

Utah	Human Anatomy Standards	Essentials of Anatomy & Physiology 13e Page Reference
Standard HUMA.1.1	Develop and use models to demonstrate the orientation of anatomical structures and regions of the human body. Emphasize how size, orientation, and location within the human body supports the function of the anatomical structures.	Ch. 1.4 The Language of Anatomy; Ch. 1 end-of-chapter questions
Standard HUMA.1.2	Obtain, evaluate, and communicate information about how the scale, proportion, and quantity of different body structures affects their functions within the human body. Emphasize the roles of cells, tissues, organs, and organ systems.	Ch. 1.2 Levels of Structural Organization
Standard HUMA.2.1	Construct an explanation about the relationship between the structures of the integumentary system and their role in protection, eliminating waste products, and regulating body temperature.	Ch. 4.2 The Integumentary System; Chapter 4 end-of-chapter questions
Standard HUMA.2.2	Develop and use models to relate the structure of the skeletal system to its functional role in movement, protection, and support.	Ch. 5 The Skeletal System
Standard HUMA.2.3	Plan and carry out an investigation to determine the cause and effect relationship between structures of the muscular system and their role in movement and support.	Ch. 6 The Muscular System
Standard HUMA.2.4	Engage in argument from evidence about how the integumentary, skeletal, and muscular systems make support, protection, and movement possible. Emphasize the homeostatic mechanisms, as well as the effects of and responses to nutrition, aging, diseases, and disorders.	Chs. 4–6 (integumentary, skeletal, and muscular systems), including pp. 176 & 215 Systems in Sync
Standard HUMA.3.1	Plan and carry out an investigation to determine how the structures of the nervous system support the function of information processing (detection, interpretation, and response) within the body.	Ch. 7 The Nervous System, including p. 266 A Closer Look: Tracking Down CNS Problems

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Standard HUMA.3.2	Analyze and interpret data to explain how the hormones of the endocrine system regulate physical and chemical processes to maintain a stable internal environment, support general health, and promote growth and development throughout the lifespan. Emphasize both positive and negative feedback mechanisms. Examples of feedback mechanisms could be heart rate, blood sugar, childbirth, temperature, and growth.	Ch. 9 The Endocrine System, with p. 308 positive feedback example of oxytocin and negative feedback examples throughout the chapter, such as thyroid hormones, adrenal hormones, and blood glucose; negative feedback is first described on p. 305
Standard HUMA.3.3	Construct an explanation about how the cause and effect relationship of the endocrine and nervous systems makes information processing (detection, interpretation and response) possible. Emphasize homeostatic mechanisms and their effects and responses to nutrition, aging, diseases, and disorders.	Ch. 7 Nervous System and Ch. 9 Endocrine System, including p. 325 homeostatic relationships between the systems
Standard HUMA.4.1	Analyze and interpret data to identify patterns that explain how the cardiovascular and respiratory systems obtain oxygen, transport nutrients, and remove waste.	Ch. 11 The Cardiovascular System and Ch. 13 The Respiratory System
Standard HUMA.4.2	Obtain, evaluate, and communicate information about the relationship between the structure and function of the digestive and urinary systems as they utilize matter to derive energy and eliminate waste.	Ch. 14 The Digestive System and Body Metabolism and Ch. 15 The Urinary System, including pp. 509 & 539 Systems in Sync and end-of-chapter questions
Standard HUMA.4.3	Ask questions to construct an explanation about the interdependence of the cardiovascular, respiratory, urinary, and digestive systems. Emphasize homeostatic mechanisms, as well as the effects of and responses to nutrition, aging, diseases, and disorders.	Chs. 11 and 13, 14, 15 ; these include Systems in Sync diagrams to highlight interdependence, e.g. pp. 391 & 459

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Standard HUMA.4.4	Use mathematics and computational thinking to design a device which measures the exchange of matter and energy used by the cardiovascular, respiratory, digestive, and urinary systems to determine health of those systems and to prevent potential health issues. Define the problem, identify criteria and constraints, develop possible solutions using models, analyze data to make improvements from iteratively testing solutions, and optimize a solution. Examples of measurements could include caloric input to the digestive system, respiratory gas output, respiratory rates, respiratory volumes, digestive rates, heat lost by urine output, blood pressure, and heart rate.	Chs. 10, 11, 13, 14, and 15 address measurements such as blood pressure (p. 375), heart rate (p. 363), and water intake and urine output (p. 525); figures and questions require students to interpret physiological data
Standard HUMA.5.1	Obtain, evaluate, and communicate information about how the structures of the male and female reproductive system provide a stable yet changing environment to allow for the production of egg and sperm, fertilization, implantation, and the development of human fetus. Emphasize the role of hormones in the male and female reproductive process.	Ch. 16 The Reproductive System, including end-of-chapter Short Answer Essay questions
Standard HUMA.5.2	Develop and use models to describe the stability and change in the stages of human embryology and gestation, including fertilization and embryo and embryo and fetal development. Emphasize the embryological changes through the different stages of development.	16.6 Pregnancy and Embryonic Development; 16.7 Developmental Aspects of the Reproductive System; pp. 577-580 questions
Standard HUMA.5.3	Ask questions about how the reproductive system uses matter and energy to make growth and development possible. Emphasize homeostatic mechanisms, as well as the effects of and responses to nutrition, aging, diseases, and disorders.	Ch. 16 The Reproductive System; 9.4 Developmental Aspects of the Endocrine System