

High School Science

Anatomy & Physiology (1.0 Credit)

Semester A

The aim of this course is to expand upon what was learned in your Biology class, while emphasizing the application of this material to human structures and functions. This course begins the study of human beings at the microscopic level and works its way up to an in-depth study of select organ systems. Special emphasis will be placed upon applying and demonstrating the information learned in this course through, not only tests and quizzes, but through special projects and collaboration as well.

Semester B

Part B is designed to give the student an understanding of how structure and function are related in the human body. The student will study the human body from the cellular level to the organ system level. All of the major body systems will be studied in great detail. Additionally, biochemistry, cell biology, histology, biotechnology, bioethics, and pathology will also be studied. This course is highly recommended for students seeking a career in science or a health-related profession

Biology (1.0 Credit)

Biology introduces students to the scientific method and the major concepts of biology from an historical and practical viewpoint. The three major themes of this course are the cell, the molecular basis of heredity, and the interdependence of organisms. Students who take this class will have a deeper appreciation for the complexities of living organisms. Life on this planet, unlike anywhere else in the observable universe, is complex and highly organized. Whether examining life on the molecular or the planetary level, it exhibits a highly organized structure that inspires awe by its genius and complexity. In the last 50 years, discoveries have launched new branches of biology that have transformed the daily routine, from conception to death. New challenges await, such as the current crisis in ecology, global warming, and the resurgence in viral disease. To make rational choices in the 21st century, the citizen must have a basic understanding of biological concepts and the reasoning behind them. The first half of the course is presented in a multimedia format using interactive modules, labs, narrated animation, text, and videos to present the study of life on this planet. The major concepts covered are population dynamics and evolution. Students explore population dynamics through the study of mutualism, predation, parasitism, and competition. The theory of evolution is presented, along

with the many evidences and details that make evolution the backbone of modern biology. From biochemistry to evolution, biology fascinates people. Biochemists first astounded the world by showing that life obeys the same chemical principles as all creation, but that life engineers chemistry to its own needs. Decades later, Darwin shocked the world by suggesting that life evolves according to the conditions of the environment it inhabits. Evolution, often debated and derided, has survived to become a key concept of biology. The course examines the wonder of life and its mechanisms. Students work through and complete several self-check activities and quizzes for practice, and participate in self-reflection. In each unit, students complete the unit exam and deliver a unit project. Teacher feedback is provided throughout the course.

Chemistry (1.0 Credit)

In this course, students will discover what chemistry is, and how it is used and found all around us. The importance of the scientific method to solve real world problems will be investigated. Knowledge will be gained in the following areas: types of matter, atomic structure, chemical periodicity, chemical formula writing and naming, chemical equations. This course will also stress the important relationship between math and science while studying measurement, metric system and stoichiometry. Students will use higher order thinking throughout the entire course. An algebra background is recommended because of the amount and type of math involved. Students will investigate chemical bonding, thermochemistry, and acids and bases. The importance of the scientific method to solve real world problems will be investigated. Knowledge will be gained in the following areas: organic chemistry, biochemistry, and nuclear chemistry. This course will also stress the important relationship between math and science. Students will use higher order thinking throughout the entire course. An algebra background is recommended because of the amount and type of math involved.

Earth Science (1.0 Credit)

The course begins by covering Scientific Inquiry, the Structure and Composition of the Universe, and the Features of the Solar System. Students learn the importance of scientific inquiry and how to communicate the results of scientific investigations. They then have material on the formation of the universe, including the Big Bang Theory, the motions of celestial objects, and stellar evolution. The course covers material related to the Solar System, including features of the Sun and the planets and the movements of Earth. The course also covers Weather, Climate, and Earth's Water Cycle. Students will learn about the atmosphere and clouds, as well as the factors that influence local and global climate. The student will also learn about weather and air masses, meteorology and storms. The course then discusses the water cycle, including

groundwater and ocean features, as well as water scarcity and pollution. The course will then go to cover the physical structure of the Earth and Earth's tectonic system, including the rock cycle, tectonic activity, and mountain building. It then covers weathering and erosion and soil formation. The next material in the course then addresses the concept of systems; it addresses the Earth as a system, feedback in systems, and Earth's major nutrient cycles. Student will learn about geologic history, including the evolution of Earth's atmosphere, the geologic time scale, and the fossil record. It then goes over natural resources and the effects of human population on natural resources. The course wraps up with a discussion of human society and its interconnectedness with the Earth's environment, how science and technology work together, and the technological design process in earth science applications.

Marine Science (0.5 Credit)

About 70% of the Earth is covered by water. Even today, much of the world's oceans remain unexplored. Marine scientists make exciting new discoveries about marine life every day. In this course, students will discover the vast network of life that exists beneath the ocean's surface and study the impact that humans have on the oceans.

Medicine (0.5 Credit)

This course provides students with an introduction to healthcare, with emphasis on modern, clinical medicine. Students review basic human anatomy and physiology, then study major health concerns affecting people in the U.S. and the world. This comprehensive, 10-unit course examines such topics as infectious diseases, cancer, traumatic injuries, and healthcare career opportunities.

Paleontology (0.5 Credit)

From Godzilla to Jurassic Park, dinosaurs continue to captivate us. In this course, students will learn about the fascinating creatures both large and small that roamed the earth before modern man. Watch interesting videos from experts at The Royal Tyrrell Museum, a leading paleontology research facility, and discover how the field of paleontology continues to provide amazing insight into early life on earth.

Physical Science (1.0 Credit)

This is an introduction to the Physical Sciences and scientific methodology. The objectives are to impart a basic knowledge of the physical properties and chemistry of matter. Skills are developed in the classroom, and reinforced through homework reading, and interesting labs that relate to everyday life.

Physics (1.0 Credit)

Students begin their exploration of physics by reviewing the International System of Units (SI), scientific notation, and significant digits. They then learn to describe and analyze motion in one and two dimensions. Students learn about gravity and Newton's laws of motion before concluding the course with an examination of circular motion. Students will also apply mathematical concepts such as graphing and trigonometry in order to solve physics problems. Throughout the course, students apply their understanding of physics by playing roles like science museum curator and elementary teacher. In the second half of the course, students begin by exploring simple harmonic motion, wave properties, and optics. Students then learn the basics of thermodynamics and fluids. Afterwards, the students explore the principles of electricity and magnetism. Finally, students explore the area of physics known as Modern Physics, which includes topics such as the photoelectric effect, nuclear science, and relativity. This is a trig based course. It is assumed you know and can use trigonometry.

Renewable Energy (0.5 Credit)

The earth's population is growing rapidly, and we need to find new, innovative ways to ensure that we are able to provide for our global energy needs. Students will look at the reasons why sustainability is important, take a balanced and evidence-based look at climate change, and learn new ways that we can harness renewable resources.

Space Exploration (0.5 Credit)

In 1961, Yuri Gagarin became the first human to go to space. In 1969, Neil Armstrong became the first human to step on the moon. This comprehensive course will examine the history and future of space travel. Find out how we have put people in space in the past, and what it will take for us to reach new frontiers, including Mars and beyond.