

First-Year Course Description

A&P, Chemistry, Environmental, ESS, Physics

Anatomy and Physiology of Human Systems includes laboratory investigation and fieldwork using appropriate scientific inquiry. This hands-on course is a survey of the structures and functions of the human body and integrates the physics and chemistry concepts found in the body systems. In this course the student will investigate the body's responses to forces, maintenance of homeostasis, electrical interactions, transport systems, and energy processes.

Things to consider

- Interest in a medical field
- serious Pre-med students should take AP Bio, AP Chem, or AP Physics
- If a student has taken or is currently enrolled in Medical Science, much of the material will be repeated.

Prerequisite: Biology and Chemistry

Class Length - 1 class period

Credits Awarded: 1-hour regular

Chemistry is the study of the structure, composition, and behavior of matter. The course of study emphasizes the investigation of matter, its interactions, and the factors affecting the interactions. Chemistry is a laboratory-oriented course that stresses the observation of matter and its behavior, classification of matter, communication of data, measurement of chemical quantities, prediction of chemical phenomena, and manipulation of chemical investigations.

Prerequisite: Algebra and completion of Biology or IPC (Integrated Physics and Chemistry)

Class Length - 1 class period

Credits Awarded: 1-hour regular

Environmental Systems will focus on the study of the environment with emphasis on ecology and natural resources. The current energy situation will be studied, and recycling of natural resources will be evaluated. Emphasis on people and society, including cultural perspectives and pollution problems will be made. Field trips, laboratory experiences, group discussions, and other special activities will be planned.

Things to consider

- The least rigorous on-level science class.
- Focuses on science literacy.

Topics studied include:

- Human population growth & impact
- Food production
- Water use & pollution
- Energy use focusing on renewable sources and applications for the future
- Air pollution & climate change/global warming

Prerequisite: 2 credits of high school science (Biology and IPC or Chemistry)

Class Length - 1 class period

Credits Awarded: 1-hour regular

Earth and Space Science (ESS) is based on Earth's system in space and time. The approach has three themes of Earth in space and time, solid Earth, and fluid Earth. In each theme are included the strands of systems, energy and relevance. Natural and human events and their effect on Earth's systems will be studied within the context of the three themes and strands.

Things to consider

- Students that struggle with science should consider Environmental Systems.
- Greater depth and breadth of middle school earth science topics

Topics studied include:

- Astronomy
- Geology
- Oceanography
- Meteorology

Prerequisite: 3 years of science and three years of mathematics.

The third year of science and math can be taken concurrently with Earth and Space Science.

Class Length - 1 class period

Credits Awarded: 1-hour regular

Physics is a first-year, inquiry-based introductory physics course dealing with a broad range of topics. We are mainly interested in the concepts behind physical phenomena; however, an algebra and geometry background is necessary to express these concepts using mathematical equations.

Things to consider

- On-Level and PreAP Physics cover the topics listed below.
- PreAP extends the study of friction, harmonic motion, musical harmonics and curved mirrors
- PreAP solves more challenging problems
- PreAP require more mathematical rigor

Topics studied include:

- Constant Motion
- Changing Motion
- Vectors
- Newton's Laws
- 2 Dimensional Motion
- Gravity and UCM
- Work and Energy
- Impulse and Momentum
- Mechanical Waves
- Electromagnetic Waves
- Electrostatics
- Circuits
- Magnetism
- Modern

Prerequisite: On-Level - Algebra and Geometry, 2 credits of science

PreAP - concurrent enrollment in Algebra II, 2 credits of science

Class Length - 1 class period

Credits Awarded: 1-hour regular for On-Level

1-hour honors for PreAP