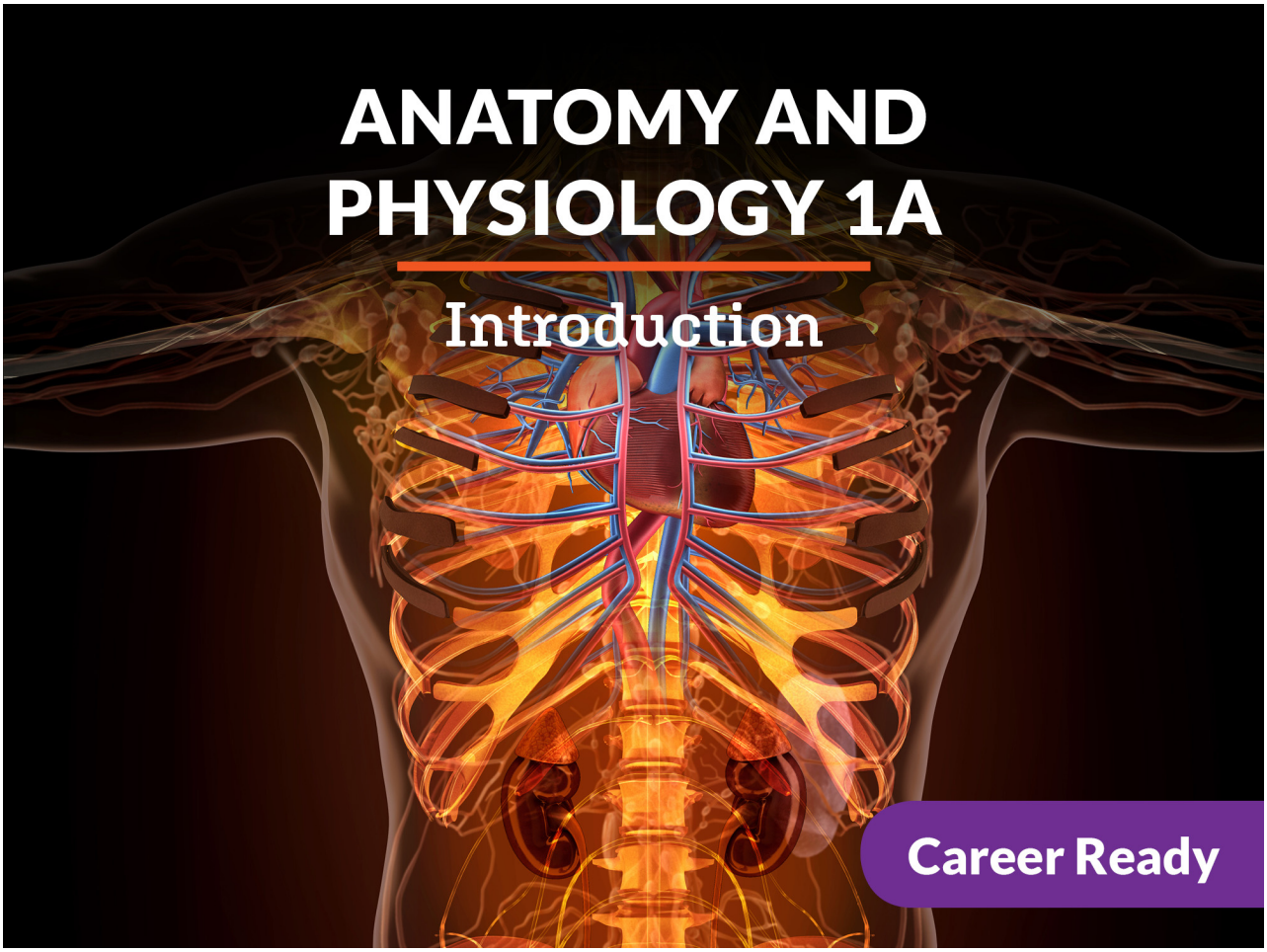
Course **Syllabus**

What you will learn in this course



Anatomy and Physiology 1a: Introduction

Whether you plan on pursuing a career in health sciences or simply looking to gain an understanding of how the human body works, you'll first need to understand the relationship between anatomy and physiology. Learn how to read your body's story through understanding cell structure and their processes, and discover the functions and purposes of the skeletal, muscular, nervous, and cardiovascular systems, as well as diseases that affect those systems.

Unit 1: Human Body Organization

While Anatomy and Physiology courses are required for students beginning their journeys to a career in a health science, they can also be of great value to others who are simply wanting to improve their own health and wellbeing. Just as it's easier to navigate a foreign country if you understand the language spoken, it's easier to navigate the human body if you understand the terminology related to the forms and functions of this fascinating area of study. If you're lost in

Italy, hopefully you have a translation app. If you're lost and trying to figure out how one symptom might be a clue to a larger problem in a patient, this material will help you navigate your way through body systems.

What will you learn in this unit?

- Define and discuss the terms anatomy and physiology and their relationship to one another
- Describe the levels of organization of the human body from simple to complex
- Define and describe the anatomical positions and directional terms used in human anatomy
- Locate and describe the main regions, sections, and cavities of the body

UNIT 1 Assignments

Assignment	Type
Unit 1 Critical Thinking Questions	Homework
Unit 1 Activity 1	Homework
Unit 1 Activity 2	Homework
Unit 1 Activity 3	Homework
Unit 1 Activity 4	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

Unit 2: Chemistry of the Body

Remember how we talked about one cell being smaller than a period? It's mind-blowing to think that something so small has so much control over all of our body systems. There are over 200 different types of cells in the body that make up a total of 100 TRILLION cells in one person. Think about it for a minute: that number is the number 1 followed by 14 zeroes!

Let's take a look at how cells are designed to make sure the human body stays healthy and balanced. Understanding cell design and reproduction is key to understanding how each body system works and how they interact to sustain life.

What will you learn in this unit?

- Summarize the relationships among homeostasis, control systems, and feedback loops
- Explain the structure and function of typical cells
- Explain mitosis and meiosis: their similarities and differences
- Describe and discuss how damage to one type of cell and/or tissue may impact the function of other cells and tissues

UNIT 2 Assignments

Assignment	Type
Unit 2 Critical Thinking Questions	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

Unit 3: The Skeletal System

Can you image what it would be like if you didn't have any bones and were only made up of muscle and skin? You wouldn't be able to walk very well, type on the keyboard or, certainly, be able to dance! There are 206 bones in the adult human skeleton. When we are born, we have more than 250 bones in our bodies, and as we grow and develop, some of the smaller bones fuse together to form stronger, longer and less pliable bone. The skeleton is not only what determines the shape and size of an individual, but it allows us to walk upright and perform the activities of daily life.

What will you learn in this unit?

- Describe the structure and function of bones
- Identify the different types of bones
- Differentiate between the axial and appendicular skeleton
- Classify joints and their specific functions
- Summarize common diseases and disorders of the skeletal system

UNIT 3 Assignments

Assignment	Type
Unit 3 Critical Thinking Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

Unit 4: The Muscular System

Sit perfectly still while you look at your computer screen. You might think that none of your muscles are moving, but they are. The diaphragm, the sheet of muscle that rests under your lungs, is contracting and relaxing to facilitate your breathing when you're at rest or in motion. Muscles also perform other functions that you may not have considered; not only does the muscular system move your limbs, it also interacts with other body systems to support vital movements around your body. Let's see what muscles do for you.

What will you learn in this unit?

- Explain the structure and function of muscles and muscle tissue
- Describe the sliding filament theory
- Interpret the names of various muscles based on Latin terms
- Distinguish between a muscle strain and other muscle injuries

UNIT 4 Assignments

Assignment	Type
Unit 4 Critical Thinking Questions	Homework
Unit 4 Activity 1	Homework

Unit 4 Activity 2	Homework
Unit 4 Activity 3	Homework
Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

Anatomy and Physiology 1a Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first four units in this course (Note: You will be able to open this exam only one time.)

MIDTERM Assignments

Assignment	Type
Midterm Exam	Exam
Midterm Discussion	Discussion

Unit 5: The Nervous System

Snap your fingers. Can you imagine that in the time it took you to snap, a nerve impulse could travel the length of a football field? Now, think about an amazingly fast relay race. Your nervous system is like a relay: the baton gets passed from one group of cells to the next to deliver a message with lightning speed. It's not one individual that carries the baton the length of the football field; it's multiple people passing the baton across the length of the impulse to make the movement or sensation happen. Once you examine all the individual parts of the nervous system and how they work together, you'll appreciate how fascinating it is.

What will you learn in this unit?

- Outline the organization and functions of the central and autonomic nervous systems
- Locate and identify the major regions of the brain and describe their functions
- Analyze the basic structure and functions of the cranial nerves, spinal cord, and special sense organs
- Discuss common diseases and disorders of the neurological system

UNIT 5 Assignments

Assignment	Type
Unit 5 Critical Thinking Questions	Homework
Unit 5 Activity 1	Homework
Unit 5 Activity 2	Homework
Unit 5 Activity 3	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

Unit 6: The Integumentary System

The integumentary system is one of the most unappreciated in the body. Most people might guess that the brain, heart, or lungs are the most important organ in the body, but the integumentary system plays a vital role in maintaining homeostasis and protecting all of these other important organs. Let's learn what makes the integumentary system so important.

What will you learn in this unit?

- Analyze the structure and function of the integumentary systems
- Discuss potential alterations in skin integrity
- Demonstrate the knowledge and skill related to performing effective hand hygiene
- Identify and analyze common diseases and disorders of the integumentary system

UNIT 6 Assignments

Assignment	Type
Unit 6 Critical Thinking Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework

Unit 6 Activity 3	Homework
Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

Unit 7: Essential Knowledge About Blood

Have you ever accidentally cut yourself so badly that your blood started to pool? As horrifying as that experience can be, it's also fascinating to consider exactly what that deep red liquid is. Blood is a tissue that is made up of millions and millions of cells and chemicals that are dissolved within it. Like other body systems, it has multiple intricate parts that work together to perform functions within its own assigned body system and coordinate activities with other body systems. It's the levels of the various components of blood, the path they take to circulate in the body, and their relationship with our heart and lungs that contribute to maintaining homeostasis.

What will you learn in this unit?

- Distinguish between the various types of blood vessels
- Demonstrate knowledge of the composition of blood
- Identify the different ABO compatibilities
- Describe various disorders and diseases of the blood and its components

UNIT 7 Assignments

Assignment	Type
Unit 7 Critical Thinking Questions	Homework
Unit 7 Activity 1	Homework
Unit 7 Activity 2	Homework
Unit 7 Activity 3	Homework
Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion

Unit 7 Quiz	Quiz

Unit 8: The Cardiovascular System and The Heart

We've all seen images on television of someone dramatically grabbing their chest and dropping to the ground, presumably having a heart attack. These significant injuries are a result of problems within the heart that are similar to the flickering of electricity in a room or clogged pipes in a sink. As you move through this unit, you will learn about the power grid and the plumbing in the heart, what happens when they are in top condition, and what happens when there is a disruption in service.

What will you learn in this unit?

- Describe the structure and function of the heart and circulatory pathways
- Compare and contrast systemic and pulmonary circulation
- Summarize the path for electrical conduction in the heart
- Discuss common diseases and disorders that affect the cardiovascular system

UNIT 8 Assignments

Assignment	Type
Unit 8 Critical Thinking Questions	Homework
Unit 8 Activity 1	Homework
Unit 8 Activity 2	Homework
Unit 8 Activity 3	Homework
Unit 8 Activity 4	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

Anatomy and Physiology 1a Final Exam

- Review information acquired and mastered from this course up to this point.

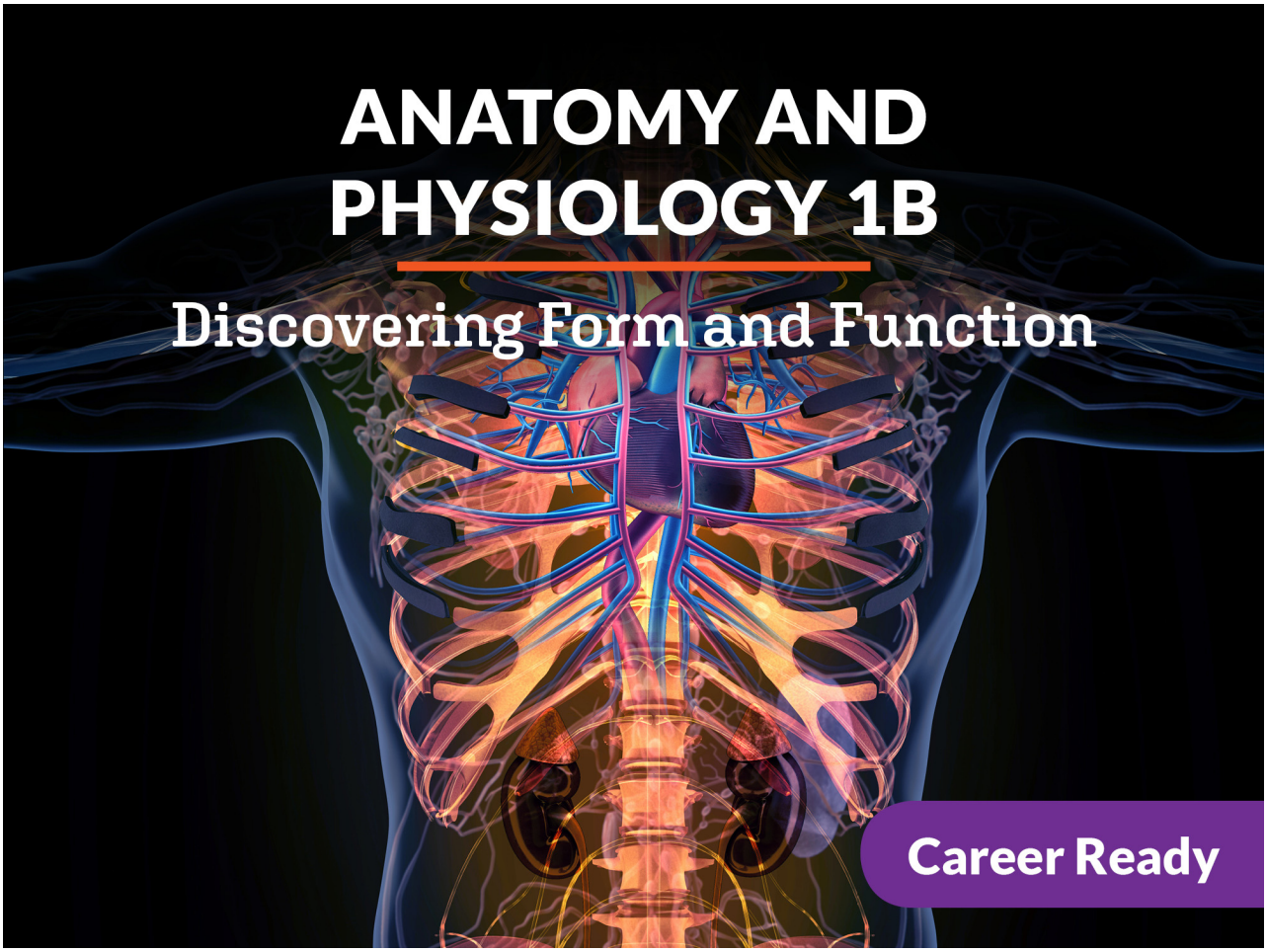
- Take a course exam based on material from units five to eight in this course – the last four units. (Note: You will be able to open this exam only one time.)

FINAL Assignments

Assignment	Type
Final Exam	Exam
Final Exam Discussion	Discussion

Course **Syllabus**

What you will learn in this course



Anatomy and Physiology 1b: Discovering Form and Function

Examine the form and function of even more body systems. Learn about the structure, function, and interrelation between the lymphatic, immune, respiratory, digestive, urinary, and endocrine systems. The reproductive system is also discussed along with hereditary traits and genetics. And discover the importance of accurate patient documentation as well as the technology used in the industry.

Unit 1: The Lymphatic and Immune System

As you've already learned, the lymphatic and immune system is one of the major body systems. Some texts will label this body system as simply 'lymphatic' and exclude the immune system perhaps because you can't see it. For the purposes of this course, however, we're going to combine the lymphatic and immune systems so that you develop an understanding of how these

two systems work together to protect the human body from bacteria, viruses, and harmful cells within the body (in autoimmune disease and cancer for example).

What will you learn in this unit?

- Describe the structure and function of the immune system
- Compare and contrast the different types of immunity
- Explain the relationship between the lymphatic and circulatory systems
- Discuss common diseases and disorders of the lymphatic and immune system (etiology, prevention, pathology, diagnosis, treatment, and rehabilitation)

UNIT 1 Assignments

Assignment	Type
Unit 1 Critical Thinking Questions	Homework
Unit 1 Activity 1	Homework
Unit 1 Activity 2	Homework
Unit 1 Activity 3	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

Unit 2: The Respiratory System

It's obvious that the respiratory system is important. All cells of the body require energy, and this energy cannot be obtained through chemical reactions without oxygen. The respiratory system not only provides the route to collect the oxygen that is used in each of the metabolic processes that sustain life, but it also provides the route to rid the body of carbon dioxide, the by-product of many of these metabolic processes. In this unit you will examine the structures that support the respiratory system, explore how oxygen is brought to the sites of cellular metabolism to help maintain homeostasis, and learn what happens when the respiratory system is compromised. Now, take a deep breath and read on.

What will you learn in this unit?

- Describe the structure and function of the respiratory system
- Compare and contrast ventilation and respiration
- Explain gas exchange
- Discuss common diseases and disorders of the respiratory system (etiology, prevention, pathology, diagnosis, treatment, and rehabilitation)

UNIT 2 Assignments

Assignment	Type
Unit 2 Critical Thinking Questions	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

Unit 3: The Digestive System

The digestive system is quite familiar to us since we are aware that we use it several times a day. There are so many mechanical and chemical processes, however, that take place to ensure the food we eat is digested and absorbed for use by the body. We might not realize just how complex and critical this body system is. Prepare to be amazed.

What will you learn in this unit?

- Describe the organization of the digestive system
- Explain the structure and function of the digestive system
- Discuss the six digestive processes and the digestive enzymes
- Describe diseases and disorders of the digestive system

UNIT 3 Assignments

Assignment	Type
Unit 3 Critical Thinking Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

Unit 4: The Urinary System

We might not enjoy speaking about the functions of the urinary system in our everyday lives, but this body system is critical to our health and to our body's ability to maintain homeostasis. It's important to understand the urinary system but also the important relationships between this system and others, such as the circulatory system. Did you know that the bladder can hold 1000 ml—or one whole liter—of urine?

What will you learn in this unit?

- Describe the organization of the urinary system
- Explain the structure and function of the urinary system at both a macro and micro level
- Compare and contrast the female and male urinary systems
- Explain how urine is formed and excreted from the body
- Describe diseases and disorders of the urinary system

UNIT 4 Assignments

Assignment	Type
Unit 4 Critical Thinking Questions	Homework
Unit 4 Activity 1	Homework
Unit 4 Activity 2	Homework
Unit 4 Activity 3	Homework
Unit 4 Activity 4	Homework

Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

Anatomy and Physiology 1b Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first four units in this course (Note: You will be able to open this exam only one time.)

MIDTERM Assignments

Assignment	Type
Midterm Exam	Exam
Midterm Discussion	Discussion

Unit 5: The Reproductive System and Genetics

The differences between men and women enable us to create unique and precise human offspring. How can we predict what diseases individuals will have, and how specifically do human beings grow from being tiny cells of fertilization? It's truly fascinating to consider that each of us exists based on odds similar to winning the lottery. When someone tells you that you're one in a million, you're actually going to respond, "no, I'm one in fifteen million." Read on to find out why!

What will you learn in this unit?

- Compare and contrast the organization of the male and female reproductive systems
- Explain the structure and function of the reproductive system
- Discuss genes and chromosomes from conception to birth
- Understand how a negative is used to create an image print
- Describe common diseases and disorders of the reproductive system

UNIT 5 Assignments

Assignment	Type
Unit 5 Critical Thinking Questions	Homework
Unit 5 Activity 1	Homework
Unit 5 Activity 2	Homework
Unit 5 Activity 3	Homework
Unit 5 Activity 4	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

Unit 6: The Endocrine System

This is the last body system that you will explore in this course. Have you decided yet which one you feel is the most important? Which one, if it fails, will impact a person's life the most? Have you thought about whether breathing is more important than the message the brain sends to the lungs to perform the action of breathing? Is your decision firm? What if you now learn that there are two organ systems that work together more than any others to maintain homeostasis? Would this change your mind? In this unit you are going to learn about the intricate ways that the glands and organs of the endocrine system work with the nervous system to ensure that all the hormone, electrolyte, and fluid levels are kept in balance. After working through this unit, you'll be asked which is truly your favorite unit and the one that you believe plays the most important role in sustaining life.

What will you learn in this unit?

- Describe the organization of the endocrine system
- Explain the structure and function of organs of the endocrine system
- Explain how the endocrine system maintains homeostasis
- Describe diseases and disorders of the endocrine system

UNIT 6 Assignments

Assignment	Type
Unit 6 Critical Thinking Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework
Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

Unit 7: Assessing and Documenting Anatomy and Physiology

Have you ever read a journal or a personal memoir? Even a newspaper that recalls a series of events? If you have, you know that what makes them complete and informative is detail. The use of dates, times, and specific words helps the reader understand exactly what is being described by the author. A complete health assessment allows a healthcare provider to develop a full story or sequence of events that apply to a person's situation. The recording of this information on paper or electronically ensures that care can be provided in a consistent, safe way.

What will you learn in this unit?

- Identify purposes of a healthcare record
- Discuss legal guidelines for documentation
- Describe confidentiality and the laws that govern patient privacy
- Describe the different methods of data collection
- Conduct a health history
- Organize a basic body systems physical assessment

UNIT 7 Assignments

Assignment	Type
Unit 7 Critical Thinking Questions	Homework
Unit 7 Activity 1	Homework
Unit 7 Activity 2	Homework

Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Quiz

Unit 8: The Science & Technology of Anatomy & Physiology

You've already learned that anatomy and physiology courses are required for students who are beginning their journey to a career in health science or for individuals who want to improve their own health and wellbeing. Along this journey, you may have had questions about where it all began and what the proof is behind certain things that you read, or maybe you've even questioned why you would possibly need to know some of this material. This unit will bring you back to the beginnings of anatomy and physiology as a science and hopefully answer some of the remaining questions you have about why anatomy and physiology is important. You'll also explore more about the various healthcare careers that use anatomy and physiology as a foundational tool in their scopes of practice.

What will you learn in this unit?

- Describe the history of anatomy and physiology as a science
- Distinguish between the scopes of practice of various healthcare professions
- Differentiate between qualitative and quantitative research
- Discuss examples of different types of research studies that can advance the science of anatomy and physiology
- Illustrate the ways in which healthcare professionals work collaboratively

UNIT 8 Assignments

Assignment	Type
Unit 8 Critical Thinking Questions	Homework
Unit 8 Activity 1	Homework
Unit 8 Activity 2	Homework
Unit 8 Activity 3	Homework
Unit 8 Activity 4	Homework

Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

Anatomy and Physiology 1b Final Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from units five to eight in this course – the last four units. (Note: You will be able to open this exam only one time.)

FINAL Assignments

Assignment	Type
Final Exam	Exam
Final Exam Discussion	Discussion