Title**: Human Structure, Function, and Disease (A)**

Course Description: Introduces human anatomy, physiology, common diseases, and disorders. Focuses on Skeletal, Muscular, Respiratory, Integumentary, Cardiovascular and Lymphatic Systems. Integrates advanced medical terminology.

Curricular Activities: HOSA–Future Health Professionals, Work-based Learning Internships and Apprenticeships

NCHSE Resources

- Health Science Curriculum Enhancements
- Work-based Learning Guide
- National Health Science Standards

End of Course Certificate

- Human Structure Function Disease (A)

Additional Stackable Certificates

- Foundations of Healthcare Professions
- Essential Healthcare Practices
- Human Structure Function Disease (B)

End of Program Certificate

- National Health Science Certificate

1.0 Medical Terminology

(Based on National Health Science Standards 2.2.1, 2.2.2)

Demonstrate methods of delivering and obtaining information, while communicating effectively

1.1 Use common roots, prefixes, and suffixes to communicate information regarding body systems, diseases, and disorders.

1.2 Interpret common medical abbreviations.

2.0 Anatomy and Physiology

(Based on National Health Science Standards 1.1.1, 1.1.2 a, b, c, d, e, f)

Understand human anatomy, physiology, common diseases and disorders, and medical math principles.

2.1 Identify basic levels of organization of the human body.

- Cellular
- Chemical
- Organ
- Organism
- Systems
- Tissue

2.2 Identify body planes, directional terms, cavities, and quadrants.

- Body planes (sagittal, mid-sagittal, coronal/frontal, transverse/horizontal)
- Directional terms (superior, inferior, anterior/ventral, posterior/dorsal, medial, lateral, proximal, distal, superficial, and deep)
- Cavities (dorsal, cranial, orbital, nasal, oral, spinal, thoracic, abdominal, and pelvic)
- Quadrants (upper right, lower right, upper left, and lower left)

2.3 Investigate the process of homeostasis.

2.4 Skeletal System

2.4.1 Structures of the skeletal system

- Distinguish between axial and appendicular skeletons
- Describe long bone anatomy
- Identify joint types and movement
- Name and classify all bones (206)

2.4.2 Functions of the skeletal system

- Structure and support
- Muscle attachment and movement
- Mineral storage
- Hematopoesis
- Ossification

2.5 Muscular System

2.5.1 Structures of the muscular system

- Identify types of muscle tissue

- Identify major muscle groups of neck, shoulder, chest, abdomen, back, arms and legs

2.5.2 Functions of the muscular system
- Body movement
- Posture
- Protection

2.6 Integumentary System

2.6.1 Structures of the integumentary system
- Identify integumentary components
- Label the layers of skin

2.6.2 Functions of the integumentary system
- Infection protection
- Sensory organ
- Temperature regulation
- UV light protection
- Vitamin D production

2.7 Cardiovascular System

2.7.1 Structures of the cardiovascular system
- Distinguish blood components
- Identify cardiovascular organs
- Label the parts of the heart

2.7.2 Functions of the cardiovascular system
- Blood flow through the heart and body
- Cardiac conduction system
- Transportation of nutrients, waste, antibodies, hormones, and gases

2.8 Lymphatic/Immune System

2.8.1 Structures of the lymphatic system
- Identify lymphatic organs

2.8.2 Functions of the lymphatic system
- Movement of lymph fluid
- Provides protection against disease

2.9 Respiratory System

2.9.1 Structures of the respiratory system
- Identify respiratory organs

2.9.2 Functions of the respiratory system
- Gas exchange

3.0 Diseases and Disorders (Skeletal, Muscular, Integumentary, Cardiovascular, Lymphatic, Respiratory)
(Based on National Health Science Standards 1.2.1, 1.2.2)

3.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following:

- Arthritis
- Asthma
- Cancer
- Cystic fibrosis
- Melanoma
- Muscular dystrophy
- Myocardial infraction
- Stroke/Cerebrovascular Accident (CVA)
- Tuberculosis

3.2 Discuss research related to emerging diseases and disorders (such as: autism, VRSA, PTSD, Listeria, seasonal flu).

3.3 Describe biomedical therapies as they relate to prevention, pathology, and treatment of disease.

- Gene editing
- Gene testing
- Gene therapy
- Immunizations
- Immunotherapy
- Stem cell research

4.0 Medical Mathematics
(Based on National Health Science Standards 1.3.1, 1.3.2, 1.3.3)

4.1 Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare.

4.2 Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.

**Review National Health Science Standard 4: Employability Skills and 7: Safety, before entering work-based learning opportunities, if appropriate for your program.*