



Chemistry

Chemistry

Full Year - Physics

In this course, students use mathematical models to examine the basic principles of composition and interaction of matter: atomic structure, kinetic molecular theory, the mole, stoichiometry, reaction types, equilibrium, chemical kinetics, gas laws, and energy transfers. Teaching strategies focus on the cumulative connection of concepts, quantitative analytical problem-solving skills, study skills, use of the scientific method, and proper experimental techniques. Experiments are conducted on a regular basis to reinforce the connections between the mathematical models and concepts presented in class.

Honors Chemistry

Full Year - Honors Physics, Must be concurrently taking higher level math course, and Dept. Approval

Honors Chemistry students examine the composition and interaction of matter and energy. Teaching strategies focus on the cumulative connection of concepts, quantitative analytical problem solving, inferential problem solving, use of the scientific method, and proper experimental techniques. Experiments illustrate and reinforce the concepts and mathematics learned. While going in depth and covering more advanced topics in chemistry, honors students are expected to learn at an increased pace, held to higher standards, and are given a greater degree of academic freedom and responsibility.

Honors Seminar in Chemistry - Full Year

Honors Chemistry, Must be concurrently taken with Honors Biology, Algebra 2 or Higher, Dept. Approval required

After a brief review of important concepts from Honors Chemistry, this course will focus on advanced topics in preparation for college level courses. The first semester will introduce thermodynamics, reaction rates, equilibrium and oxidation reduction chemistry and nuclear chemistry. The second semester will focus more on organic chemistry, nomenclature, organic reactions, and organic synthesis. This will be a lab based course where you will learn advanced lab techniques such as distillation and purification, gas chromatography, UV-Vis spectroscopy and organic synthesis. The pace will be fast and outside reading/notes, using a flipped classroom, help create more lab time and problem-solving explanations.

Biology

Biology

Full Year - Physics and Chemistry Required

The biology curriculum is based around the essential questions, "What is life?" and "How do living organisms function individually and within their respective environments?" This course covers biochemistry, cell structure and function, cell energetics, genetics, protein synthesis, biotechnology, evolution, and biodiversity. Each unit is designed to cover a series of concepts and theories and is accompanied by hands-on lab work allowing students to see the material they are studying in action. Throughout the study of biology, students will acquire knowledge that will enable them to confront a variety of scientific questions that affect their daily lives and the future of the natural world.

Honors Biology

Full Year - Honors Physics & Chemistry, Concurrent with Algebra 2 or higher, Dept. Approval Required

This course includes an in-depth study of many topics including the scientific method, biochemistry, cell structure and function, genetics, evolutionary processes, energetics, biotechnology, classification, and ecology. Lab investigations play a key role in the course. Students will be introduced to experimental design that emphasizes the acquisition of specific skills such as writing and speaking effectively, statistical analysis, and problem solving.

Honors Seminar in Biology

Full Year

Honors Biology, Higher level math, Dept. Approval Required

The Honors Seminar in Biology curriculum has been developed to cover the material of an introductory college biology course. Topics are covered in great depth, laboratory experiments are complex, and the time and effort required of students is significant. This course provides students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology.

Honors Anatomy & Physiology

Full Year - B or Higher in Science Courses

Students who are curious about how their bodies function or are interested in a career in the medical field will enjoy this in-depth look at the structures and functions of the human body. Students will engage in experimentation, dissection, and research projects designed to enhance their understanding of the human condition. This course will challenge students' critical thinking skills as they develop a longstanding appreciation for the complexity and beauty of the human body.

Marine Biology

Full Year - Biology or concurrent with Biology

Designed for a student who is interested in the marine environment, this project-based course focuses on marine life and the issues surrounding it. Students need to be able to swim as we take several snorkeling trips to observe the environments first hand.

Environmental Field Research

Full Year - Department Approval Required

Designed for the adventurous, outdoor-loving student in mind! This course covers the major Florida ecosystems and some pressing local environmental issues while helping students develop their research skills. Students go on multiple field trips to explore the local parks, refuges, and preserves of South Florida. Over the semester, students help local organizations to capture answers to pressing environmental questions.

Artificial Intelligence: Applications, History & Current Issues (Honors Available)

Semester - Open to Sophomores and Above.

Co-requisites: Biology, US History, Algebra 2 or higher

This course introduces the subject of Artificial Intelligence (AI) by studying real-world applications past, present, and future. It also addresses the fundamental social and technical issues raised by the existence and pursuit of AI by humanity. This course will treat the subject from a variety of viewpoints and methods, including historical survey and discussion of ethical implications, both historical and hypothetical. This course will include some basic programming and hands-on technical projects. It is meant to provide exposure to the subject with less emphasis on math skills.

Physics, Chemistry and Biology are also available at the **survey level**. **Survey level classes** are specifically designed for students with diagnosed learning disorders.