

## **Academic Biology**

Academic Biology is a broad based course designed for the college bound freshman. It offers 9th grade students the opportunity to develop solid background knowledge and laboratory skills in biology as they learn about the living world and the organisms in it.

The course includes biological vocabulary, chemical and biological principals scientific methodology, and genetic principles, which can then be applied to the study of biological systems and organisms. Ultimately, students will apply knowledge gained from cells and fundamental processes to the higher levels or organization present in human body systems. Thus, students will better understand themselves, and their relationship to other organisms

## **Honors Biology**

Honors Biology is desinged to provide both a wide range and deeper level understanding of biology topics, from both a molecular and an organismal approach. Freshman students will develop the background knowledge and laboratory skills necessary for higher level scientific study as they gain an understanding of the organisms living in it.

The course includes biological vocabulary, chemical and biochemical principles, scientific methodology, and classical genetics which can then be applied to the study of biological pathways, systems, and organisms. Students in this course should realize that they are being prepared for a possible course in advanced placement biology in a later year.

## **AP Biology**

The AP Biology course is designed to be the equivalent of a two-semester college introductory course. The AP Biology course differs significantly from the usual school course with respect to the kind of textbook used, the range and depth of topics covered, the type of lab work done, and the time and effort required of students. This course is to be taken following a first year course in high school biology and 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.

In addition to the lecture material and usual biology labs, twelve specific required laboratory experiments are performed because the College Board advanced placement exam includes these twelve lab results in their multiple choice and free response questions

### **Consumer Chemistry**

Consumer Chemistry offers students an alternative to a traditional chemistry class. Students will look at chemistry in a real-world sense, as opposed to a conceptual view. Students will obtain the fundamental principals of chemistry through a more engaging format.

### **Academic Chemistry**

The purpose of 10th grade Academic Chemistry class is to provide a wide range of skills that will enhance student abilities to reason, solve problems, promote curiosity, open-mindedness, collection and interpretation of information, be capable of abstract and higher critical thinking, and use these skills to evaluate and make choices in a world that is becoming increasingly influenced by scientific technologies.

This course will provide the basic fundamentals and underlying principles of chemistry through the study of chemical elements and their properties, scientific processes, and mathematical applications as established by the New Jersey Core Curriculum Content Standards. The laboratory sessions, conducted in our newly renovated labs, will provide extensive, practical and authentic experience that will support and reinforce chemical principles.

### **Honors Chemistry**

For students following the honors track in science, or who anticipate taking the Advanced Placement chemistry course in a later year, honors chemistry allows them to experience higher-level problem solving techniques, engage in sophisticated lab experiments, and enjoy many chemical demonstrations that enhance the explanations of every day phenomena such as neon lights, combustions, explosions, and fireworks. Students intending to pursue a career in medicine, engineering, or other scientific area are encouraged to enroll for this course.

### **Advanced Placement Chemistry**

AP Chemistry is designed to be the equivalent of the general chemistry course usually taken during the first college year. For some students, this course enables them to undertake second year work during their freshman year at college. Others may be able to fulfill the laboratory science requirement. Students in this course should attain a depth of understanding of the fundamentals and a reasonable competence in dealing with chemical problems. The college course in general chemistry differs qualitatively from the usual first secondary school course in chemistry with respect to the kind of textbooks used, the topics covered, the emphasis on chemical calculations and the mathematical formulation of principles, and the kind of laboratory work done. Quantitative differences appear in the number of topics treated, the time spent on the course by students, and the nature and avriety of experiments done in the lab.

### **Conceptual Physics**

Conceptual Physics is an introductory physics course that offers all of the concepts of physics in a more hands on, less mathematically intense format. Students will be engaged in the process of science as they explore the physics of the natural world in this full year course.

### **Academic Physics**

The primary aim of 11th grade physics is to systematically explain the underlying laws that govern events in the natural universe. Physics is the most basic of the natural sciences and it involves the study of common phenomena such as forces, motion, energy and matter. The concepts of physics are applicable to both large and small objects and encompass both living and non living things. The purpose of this one year course is to engage the student in learning activities and presentations that will enable the student to understand the key concepts of physics, to develop appropriate skills and scientific attitudes and, to recognize that physics is a problem solving tool that can be applied in all professions.

### **Honors Physics**

For students who have been following the honors track for biology and chemistry, 11th grade honors physics allows them to experience both a wider range and deeper level of understanding of the underlying laws that govern the universe. This course will help students to appreciate the world around them, enabling them to obtain information from the world by direct measurement and, by applying the Laws of Nature. It will also allow them to perform experiments and to draw independent conclusions consistent with their physical environment. Students enrolled in honors physics should have a strong interest in science, possess sturdy math (geometry, trigonometry and algebra) skills and an innate curiosity.

Honors physics will cover topics including measurement, vectors, kinematics, statics, dynamics, momentum, work, power, energy, thermodynamics, heat, electricity and magnetism.

### **AP Physics 1**

AP Physics 1 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of Physics through inquiry-based investigations as they explore topics such as Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; and introductory, simple circuits.

(Description taken from the College Board Website)