Wyoming Department of Education Required Virtual Education Course Syllabus

Converse County School District # 1

Course Information	
Program Name	Biology
Course ID	H435
Course Name	Introduction to Anatomy
SCED Code	03054E0.5011
Content Area	Science
Grade Level	12
# of Credits	.5 high school
Curriculum Type	District Developed
Please give a concise description of this course including the purpose and what students will demonstrate and/or gain from this course.	
This course covers basic human anatomy, exploring the body as connected systems.	

Wyoming Content and Performance Standards	
Standard	
HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multi-cellular organisms. HS-LS1-3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	

Wyoming Content and Performance Standards	
HS-LS1-6	Construct explanations and revise, as needed, based on evidence for: 1) how carbon, hydrogen, and oxygen may combine with other elements to form amino acids and/or other large carbon-based molecules
HS-LS1-7	Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of sugar molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.

Scope and Sequence		
Unit Outline	**Standard #**	**Outcomes** **Objectives/Student Centered Goals**
Introduction 1. Introduction 2. 1.1 Overview of Anatomy and Physiology 3. 1.2 Structural Organization of the Human Body 4. 1.3 Functions of Human Life 5. 1.4 Requirements for Human Life 6. 1.5 Homeostasis 7. 1.6 Anatomical Terminology 8. 1.7 Medical Imaging	HS-LS1-2	**Chapter Objectives** After studying this chapter, you will be able to: • Distinguish between anatomy and physiology, and identify several branches of each • Describe the structure of the body, from simplest to most complex, in terms of the six levels of organization • Identify the functional characteristics of human life

Scope and Sequence		
		• Identify the four requirements for human survival • Define homeostasis and explain its importance to normal human functioning • Use appropriate anatomical terminology to identify key body structures, body regions, and directions in the body • Compare and contrast at least four medical imagining techniques in terms of their function and use in medicine
Integumentary System 29. Introduction 30. 5.1 Layers of the Skin 31. 5.2 Accessory Structures of the Skin 32. 5.3 Functions of the Integumentary System 33. 5.4 Diseases, Disorders, and Injuries of the Integumentary System	HS-LS1-2	**Chapter Objectives** After studying the chapter, you will be able to: • Describe the integumentary system and the role it plays in homeostasis • Describe the layers of the skin and the functions of each layer

Scope and Sequence		
		• Describe the accessory structures of the skin and the functions of each • Describe the changes that occur in the integumentary system during the aging process • Discuss several common diseases, disorders, and injuries that affect the integumentary system
Nervous system • 85. Introduction • 86. 13.1 The Embryologic Perspective • 87. 13.2 The Central Nervous System • 88. 13.3 Circulation and the Central Nervous System • 89. 13.4 The Peripheral Nervous System •	HS-LS1-3	**Chapter Objectives** After studying this chapter, you will be able to: • Relate the developmental processes of the embryonic nervous system to the adult structures • Name the major regions of the adult nervous system

Scope and Sequence		
		• Locate regions of the cerebral cortex on the basis of anatomical landmarks common to all human brains
Endocrine system 105. Introduction 106. 17.1 An Overview of the Endocrine System 107. 17.2 Hormones 108. 17.3 The Pituitary Gland and Hypothalamus 109. 17.4 The Thyroid Gland 110. 17.5 The Parathyroid Glands 111. 17.6 The Adrenal Glands 112. 17.7 The Pineal Gland 113. 17.8 Gonadal and Placental Hormones 114. 17.9 The Endocrine Pancreas 115. 17.10 Organs with Secondary Endocrine Functions 116. 17.11 Development and Aging of the Endocrine System	HS-LS1-3	**Chapter Objectives** After studying this chapter, you will be able to: • Identify the contributions of the endocrine system to homeostasis • Discuss the chemical composition of hormones and the mechanisms of hormone action • Summarize the site of production, regulation, and effects of the hormones of the pituitary, thyroid, parathyroid, adrenal, and pineal glands • Discuss the hormonal regulation of the reproductive system

Scope and Sequence		
		• Explain the role of the pancreatic endocrine cells in the regulation of blood glucose • Identify the hormones released by the heart, kidneys, and other organs with secondary endocrine functions • Discuss several common diseases associated with endocrine system dysfunction • Discuss the embryonic development of, and the effects of aging on, the endocrine system
Exam 1: Chapters 1, 5, 13,17 October		
Cardiovascular system	HS-LS1-7	Chapter Objectives After studying this chapter, you will be able to:

Scope and Sequence		
117. Introduction 118. 18.1 An Overview of Blood 119. 18.2 Production of the Formed Elements 120. 18.3 Erythrocytes 121. 18.4 Leukocytes and Platelets 122. 18.5 Hemostasis 123. 18.6 Blood Typing		• Identify the primary functions of blood, its fluid and cellular components, and its physical characteristics • Identify the most important proteins and other solutes present in blood plasma • Describe the formation of the formed element components of blood • Discuss the structure and function of red blood cells and hemoglobin • Classify and characterize white blood cells
Respiratory system	HS-LS1-7	**Chapter Objectives** After studying this chapter, you will be able to: • List the structures of the respiratory system

Scope and Sequence		
145. Introduction 146. 22.1 Organs and Structures of the Respiratory System 147. 22.2 The Lungs 148. 22.3 The Process of Breathing 149. 22.4 Gas Exchange 150. 22.5 Transport of Gases 151. 22.6 Modifications in Respiratory Functions 152. 22.7 Embryonic Development of the Respiratory System		• List the major functions of the respiratory system • Outline the forces that allow for air movement into and out of the lungs • Outline the process of gas exchange • Summarize the process of oxygen and carbon dioxide transport within the respiratory system
Digestive system	HS-LS1-6	**Learning Objectives** After studying this chapter, you will be able to: • List and describe the functional anatomy of the organs and accessory organs of the digestive system • Discuss the processes and control of ingestion, propulsion, mechanical

Scope and Sequence		
153. Introduction 154. 23.1 Overview of the Digestive System 155. 23.2 Digestive System Processes and Regulation 156. 23.3 The Mouth, Pharynx, and Esophagus 157. 23.4 The Stomach 158. 23.5 The Small and Large Intestines 159. 23.6 Accessory Organs in Digestion: The Liver, Pancreas, and Gallbladder 160. 23.7 Chemical Digestion and Absorption: A Closer Look		digestion, chemical digestion, absorption, and defecation • Discuss the roles of the liver, pancreas, and gallbladder in digestion • Compare and contrast the digestion of the three macronutrients
Urinary system	HS-LS1-3	**Chapter Objectives** After studying this chapter, you will be able to: • Describe the composition of urine • Label structures of the urinary system • Characterize the roles of each of the parts of the urinary system

Scope and Sequence		
169. Introduction 170. 25.1 Physical Characteristics of Urine 171. 25.2 Gross Anatomy of Urine Transport 172. 25.3 Gross Anatomy of the Kidney 173. 25.4 Microscopic Anatomy of the Kidney 174. 25.5 Physiology of Urine Formation 175. 25.6 Tubular Reabsorption 176. 25.7 Regulation of Renal Blood Flow 177. 25.8 Endocrine Regulation of Kidney Function 178. 25.9 Regulation of Fluid Volume and Composition 179. 25.10 The Urinary System and Homeostasis		• Illustrate the macroscopic and microscopic structures of the kidney • Trace the flow of blood through the kidney • Outline how blood is filtered in the kidney nephron • Provide symptoms of kidney failure • List some of the solutes filtered, secreted, and reabsorbed in different parts of the nephron • Describe the role of a portal system in the kidney • Explain how urine osmolarity is hormonally regulated
Exam 2: Chapters 18, 22,23,25 November		

Scope and Sequence		
Balance of systems 180. Introduction 181. 26.1 Body Fluids and Fluid Compartments 182. 26.2 Water Balance 183. 26.3 Electrolyte Balance 184. 26.4 Acid-Base Balance 185. 26.5 Disorders of Acid-Base Balance	HS-LS1-2	**Chapter Objectives** After studying this chapter, you will be able to: • Identify the body's main fluid compartments • Define plasma osmolality and identify two ways in which plasma osmolality is maintained • Identify the six ions most important to the function of the body