Science

Biology
1 Full Year
1 Credit Hour
Grade: 9
Prerequisite: None

This course is an introductory science class for freshmen that teaches them the skills and habits that will help them to be successful in all future high school classes. It involves an examination of the diversity of life on earth through a combination of lectures, discussion, lab investigations, and online research. Students will explore the various types of cells, how they fight for life through membrane transport, how they manipulate and use energy, how they reproduce, how they pass on traits, how they change from generation to generation, and how they interact through natural systems in the environment.

Honors Biology
1 Full Year
1 Credit Hour
Grade: 9
Prerequisite: Teacher recommendation and examination of standardized test scores from 8th grade

This course is an accelerated science class for freshmen that teaches them how to engage with and solve complex problems. It involves an examination of the diversity of life on earth through a combination of lectures, discussion, lab investigations, and online research. Students will explore the various types of cells, how they fight for life through membrane transport, how they manipulate and use energy, how they reproduce, how they pass on traits, how they change from generation to generation, and how they interact through natural systems in the environment.

AP Biology
1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: A- or above in Chemistry or Honors Chemistry and teacher recommendation.

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. The major topics of the course are molecules and cells; heredity and evolution; and organisms and populations. Students will solve complex problems and investigate life on earth through lecture, discussions, lab investigations, online research, and collaborative group work.

Human Physiology

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: B or above in Biology or Honors Biology or C and above in Chemistry and teacher recommendation

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
Prerequisite: Biology

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
Prerequisite: B or above in previous science; B or above in Geometry, Algebra II, or Algebra II/Trigonometry (may be taken concurrently).

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
Prerequisite: A in Biology or A- in Honors Biology, a minimum B in Algebra II or Honors Algebra II/Trigonometry (may be taken concurrently) and teacher recommendation.

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.

AP Chemistry

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: B+ or higher in Honors Chemistry or A- or higher in Chemistry and teacher recommendation.

AP Chemistry is an introductory college-level course. Students cultivate their understanding of chemistry through inquiry-based lab investigations as they explore the four big ideas: scale, proportion, and quantity; structure and properties of substances; transformations; and energy.

Physics

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: B or above in Chemistry or B- or above in Honors Chemistry; teacher recommendation

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.

AP Physics

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: A in Chemistry or A- in Honors Chemistry; teacher recommendation

AP Physics is an algebra-based introductory college-level course. It will cover topics that include kinematics, projectile motion, Newton's Laws, circular motion, gravitation, work & energy, momentum, electrostatics, simple harmonic motion and mechanical waves.

Environmental Science

1 Full Year
1 Credit Hour
Grades: 11, 12
Prerequisite: Biology

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. Students 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.

Aquatic and Marine Science

1 Full Year
1 Credit Hour
Grades: 10, 11, 12
Prerequisite: Open to students who have already completed Biology and one other science course.

In this course we explore the Earth's hydrosphere from its chemical composition to the amazing aquatic and marine life living in it. We focus exclusively on the 70% of our planet that is covered by water and introduce students to the various scientific disciplines that are dedicated to its discovery. You will learn how energy flows through aquatic and marine ecosystems, how water as a medium affects the biota that lives within it, and how to analyze aquatic and marine environmental issues using data. Whether you are an aspiring marine biologist or oceanographer, or just someone who would like to understand where their drinking water comes from, this course has something for you.