Title ***The Human Body, 2nd Edition***
ISBN 978-1-935495-72-7 (student text)

Science Credits	1
Lab Credits[1]	1
Honors Designation[2]	Yes
Science Type	Life

This laboratory-based human anatomy and physiology course offers an in-depth look at the human body's 11 systems. In addition, it adds to *Exploring Creation with Biology, 2nd Edition* to cover the entire AP biology syllabus. You cannot call it an AP course, however, unless you have your specific implementation of the course approved by the College Board.

The book begins with how the body maintains homeostasis using its various feedback systems. It then reviews animal cell structure, molecular genetics, and mitosis. It then adds details regarding active and passive transport processes controlled by the cell's plasma membrane. It moves on to a study of histology, covering the types of tissues found in the body and their characteristics. It also covers how tissues repair themselves.

The integumentary system is covered next, giving the details of the epidermis, dermis, and hypodermis. It also covers skin glands, skin receptors, hair, and nails. The skeletal system is next, covering the majority of the skeletal bones. After the anatomy of the skeletal system is discussed, the histology of bone tissue is covered. This leads to a discussion of bone growth, bone homeostasis, and bone repair. The skeletal system is finished with a discussion of joints.

The skeletal muscular system is covered next, giving the molecular details of how muscles contract and relax, antagonist relationships, how the nervous system controls muscles, muscle tone, and how energy is used in muscle cells. The anatomy is then given, covering the major muscles of the head, face, chest, abdomen, shoulder, back, arm, forearm, hand, thigh, leg, and foot.

The book then describes the nervous system, first at a cellular level, discussing both neurons and neuroglia. It then gives the overall structure of a nerve and has an in-depth discussion of how action potentials are produced and how they propagate through the nerves. Synaptic transmission is next, and finally, the arrangement of neurons in the nervous system. The central nervous system is then highlighted with a discussion of the structure of the brain, the way the brain is protected, the spinal cord, and the reflex arc. The nervous system is concluded with a detailed look at the peripheral nervous system, including the autonomic nervous system and its divisions. The senses are then discussed.

The endocrine system is next, with a survey of the endocrine glands, hormone chemistry, hormone secretion control, hormone receptors, and the prostaglandins. After that, the student learns the details of the cardiovascular system, including the composition of blood, blood types, blood circulation, heart anatomy, blood flow in the heart, cardiac muscles, and the cardiac cycle.

The book then moves to the lymphatic system, covering the physiology of lymph vessels, the structure and function of lymph nodes, the spleen, the thymus gland, and immunity (specific, non-specific, and acquired). The digestive system comes next, with a full discussion of the anatomy and physiology. Accessory organs are also discussed, as are macronutrients and micronutrients.

The next topic is the respiratory system, with a discussion of both the anatomy and physiology. The voice is covered as are respiratory control, cellular respiration, and how respiration affects the blood's carbonic acid/bicarbonate buffer. The urinary system is covered next, with both the anatomy and a detailed discussion of urine formation in the kidney. How the kidneys control blood pressure and pH are also discussed.

The book ends with a discussion of human reproduction. While not pornographic, there are frank illustrations and a detailed discussion of the process of intercourse. In addition, both male and female genitals and gametogenesis are discussed, as is the menstrual cycle. Embryonic development is also covered.

There are 19 experiments in the course, comprising 28 hours of laboratory instruction. Most of them use a microscope and some associated equipment. There are also three dissections (eye, heart, fetal pig) and a few experiments that use household items.

[1]To qualify as a lab credit, all of the experiments must be performed. Those experiments must be fully documented in a laboratory notebook, as discussed in the introduction to the text.

[2]To qualify as an honors credit, all modules must be completed, the tests must be taken closed book, and all experiments must be performed. Those experiments must be fully documented in a laboratory notebook, as discussed in the introduction to the text. In addition, a grade of B or higher must be earned following the pedagogy in the answer key.