

Anderson Districts 1 & 2 Career and Technology Center Health Science

Course Title

Health Science 3
Human Structure and Function

Instructors

Jane Broadwell
Shannon Everhart
Carolyn Olver
Erika Scott
Jody Smith

Course Description:

Health Science 3 acquaints students with basic anatomy and physiology of the human body. Students learn how the human body is structured and the function of each of the 12 body systems. Students will study the relationship that body systems have with disease from the healthcare point of view. This is a very “hands on” course and students will learn through projects and activities in the classroom. Skill procedures and foundation standards are reviewed and integrated throughout the program. Job shadowing is encouraged. This course does not count as a lab science.

General Requirements: This course is recommended for students in grades 11 or 12. Required pre-requisites are: Health Science 2 or Sports Medicine 1. Students are recommended to be First Aid and CPR certified prior to this course. Students should be familiar with general medical terminology as well as technical skills associated with vital signs. (Skills learned in HS2 or SM1). This is the 3rd course in a 4 course sequence for Health Science.

Course Credit

1 semester course
1 or 2 unit (s)

Instructional Philosophy

Health care delivery in the United States is in a period of transition and change with technological advances all the time. Our students will be entering a rapidly changing work environment full of challenging technology and diversity. Due to our changing world students must be able interact with a diverse population in the workplace. This trend has increased the need for consumer awareness and individual responsibility for health care. As students are being prepared to assume roles in health care, it is important they understand that careers are varied and different with common knowledge and procedures. This being true, basic preparation starts in high school and includes sciences, English, math and computer skills before the student can move forward successfully.

Student assessment will be based on group work, individual completion of assignments, written reports, tests and selected skill performances. This semester course will be presented in an exciting and challenging manner.

Students will be expected to meet the standards of the classroom and course with the teacher's assistance. Ample opportunity will be given to students to evaluate their own progress.

Instructional Delivery Plan

Introduction to assignments

The teacher introduces the course and class activities, distributes the syllabus and explains the requirements also, the teacher outlines the classroom and school policies and procedures. The evaluation and grading system is introduced at the beginning of the course to advise students of the standards they are expected to meet and pass the course and achieve better grades.

Class operation

The teacher provides direction and manages the class but gives the students as much responsibility as possible for planning, designing and completing projects. In classroom sessions, the teacher lectures, demonstrates certain concepts and provides parameters for student performance. Students are monitored by the teacher so that time lines and mastery are accomplished. Student engagement is essential for student learning and the teacher will monitor and adjust as necessary.

Monitoring, evaluating and grading performance

Each student is to complete all assignments/projects. The students are to use concepts of correct grammar and medical language. The teacher conducts periodic class discussions to emphasize points and to check student's progress and understanding. Students are expected to explain key concepts and their progress. The evaluation system is clearly explained to the student at the beginning to the course.

Course Goals

Upon completion of this course, the student will be able to:

Develop a basic understanding of the body systems and how they relate to the medical terms. Goals include, but are not limited to:

- How the various parts of the human body contribute to the maintenance of homeostasis
- Help students develop critical thinking and problem solving skills
- Use correct medical terminology to communicate anatomical features and physiological processes

The following body systems will be covered as time permits:

Basic Structure

- Body Planes/Directions/Cavities
- Integumentary System
- Skeletal System
- Muscular System
- Nervous System
- Special Senses
- Circulatory System
- Lymphatic System
- Respiratory System
- Digestive System
- Urinary System
- Endocrine System
- Reproductive System

Course Outline:

Basic Structure and Function of the Human Body

- Label a diagram of the main parts of a cell
- Describe the basic function of each part of a cell
- Compare the four main types of tissue by describing the basic function of each type
- Explain the relationship between cells, tissues, organs, & systems
- Define, pronounce, and spell all the key terms

Body Planes, Directions, & Cavities

- Label the names of the planes and the directional terms related to these planes on a diagram of the three planes of the body.
- Label a diagram of the main body cavities.
- Identify the main organs located in each body cavity.
- Locate the nine abdominal regions
- Define, pronounce and spell key terms

Integumentary Systems

- Label a diagram of a cross section of the skin.
- Differentiate between the two types of skin glands.
- List six functions of the skin.
- Provide the correct names for three abnormal colors of the skin and identify the cause of abnormal color.
- Describe at least four skin eruptions
- Describe at least four diseases of the Integumentary system
- Define, pronounce, and spell key terms.

Skeletal System

- List five functions of bones
- Label the parts of a bone on a diagram of a long bone
- Name the two divisions of the skeletal system and the main groups of bones in each division
- Identify the main bones of the skeleton
- Compare the three classifications of joints by describing the type of motion allowed by each
- Give one example of each joint classification
- Describe at least four diseases of the skeletal system
- Define, pronounce and spell key terms

Muscular System

- Compare the three main kinds of muscle by describing the action of each
- Differentiate between voluntary muscle and involuntary muscle
- List at least three functions of muscles
- Describe at least three diseases of the muscular system
- Define, pronounce and spell key terms

Nervous System

- Identify the four main parts of a neuron
- Name the two main divisions of the nervous system
- Describe the function of each of the five main parts of the brain
- Explain three functions of the spinal cord
- Identify the three meninges
- Describe the circulation and function of cerebrospinal fluid
- Contrast the actions of the sympathetic and parasympathetic nervous systems
- Define, pronounce and spell key terms

Special Senses

- Identify five special senses
- Label the major parts on a diagram of the eye
- Trace the pathway of light rays as they pass through the eye
- Label the major part on a diagram of the ear
- Trace the pathway of sound waves as they pass through the ear
- Explain how the ear helps maintain balance and equilibrium
- State the locations of the four main taste receptors
- Describe at least six diseases of the eye and ear
- Define, pronounce and spell key terms

Circulatory System

- Label the layers, chambers, valves, and major blood vessels on a diagram of the heart
- Differentiate between systole and diastole by explaining what happens in the heart during each phase
- List the three major types of blood vessels and the action of each type
- Compare the three main types of blood cells by describing the action of each type
- Compare the three main types of blood cells by describing the functions of each
- Describe at least five diseases of the circulatory system
- Define, pronounce and spell key terms

Lymphatic System

- Explain the functions of lymphatic vessels
- List at least two functions of lymph nodes
- Identify the two lymphatic ducts and the areas of the body that each drains
- List at least three functions of the spleen
- Describe the functions of the thymus
- Describe at least three diseases of the lymphatic system
- Define, pronounce and spell key terms

Respiratory System

- Label a diagram of the respiratory system
- List five functions of the nasal cavity
- Identify the three sections of the pharynx
- Describe the function of the epiglottis
- Compare the processes of inspiration and expiration
- Differentiate between internal and external respiration
- Describe at least five diseases of the respiratory system
- Define, pronounce and spell key terms

Digestive System

- Label the major organs on a diagram of the digestive system
- Identify at least three organs that are located in the mouth and aid in the initial breakdown of food
- Cite two functions of the salivary glands
- List at least three functions of the large intestine
- List at least four functions of the liver
- Explain how the pancreas helps digest foods
- Describe at least five diseases of the digestive system
- Define, pronounce and spell key terms

Urinary System

- Label a diagram of the urinary system
- Explain the action of the following parts of a nephron: glomerulus, Bowman's capsule, convoluted tubule, and collecting tubule
- State the functions of the ureter, bladder and urethra
- Explain why the urethra is different in males and females
- Interpret at least five terms used to describe conditions affecting urination
- Describe at least three diseases of the urinary system
- Define, pronounce and spell key terms

Endocrine System

- Label a diagram of the main endocrine glands
- Describe how hormones influence various body functions
- Describe at least three diseases of the lymphatic system
- Define, pronounce and spell key terms

Reproductive System

- Label a diagram of the male reproductive system
- Trace the pathway of sperm from where they are produced to where they are expelled from the body
- Identify at least three organs of the male reproductive system that secrete fluids added to the semen
- Label a diagram of the female reproductive system
- Describe how an ovum is released from an ovary
- Explain the action of the endometrium
- Describe at least six diseases of the reproductive system
- Define, pronounce and spell key terms

Foundation Standards:

- 1. Foundation 1: Academic Foundations:** Healthcare professionals will know the academic subject matter required for proficiency within their area. They will use this knowledge as needed in their role.
- 2. Foundation 2: Communications:** Healthcare professionals will know the various methods of giving and obtaining information. They will communicate effectively, both orally and in writing..
- 3. Foundation 3: Systems:** Healthcare professionals will understand how their role fits into their department, their organization and the overall healthcare environment. They will identify how key systems affect services they perform and the quality of care.
- 4. Foundation 4: Employability Skills:** Healthcare professionals will understand how employability skills enhance their employment opportunities and job satisfaction. They will demonstrate key employability skills and will maintain and upgrade skills, as needed.
- 5. Foundation Standard 5: Legal Responsibilities:** Healthcare professionals will understand the legal responsibilities, limitations, and implications of their

actions within the healthcare delivery setting. They will perform their duties according to regulations, policies, laws, and legislated rights of clients.

6. **Foundation Standard 6: Ethics:** Healthcare professionals will understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment. They will perform quality healthcare delivery.
7. **Foundation Standard 7: Safety Practices:** Healthcare professionals will understand the existing and potential hazards to clients, co-workers, and self. They will prevent injury or illness through safe work practices and follow health and safety policies and procedures.
8. **Foundation Standard 8: Teamwork:** Healthcare professionals will understand the roles and responsibilities of individual members as part of the healthcare team, including their ability to promote the delivery of quality healthcare. They will interact effectively and sensitively with all members of the healthcare team.
9. **Foundation Standard 9: Health Maintenance Practices:** Healthcare professionals will understand the fundamentals of wellness and the prevention of disease processes. They will practice preventive health behaviors among the clients.
10. **Foundation Standard 10: Technical Skills:** Healthcare professionals will apply technical skills required for all career specialties. They will demonstrate skills and knowledge as appropriate.
11. **Foundation Standard 11: Information Technology Applications:** Healthcare professionals will use information technology applications required within all career specialties. They will demonstrate use as

Major Course/Anchor Projects

Body systems research paper and/or 3-D project for assigned body system
Other projects as assigned by instructor

Senior Project

Project to showcase the knowledge and skills obtained over the past 2-3 years. Will be completed during the senior year and assessed by a panel of judges.

Makeup Policy

Will adhere to the school policy regarding make up work

Assessment Plan

A	90-100
B	89-80
C	79-70
D	69-60
F	59-below

Grading Percentages

Major Grades: Tests /Major Projects	60%
Minor Grades: Classwork/Homework/Quizzes/Employability Rating	40