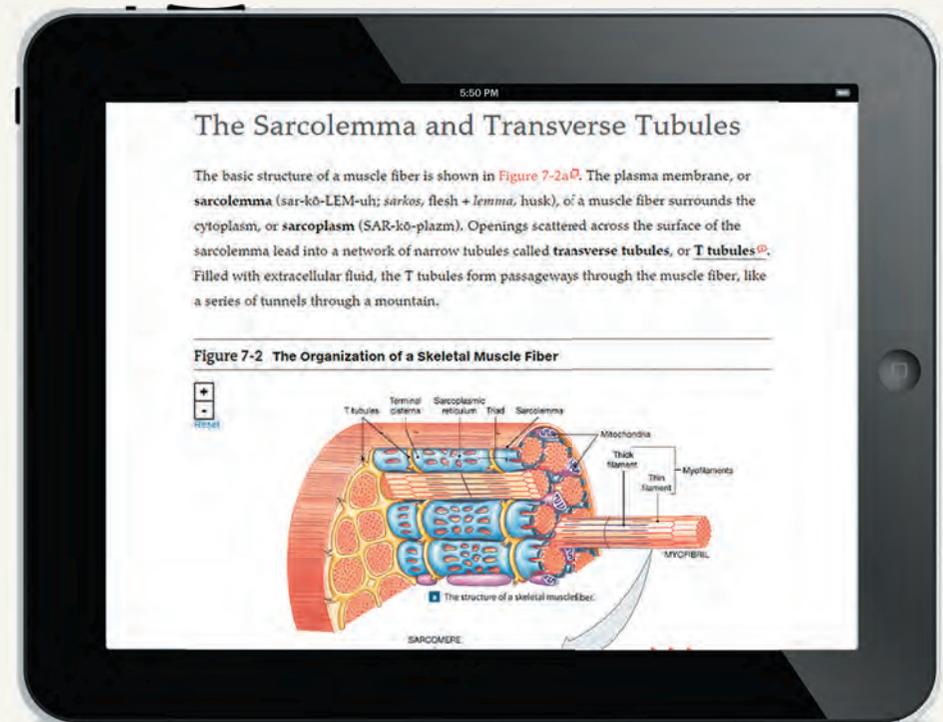
Access the Complete Textbook on or offline with eText 2.0

New! The Ninth Edition is available in Pearson's fully-accessible eText 2.0 platform.*

NEW! The eText 2.0 mobile app offers offline access and can be downloaded for most iOS and Android phones and tablets from the iTunes or Google Play stores.

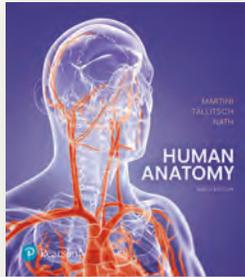


Powerful interactive and customization functions include instructor and student note-taking, highlighting, bookmarking, search, and links to glossary terms.



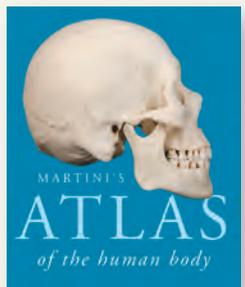
*The eText 2.0 edition will be live for Fall 2017 classes.

Instructor and Student Support



A complete package of instructor resources includes:

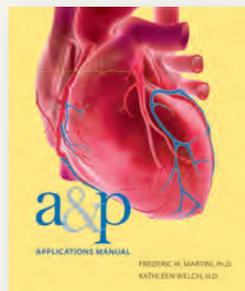
- Customizable PowerPoint slides
- All figures from the book in JPEG format
- A&P Flix 3D movie-quality animations on tough topics
- Test Bank
- And more!



Martini's Atlas of the Human Body by Frederic H. Martini

978-0-321-94072-8 / 0-321-94072-5

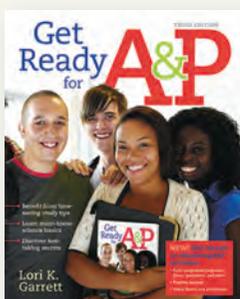
The Atlas offers an abundant collection of anatomy photographs, radiology scans, and embryology summaries, helping students visualize structures and become familiar with the types of images seen in a clinical setting. Free when packaged with the textbook.



A&P Applications Manual by Frederic H. Martini and Kathleen Welch

978-0-321-94973-8 / 0-321-94973-0

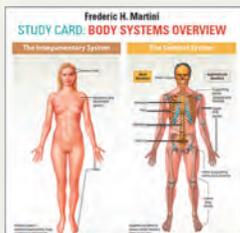
This manual contains extensive discussions on clinical topics and disorders to help students apply the concepts of anatomy and physiology to daily life and their future health professions. Free when packaged with the textbook.



Get Ready for A&P by Lori K. Garrett

978-0-321-81336-7 / 0-321-81336-7

This book and online component were created to help students be better prepared for their A&P course. Features include pre-tests, guided explanations followed by interactive quizzes and exercises, and end-of-chapter cumulative tests. Also available in the Study Area of MasteringA&P. Free when packaged with the textbook.



Study Card for Martini: Body Systems Overview

978-0-321-92930-3 / 0-321-92930-6

A six-panel laminated card showing all body systems and their organs and functions. Free when packaged with the textbook