
**Honors Anatomy and Physiology
Tiverton High School
Summer Assignment 2017-2018**

Instructor: Ms. Elkins

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Textbook: Marieb, Elaine. *Essentials of Human Anatomy & Physiology, 9e.*

Summer Assignment #1: Notes

Read the first chapter in the textbook, *Chapter 1: The Human Body: An Orientation*, and take notes using the provided outline. You are not responsible and do not need to take notes for the section "Regional Terms" that have been crossed out. In this course, we take hand-written notes before we cover material in class. This exposes you to the content beforehand, and greatly increases knowledge retention and assessment performance. *Note: Your notes must be hand-written for credit, and notes during the school year will be assigned in smaller sections for appropriate pacing in class.*

Summer Assignment #2: Chapter 1 Essay

On a separate sheet of paper, answer the following essay prompts (see pages 12-13 of the textbook for reference):

- a. What is homeostasis? Explain the roles of each element of a homeostatic control mechanism.
- b. Explain the similarities and differences between "positive" and "negative" feedback mechanisms in regulating homeostasis in the body. Also, describe one example of each mechanism that is used in the body to regulate homeostasis.

Summer Assignment #3: Chapter 3 Reading and Review Questions

We will not cover chapter 3 in class, but you are required to know and apply this information throughout the entire course. You do not need to take notes on this chapter, but you must read this section thoroughly and answer the chapter review questions at the end. Any questions or misconceptions you may have on this content will be addressed before we move on to chapter 4.

On a separate sheet of paper, complete the chapter review questions on pages 106-108 of the textbook, numbers 1, 6-13, 20-22, 26, 28-36, and 38-40.

Due Date: All three assignments are due, handwritten, either on separate sheets of paper or in a notebook, in the THS Main Office no later than FRIDAY AUGUST 18th. This assignment will count as 10% of your quarter 1 grade.

Have a great summer and I look forward to seeing you this fall! ☺

1 - The Human Body: An Orientation

CHAPTER SUMMARY

Chapter 1 introduces and establishes the framework upon which all the other chapters are built. This chapter provides the necessary terminology so that instructor and students are all "speaking the same language." Marieb begins by defining the key terms *anatomy* and *physiology*, and then continues to describe the ways in which these key terms are interrelated. It is important that students realize that structure determines function, since that concept will help them to master the more difficult material in future chapters.

Levels of organization are presented next, beginning with the atomic level and continuing through to the highest level of organization, the human body. A brief overview of the various organ systems follows the discussion of the levels of structural organization, and the ways in which all the organ systems are interconnected into a working whole. This concept is further augmented by the discussion of the necessary life functions, since it is important for students to understand that each of the organ systems has several functions, and that any given function (e.g., excretion) is actually carried out by several organ systems working together to maintain appropriate balance within the living organism. This information leads to a discussion of homeostasis, and the disease states that occur when homeostatic mechanisms are out of balance for extended periods. Students appreciate the image of the dynamic body continually striving to maintain balance and equilibrium.

The final section of this chapter provides the basic terminology that will be used and expanded upon throughout the text. Directional terms help the student distinguish between relative terms such as proximal and distal, and thus help them understand the midline of the body as an axis point. Regional terms differentiate anterior and posterior body landmarks, divide the body into sections and planes, and identify the body cavities and their components. The anatomists' useful description of regions is also presented to round out the students' awareness of the ways in which the body can be physically and intellectually dissected.

SUGGESTED LECTURE OUTLINE

- I. AN OVERVIEW OF ANATOMY AND PHYSIOLOGY (pp. 2-3)
 - A. Anatomy (p. 2)
 1. Gross Anatomy
 2. Microscopic Anatomy
 - B. Physiology (p. 2)
 - C. Relationship Between Anatomy and Physiology (p. 2)
- II. LEVELS OF STRUCTURAL ORGANIZATION (pp. 3-10)
 - A. From Atoms to Organisms (pp. 3-4)
 1. Chemical Level
 2. Cellular Level
 3. Tissue Level
 4. Organ Level
 5. Organ System Level

6. Organismal Level
- B. Organ System Overview (pp. 4-10; Figure 1.2)
 1. Integumentary System
 2. Skeletal System
 3. Muscular System
 4. Nervous System
 5. Endocrine System
 6. Cardiovascular System
 7. Lymphatic System
 8. Respiratory System
 9. Digestive System
 10. Urinary System
 11. Reproductive System

III. MAINTAINING LIFE (pp. 10-12)

- A. Necessary Life Functions (pp. 10-11)
 1. Maintaining Boundaries
 2. Movement
 3. Responsiveness (irritability)
 4. Digestion
 5. Metabolism
 6. Excretion
 7. Reproduction
 8. Growth
- B. Survival Needs (pp. 11-12)
 1. Nutrients (food)
 2. Oxygen
 3. Water
 4. Body Temperature
 5. Atmospheric Pressure

IV. HOMEOSTASIS (pp. 12-15)

- A. Homeostatic Control Mechanisms (pp. 12-13)
 1. Receptor
 2. Control Center
 3. Effector
 4. Negative Feedback Mechanisms
 5. Positive Feedback Mechanisms
- B. Homeostatic Imbalance (p. 15)

V. THE LANGUAGE OF ANATOMY (pp. 15-22)

- A. Anatomical Position (p. 15)
- B. Directional Terms (p. 15; Table 1.1)
- ~~C. Regional Terms (pp. 16-17; Figure 1.5)~~
 - ~~1. Anterior Body Landmarks~~
 - ~~2. Posterior Body Landmarks~~
- D. Body Planes and Sections (p. 17; Figure 1.6)
- E. Body Cavities (pp. 17-22)
 1. Dorsal Body Cavity
 - a. Cranial Cavity
 - b. Spinal Cavity
 2. Ventral Body Cavity
 - a. Thoracic Cavity
 - b. Abdominopelvic Cavity
 - i. Abdominopelvic Quadrants
 - ii. Abdominopelvic Regions
 3. Open Body Cavities