

**MISSION VALLEY REGIONAL OCCUPATIONAL PROGRAM**  
**ANATOMY PHYSIOLOGY *for* MEDICAL CAREERS**  
**COURSE OUTLINE**

**1. Course Title:**

Anatomy and Physiology for Medical Careers

**2. CTE Career Sector and Pathway:**

Health Science and Medical Technology Sector (HLT), Patient Care (198)

**3. CALPADS Number:**

7920

**4. Career Pathways:**

*Health Career Pathways:*

Medical Careers	Academic
Biotechnology	Academic
Bioinformatics	Academic
Forensics	Academic
Pharmaceuticals	Academic
Psychology	Academic
Allied Health	Academic

**5. Course Length:**

1 year long course, 1 period a day

**6. Course Description:**

This is a college preparatory course offered to juniors and seniors interested in health professions. This course prepares students for completing their pre-requisite in UC credit science requirement to further their education in college in health sciences and medical technology. Classroom instruction includes medical terminology and the study of body systems in detail in the healthcare point of view.

**7. Articulation:**

This course is articulated with Ohlone College BIOL 104: Basic Human Anatomy and Physiology.

**8. UC/CSU a-g eligibility:**

This course meets the UC/CSU A-G “d” requirement.

**9. Instructional Materials:**

*Anatomy & Physiology for Health Professionals: An Interactive Journey*, 4th Edition, by Colbert and Ankney, Pearson 2020

Date of Revision: Aug 3, 2023

Approved by Advisory:

**School Learning Outcomes:**

Integrated Throughout the course	<p><b><u>Workplace Basic Skills &amp; Behaviors</u></b>  (Necessary skills for any occupation – <a href="#">MVROP SLO #1</a>)  Learner Outcomes:</p> <ul style="list-style-type: none"> <li>A. Apply skills learned in class.</li> <li>B. Analyze information and make decisions.</li> <li>C. Communicate verbally and in writing.</li> <li>D. Work independently and as a team member in a diverse workplace.</li> <li>E. Work reliably, responsibly, and ethically.</li> </ul>
Integrated throughout the course	<p><b><u>Career Technical Skills</u></b>  (Occupational competencies – <a href="#">MVROP SLO #2</a>)  Learner Outcomes:</p> <ul style="list-style-type: none"> <li><b>A. Technology.</b> <ul style="list-style-type: none"> <li>a. Select, operate, maintain, and troubleshoot a variety of technologies (tools, machines, and computers).</li> <li>b. Use computers to process information for the numerical system.</li> </ul> </li> <li><b>B. Safety standards</b> <ul style="list-style-type: none"> <li>a. Comply with personal and environmental safety practices associated with clothing, eye protection, hand tools, power equipment, and proper ventilation.</li> <li>b. Comply with safety and environmental practices associated with handling, storage, and disposal of chemicals or materials in accordance with local, state, and federal regulations.</li> </ul> </li> <li><b>C. Business Functions</b> <ul style="list-style-type: none"> <li>a. Identify, organize, plan, and manage time, materials, and facilities.</li> <li>b. Recognize purpose for administration, operations, marketing, personnel, production, distribution, and services.</li> </ul> </li> </ul>
<b><i>MANDATORY FOR ALL ROP COURSES</i></b>	<p><b><u>Career Path Strategies</u></b>  (Occupational competencies – <a href="#">MVROP SLO #3</a>)  Learner Outcomes:</p> <ul style="list-style-type: none"> <li>A. Develop a plan to achieve career goals.</li> </ul>

	<p><b>a. Create a Career Portfolio</b></p> <ul style="list-style-type: none"> <li>i. Cover letter</li> <li>ii. Application</li> <li>iii. Resume</li> <li>iv. Thank you letter</li> </ul> <p>B. Use effective job search strategies</p> <p>C. Demonstrate an awareness of the importance of lifelong learning.</p>
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## Course Outline:

### **PART I: INTRODUCTION TO ANATOMY AND PHYSIOLOGY**

#### **I. Introduction to Anatomy and Physiology**

- A. What is Anatomy and Physiology?
- B. Describe the Language
  - 1. Define the parts of medical terminology
  - 2. Describe the metric system
  - 3. Define abbreviations
- C. Define the language of disease
- D. Differentiate between the symptoms and signs of a disease
- E. Describe the Anatomy and Physiology concepts you will encounter on your journey.
- F. Review the case study

#### **II. The Human Body**

- A. The Map of the Human Body
  - 1. Describe Body Positions
  - 2. Define Body Planes and Directional Terms
  - 3. Name and Locate the Body Cavities
  - 4. Describe Body Region

#### **III. The Cells: The Raw Materials and Building Blocks**

- A. Identify the chemical constituents of a cell
- B. Differentiate between animal and plant cell
- C. Identify the cell organelles and list the functions of each organelle
- D. Explain the methods of transport across a cell membrane
- E. Describe and differentiate Mitosis and Meiosis

#### **IV. Tissues and Systems**

- A. Identify the characteristics and functions of epithelial, connective, muscle and nervous tissues
- B. Identify the organs and describe how the organs are integrated into body systems

## **PART II: GROWTH AND DEVELOPMENT**

### **V. Integumentary System**

- A. Describe the structure and functions
- B. Describe temperature regulation
- C. Identify and describe the common disorders and diseases of the skin
- D. Differentiation between regeneration and replication of cells

### **VI. Skeletal System**

- A. Describe the structure and functions of a bone
- B. Name and classify the major bones of the skeleton
- C. Diagram and label the microscopic structure of the bone
- D. Describe the methods of ossification and bone growth, repair
- E. Classify movements
- F. Describe the joints and ligaments
- G. Describe the disorders and diseases of the Skeletal system

### **VII. The Muscular System**

- A. Define the types of muscles and classify based on their shape, location, direction, size and function
- B. Describe the functional unit of muscle at the cellular level
- C. Describe the physical and chemical characteristics of muscle tissue
- D. Differentiate smooth, cardiac and skeletal muscles
- E. Name the major muscles of the skeletal muscular system
- F. Identify and describe the disorders and diseases of the muscular system

## **PART III: HOMEOSTASIS**

### **VIII. Reproductive System**

- A. Label the diagrams of male and female reproductive systems
- B. List the functions of each reproductive structure in males and females
- C. Describe the hormonal changes and influences during the menstrual cycle
- D. Describe the human reproduction
- E. Describe the common disorders and diseases of the reproductive system

### **IX. Nervous System**

- A. Diagram and label a neuron
- B. Describe the structure and function of parts of brain
- C. Label the parts of reflex arc and describe their functions
- D. Describe the common disorders and diseases of the Nervous system

### **X. Endocrine System**

- A. Identify the endocrine glands and describe their location and function
- B. List the hormones produced by the endocrine glands and describe their function
- C. Describe the homeostasis and how the hormones play a major role in homeostasis
- D. Describe the negative and positive feedback
- E. Describe the common disorders and diseases of the Endocrine system

**XI. Circulatory System**

- A. Diagram and label the parts of the heart
- B. Describe the circulation of blood through the heart and the body
- C. Describe the cardiac cycle and demonstrate the electrocardiography of the heart
- D. Name the major arteries and veins of the vascular system
- E. Describe the common disorders and diseases of the Cardiovascular system
- F. Identify the risk factors for heart disease

**XII. Lymphatic System**

- A. Identify the major parts of lymphatic system and explain their functions
- B. Describe the role of white blood cells in the immunity
- C. Compare different types of immunity
- D. Describe the disorders of immune system

**XIII. Respiratory System: Objectives**

- A. Identify the organs of respiratory system and describe their functions
- B. Define the respiratory volumes and capacities
- C. Describe the mechanics of external and internal respiration
- D. Describe the common disorders and diseases of the Respiratory system

**XIV. Urinary System**

- A. Diagram and label a nephron
- B. Label the Urinary System and describe the function of each part
- C. Describe the secretion of urine, filtration and reabsorption process
- D. Describe the common disorders and diseases of the Urinary system
- E. Apply the concept of filtration in dialysis in a clinical setting

**PART IV: ENERGY**

**XV. Digestive system**

- A. Label the alimentary canal and describe the functions
- B. List the enzymes secreted and their functions
- C. Describe the chemical bonds of food molecules
- D. Describe the process of digestion, absorption, assimilation and elimination
- E. Identify the accessory organs of digestion and describe their function
- F. Describe the common disorders and diseases of the Digestive system

**12. Additional Items:**

**a. Instructional Strategies:**

lecture  
multi-media  
virtual simulation  
group discussion  
cooperative  
groups  
brainstorming

practice  
guest speakers  
projects  
demonstration  
reading  
assignments  
hands-on labs

oral reports  
critical thinking  
problem solving  
scenarios  
role-playing  
overheads

**b. Assessment Methods and/or Tools:**

- |                 |                  |                          |
|-----------------|------------------|--------------------------|
| -Quizzes/Tests  | -Research papers | -Hands-on lab activities |
| -demonstrations | -Warm ups        | -Peer assessments        |
| -Presentations  | -Projects        | -Exams                   |

**c. Key Assignments:**

- Design and conduct scientific experiments to assess, evaluate and communicate the problem
- Incorporation of mathematics to analyze the data
- Animal dissections to visualize the structures and understand the concepts
- Understanding the physiology and disease process in humans by experimenting and application
- Virtual stimulatory labs to provide depth to understanding the concepts
- Application of concepts in relation to clinical settings
- Using technology and modern methods to understand the clinical approach in health care industry

**d. Course Certificate Requirements:**

Required proficiency level for certificate of Completion:

1. Overall grade of a “B” (84%) or higher for each of the quarter semesters.
2. Minimum student mastery level for each proficiency; perform correctly with direct supervision.

*Career Preparation Standards:*

- Apply workplace basic skills and behaviors
- Practice occupational safety standards
- Demonstrate effective job employment skills

*Career Technical Skills:*

- Demonstrate the mechanics of homeostasis through learning the structure and the functions of body systems in depth and applying the concepts in a clinical setting.
- Demonstrate an understanding of energy, matter and organization through experimentation, critical thinking, and problem solving and group projects.
- Master the medical terminology component of each system.
- Identify the components of Universal Precautions and Standard precautions.
- Demonstrate an understanding of various careers in the healthcare industry including the education, personal qualities and skills necessary for the career.