Summary Anatomy and Physiology

The Texas Education Code (TEC) specifies that Anatomy and Physiology (A&P) is a one-credit course that satisfies high school science graduation requirements and that students participating in A&P courses must meet the 40% laboratory and fieldwork requirement (TEC § 130.224). The TEC states:

CTE instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions (TEC § 130.224)(b)(1)).

And that:

The A&P course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in A&P will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis (TEC § 130.224)(b)(3)).

Six publishers submitted comprehensive products in response to TEA’s PROC 2017 request for materials to support CTE courses in A&P. Each course introduces students to the systems, processes, and functions of the human body, and how systems interact to maintain homeostasis. With the exception of CEV Multimedia’s Anatomy and Physiology, each course contains vivid three-dimensional illustrations that accompany content and support student understanding. None of the courses includes Spanish-language supports, but since Latin is the basis for many A&P terms, such supports may be unnecessary.

The courses are summarized briefly below. Given the importance of vocabulary development, lab experiences, and preparation for further education and careers in A&P course work, the summaries focus on these components of each product.

   - The course is divided into five parts, or units: (1) The Organization of the Body, (2) Covering, Support, and Movement of the Body, (3) Regulation and Integration of the Body, (4) Maintenance of the Body, and (5) Continuity.
   - Each unit is made up of chapters that address the organs, systems, and processes related to the functions covered in the unit.
• New vocabulary is highlighted in the text and defined in context. The text does not include phonetic spellings or a glossary; however, online resources include an audio glossary that defines and pronounces new terms.
• Instruction does not address careers in the medical field.
• Lab activities are not provided.
• Online resources, including animations, podcasts and interactive exercises, support independent study.
• Teacher resources are limited.

2. Cengage Learning’s Body Structures and Functions, 13th Edition. Resources are available in print format and include additional online components.

• The course begins with an overview of the instructional resources included in the course and guidance in how to use them (e.g., “Visually highlight important material.”) and a brief history of anatomical science.
• Subsequent chapters introduce the body’s structural units (e.g., cells, tissues, organs), its systems and their functions (e.g., the circulatory system), and the components of each system (e.g., blood, heart).
• New vocabulary is highlighted in the text, defined in context and in the text’s glossary, and spelled phonetically.
• Chapters end with a “Medical Terminology” feature, a set of review exercises, a case study, and several lab activities. Medical Terminology provides lists of prefixes and suffixes and their roles in creating medical terms (e.g., intra: inside; intra/cellular: inside the cell).
• A “Career Profiles” feature describes careers in the medical field.
• A “One Body” feature describes the interactions between body systems (e.g., skeletal and muscular).
• A teacher’s edition is not provided; however, teaching resources are available at Cengage Learning’s Teacher’s Companion Site (e.g., PowerPoint lecture slides for each chapter and a solutions manual).

CEV Multimedia’s Anatomy & Physiology. Materials are available online and include some print components.

• Instruction begins with a set of lessons addressing general topics (e.g., Professional Communication, Scientific Reasoning), followed by lessons addressing the body’s systems (e.g., the circulatory system) and human development (e.g., fetal and infant, adolescent male).
• Lessons addressing medical equipment and how the body’s systems interact are provided.
• Most content is presented in bullet-points on PowerPoint slides.
Goodheart-Willcox's *Introduction to Anatomy and Physiology*. Resources are available in print and eBook formats and include additional online components.

- The course begins with a chapter titled “Foundations of Human Anatomy and Physiology” that provides an introduction to vocabulary, basic physiological processes, the effects of force on the body, the scientific method, and individuals who advanced the field (e.g., Leonardo da Vinci).
- Subsequent chapters address unique body systems (e.g., The Nervous System) and are organized in self-contained lessons that progress in a logical order. Instruction culminates in a lesson about diseases and disorders common to the body system (e.g., “Injuries and Disorders of the Nervous System”).
- Key vocabulary is highlighted in the chapter, defined in context, in a “Mini Glossary” at the end of the lesson, and in the glossary at the back of the book.
  - Other important terms are italicized in the text and defined in context and in the book’s glossary.
  - Terms that are difficult to pronounce are spelled phonetically.
  - Online resources include an “Audio Glossary” that pronounces new terms.
- Vivid full-color illustrations and diagrams include accompanying critical thinking questions
  - eBook illustrations contain links to associated animations and labeling activities on the course’s companion website.
- Each chapter includes a Mini Glossary of key terms, a short “In the Lab” investigation, and a “Career Corner: Anatomy and Physiology at Work” feature that explores careers related to the
body system covered in the chapter and contains activities in which students research the education, skills, and personal traits (e.g., teamwork and collaboration skills) required for related careers.

- A “Student Workbook and Lab Manual” has enrichment activities for each lesson and a hands-on lab investigation and practice test for each chapter.
- The course’s companion website contains study aids for each lesson and chapter, such as closed-captioned animations of functions, a quiz, and interactive vocabulary flashcards.
- A print teacher edition is available for the course.

**McGraw-Hill’s Hole’s Human Anatomy & Physiology, Texas Edition.** Resources are available in print and eBook formats with additional online components.

- The course’s first unit addresses the levels of organization in the human body (e.g., cell, tissue, organ). Subsequent units address the specific functions of the body’s organ systems (e.g., Support and Movement, Reproduction), and chapters cover the systems and processes involved in the function (e.g., the skeletal system; pregnancy, growth, and development).
- Chapters reference the TEKS addressed by instruction.
- New vocabulary is presented in bold font and defined in context and in a glossary.
  - Terms that are difficult to pronounce include phonetic spelling.
  - Each chapter includes a “Understanding Words” feature that examines the word forms, such as stems, prefixes, and affixes, that make up the chapter’s vocabulary (e.g., “ren-, kidney: renal cortex—outer region of a kidney.”).
- Illustrations and figures include questions that require students to analyze what they see (e.g., “What is the distance from the tongue to the duodenum, in English units?”).
- A “Career Corner” feature introduces students to careers in anatomy and physiology (e.g., anesthesiologist assistant).
- “InnerConnections” figures are included in some chapters and highlight how the different systems of the body interact.
- The “High School Laboratory Manual for Human Anatomy & Physiology,” while not specific to the Hole’s course, contains 34 complementary hands-on lab activities.
- The course’s “Teacher’s Manual” contains strategies for addressing the English Language Proficiency Standards (ELPS) and support for classroom instruction.

**Pearson’s Anatomy, Physiology, & Disease, 4th Edition.** Resources are available in print and eBook formats with additional online components.

- The course frames instruction as a journey through a foreign land (i.e., the human body).
- The text’s first chapter addresses learning the specialized “foreign” language of medical terminology and abbreviations, and the second chapter, “The Human Body: Reading the Map,” introduces students to body positions, cavities, and regions.
- Subsequent chapters explore the organization of the body (e.g., cells and tissue), its systems (e.g., the skeletal system), and their functions (e.g., movement).
• The course’s final chapters address basic diagnostic tests (e.g., blood tests), the scientific method, the role of anatomy and physiology in day-to-day life (e.g., personal choices and wellness), and careers and career planning.

• Chapters begin with a list of new vocabulary with phonetic spellings.
  o New vocabulary is highlighted and defined in context, margin notes, and in the text’s glossary.

• A variety of features help students integrate their learning and understand the real-world application of content. For example:
  o “Clinical Application” describes the real-world applications of what students are learning (e.g., sensible use of antibiotics).
  o “Applied Science” frames topics in anatomy and physiology in the context of other sciences (e.g., Forensics and Hair).
  o “Pathology Connection” describes diseases and disorders related to the concepts students are learning (e.g., diabetes mellitus).

• Hands-on lab activities are not provided.

• The “Teacher Wraparound Edition” provides the full text of the student edition and additional point-of-use resources to support instruction.

For each of these state-adopted materials, LearningList.com features three professional reviews to inform your selection decision:

• **Spec Sheet** – an overview of the material’s key academic attributes and technology requirements;

• **Editorial Review** – an in-depth analysis of the materials instructional content and design, and

• **Alignment Report** - the state panel’s report showing the citations that where reviewed for alignment to the each TEKS.