Science

CP Biology*

CP Biology is a lab-based, conceptually taught course designed to give students an understanding of the living world and their interactions with each other and the environment. This course emphasizes the science of biological molecules, cells, genetics and evolution, ecology and the environment, and human body systems. The first semester includes the scientific method, chemistry and structure of biological molecules and cells, and ecology. The second semester includes genetics, evolution, and human body systems. CP Biology is recommended for students planning to enroll in Chemistry, Physics, or Anatomy and Physiology. Meets UC and CSU requirements. At U-Prep, all freshman take CP Biology in 9th grade unless they are eligible for Honors Chemistry.

**Health Education, relating to AIDS/HIV prevention instruction, is a component of this course. At U-Prep, parents are required to give permission for their student to participate. Parents may elect to have their student 'opt out' of this component, which means an alternative assignment would be provided.*

AP Biology (HONORS DESIGNATION)

The AP Biology course is designed to be the equivalent of a two-semester college introductory biology course usually taken by biology majors during their first year. AP Biology should include those topics regularly covered in a college biology course for majors. The two main goals of AP Biology are to help students develop a conceptual framework for modern biology and an appreciation of science as a process. The college course in biology differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the type of laboratory work done by students, and the time and effort required of students. The kinds of labs done by AP students must be the equivalent of those done by college students. The AP Biology course is designed to be taken by students after the successful completion of a first course in high school biology and one in high school chemistry. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology and to prepare students to take the AP Biology Exam. Meets UC and CSU requirements.

Honors Chemistry (HONORS DESIGNATION)

Chemistry is the science of matter—it's composition and the transformations that it undergoes. Laboratory experimentation is an essential part of the course. In addition to the subject areas covered in general chemistry, Honors Chemistry will study molecular geometry, electrochemistry and organic chemistry. Honors Chemistry will cover the material with increased scope, increased depth and a higher level of difficulty. Honors Chemistry requires higher levels of mathematical functioning, reasoning, and independent work. Meets UC and CSU requirements.

Physics

Physics is the science of forces and matter (involving no changes in chemical composition) and energy. The first semester focuses on mechanics, specifically: measurement/motion, forces/vectors, curvilinear motion, and energy/momentum. The second semester includes energy forms, namely: heat, waves, sound, light and electricity. It is a laboratory course that meets the graduation requirement for lab science. Meets UC and CSU requirements.

AP Physics 1/PHYS 2A (HONORS DESIGNATION)

AP Physics 1 Algebra-based is the equivalent to a first-semester college course in algebra-based physics and culminates in taking of the College Board AP Physics I exam. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. It will also introduce electric circuits. Meets UC and CSU requirements.

AP Physics 2/PHYS 2B (HONORS DESIGNATION)

AP Physics 2 is the equivalent to the second course of a one year college course in algebra-based physics and culminates in taking of the College Board AP Physics 2 exam. The course covers Electricity and Magnetism, fluid mechanics, quantum and nuclear physics, thermodynamics, and optics. Meets UC and CSU requirements.

Earth and Planetary Science (HONORS DESIGNATION)

Earth and Planetary Science begins with a review of chemistry and segue into mineralogy. The rock cycle will be covered in depth introducing the three basic classifications of rocks. We will then study the history of the earth and timescales. Geomorphology will include structures from the ocean to the plains. All of this will be interwoven with, an exploration of space, the origins of the universe, the life cycles of the stars and finally planets. The class will include an overnight trip to Lassen National Park to study glaciation and volcanism. Another late fall trip will be a Saturday trip to Clear Creek to study sedimentary structures, rivers and hunt for fossils. Meets UC and CSU requirements.

Anatomy/Physiology

Human Anatomy and Physiology portrays the human body as a living, functioning homeostatic organism. This course will use a 'systems' approach to emphasize how organs and body systems work together to carry on such complex functions as taking a step, running, or responding to the external environment. As we describe the 10 body systems and their main structures, we will relate those structures to their role and function in the organism and its interactions with the other body systems. Comparative anatomy will also play a role in the course as there will be intensive mammalian dissections. Vertebrate evolution will also be discussed as well to help understand the patterns of human development. Career opportunities will be discussed and group and individual projects will be integrated into the curriculum. Chemistry is highly recommended. Meets UC and CSU requirements.

AP Environmental Science (HONORS DESIGNATION)

AP Environmental Science is designed to be the equivalent of a one-semester, introductory college course in environmental science. The course will combine lecture with in class and field lab work to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine

alternative solutions for resolving or preventing them. The course will prepare students for university level related fields of study, entry-level jobs in a variety of environmental science related careers, as well as the College Board Advanced Placement test which could earn them college credit. Meets UC and CSU requirements.