

# Science

## Biology

*1 Full Year      1 Credit Hour      Grade: 9*

A general course in modern biology. Through lecture/discussion, demonstration and laboratory activities, students explore the study of the cell, cellular processes of membrane transport, energy transformations and reproduction, classical and modern genetics, the changes in life forms on earth, a survey of major taxonomic groups, a study of ecological relationships and a brief introduction to human biology.

## Honors Biology

*1 Full Year      1 Credit Hour      Grade: 9*

An accelerated, in-depth study of modern biological concepts. The course includes a study of the cell, the cellular processes of membrane transport, energy transportation and reproduction, genetics with emphasis on current DNA technology, the changes in life forms on earth, a survey of taxonomic groups, a study of ecological relationships and an introduction to human biology.

## AP Biology

*1 Full Year      1 Credit Hour      Grades: 11, 12*

This course is designed to be the equivalent of a two-semester college introductory biology course. The two main goals are to help students develop a conceptual framework for modern biology and an appreciation of science as a process. Topics: Molecules and Cells; Heredity and Evolution; Organisms and Population.

## Human Physiology

*1 Full Year      1 Credit Hour      Grades: 11, 12*

An advanced course in biology with primary emphasis on the human organism. Through lecture, discussion, demonstration and laboratory experiences, students study the cell as the fundamental life unit, the transition from single cell to complex multi-cellular organism, and the anatomy and physiology of human organ systems. Detailed dissection of a representative mammal is included among the laboratory experiences.

## Physical Science

*1 Full Year      1 Credit Hour      Grades: 10, 11, 12*

This course introduces students to key concepts and theories that provide a foundation for further study in other sciences and advanced science disciplines. Physical science comprises the systemic study of the world as related to chemistry, physics, and space science. The topics include: the study of matter; forces, motion, and energy; and the universe. This course is inquiry and lab-based and satisfies the Ohio Core requirement for high school graduation.

## **Chemistry**

*1 Full Year      1 Credit Hour      Grades: 11, 12*

Chemistry is a mathematical, theoretical and laboratory approach to the study of matter and energy. Students investigate matter and energy, atomic structure, periodic tables, chemical bonding, chemical reactions and stoichiometry, solutions, acids and bases, kinetics and equilibrium.

## **Honors Chemistry**

*1 Full Year      1 Credit Hour      Grades: 11, 12*

An accelerated, in-depth, mathematical, theoretical and laboratory approach to the study of matter and energy. Students investigate matter and energy, atomic structure, the periodic table, chemical bonding, nuclear chemistry, chemical reactions and stoichiometry, solutions, acids and bases, kinetics and equilibrium.

## **Physics**

*1 Full Year      1 Credit Hour      Grades: 11, 12*

The study of physics includes units of mechanics, heat, electricity and magnetism, wave motion, electron and nuclear theory, and electronics. Basic themes such as the conservation laws, the concept of fields, energy, force, and motion are explored in each of these units through lecture and through student laboratory experience.

## **Honors Physics**

*1 Full Year      1 Credit Hour      Grades: 11, 12*

Students in Honors Physics are expected to have excellent math skills. An accelerated and in-depth study of topics listed above will allow the time for the inclusion of additional topics taken from an Advanced Placement curriculum. Students will be expected to complete additional reading, writing and research assignments.

## **Environmental Science**

*1 Full Year      1 Credit Hour      Grades: 10, 11, 12*

This course is designed to advance student's understanding of key concepts, principles, and theories of earth systems, earth's resources, and the human impact on the environment, as well as the Catholic responsibility to be stewards of the environment. Student's will identify connections and interactions between earth's biosphere, atmosphere, lithosphere, and hydrosphere. Students will apply knowledge from previous science courses to critically think about global environmental problems and issues.

## **Forensic Science**

*1 Semester      ½ Credit Hour      Grades: 11, 12*

### **Elective**

If you love CSI, this course is for you. Forensic Science introduces students to scientific investigations for providing evidence at criminal trials or for other uses in the legal system. Students will identify careers in forensic science and learn and practice skills required to be a forensic scientist, including studies on teeth, tire, and animal track impressions, hair, fiber, soil, and water analysis, and blood spatter, handwriting, fingerprinting, and plastics investigations. Physical, biological, and chemical knowledge is utilized.