SCIENCE

Biology **Grade 9**

This course represents an ecological approach to the study of biology, emphasizing: the nature and chemistry of life, earth as a biosphere, ecosystems, communities and populations, humans' role in the biosphere, cellular structure and function, photosynthesis, cellular respiration, cell growth and division, genetics and genetic engineering, and evolution. As students are investigating this material, they will also maintain and develop the following skills and concepts: recording investigations clearly and accurately, distinguishing between observation and inference, using scientific tools, interpreting data and organizing it into charts, tables, and graphs, using proper units, using models, and employing proper lab safety practices. One credit

Biology Honors **Grade 9**

Prerequisite: Consistently strong performance in previous year's math and science courses and recommendation of the department.

Offered to advanced ninth graders, this college preparatory course is an introduction to modern biology using a molecular and cellular approach. Topic areas include: biochemistry, cells, bioenergetics, molecular genetics, reproduction, heredity, and evolution. One credit

Chemistry **Grade 10**

This course is a study of matter and its changes. Topics covered include atomic theory, periodicity, stoichiometry, thermodynamics, kinetics and acid/base chemistry. The course involves problem solving and laboratory exercises. A working knowledge of algebra is essential. One credit

Chemistry Honors **Grade 10**

Prerequisite: Consistently strong performance in previous year's math and science courses and recommendation of the department.

Chemistry is the study of matter and how it combines. Topics covered are stoichiometry, thermodynamics, kinetics, electrochemistry, and short courses in organic chemistry and nuclear chemistry. The course is lab-based and a working knowledge of algebra is essential. Chemistry Honors is taught primarily to advanced 10^{th} grade students as a preparation for college or AP Chemistry. One credit

Advanced Placement Chemistry **Grade 11**

Prerequisite: Consistently strong performance in math and science courses in high school and recommendation of the department.

This college-level course covers topics ranging from atomic theory through electrochemistry. AP Chemistry is a rigorous problem-solving course. The lab component requires additional class time. The College Board establishes the AP Chemistry curriculum. One credit

Physics Honors **Grade 11**

Prerequisites: completion of or concurrent enrollment in Pre-Calculus AB/BC H, or Algebra II H with permission of the instructor.

Physics is the scientific study of matter, energy, motion, and force. Topics covered in Physics Honors include forces, kinematics, dynamics, rotation, energy, and momentum within a variety of fields such as mechanics, electromagnetism, atomic and nuclear physics, thermodynamics, and sound and light. The course is lab based and a working knowledge of algebra is essential. The primary goals of Physics Honors are to develop problem solving skills and the ability to analyze information using our understanding of the fundamental laws of nature. One credit

Human Biology **Grade 12**

This course is an introduction to human anatomy and physiology, and includes the use of some dissections to emphasize specific course material. One credit

Human Biology Honors **Grade 12**

Prerequisite: Consistently strong performance in previous year's math and science courses and recommendation of the department.

This course is a detailed study of human anatomy and physiology with an emphasis on the homeostatic relationships between all human systems. Dissections are used to emphasize specific topics. One credit

Physics **Grade 11 or 12**

Prerequisites: completion of or concurrent enrollment in Algebra II.

Physics is the scientific study of matter, energy, motion, and force. Topics covered include forces, kinematics, dynamics, rotation, energy, and momentum within a variety of fields such as mechanics, electromagnetism, atomic and nuclear physics, thermodynamics, and sound and light. The course is lab based and a will stress the proper application of algebraic techniques within conceptual situations. The primary goals of Physics are to develop problem solving skills and the ability to analyze information using our understanding of the fundamental laws of nature. One credit

Advanced Physics Honors **Grade 12**

Prerequisites: concurrent enrollment in AP Calculus AB/BC or permission of the instructor.

Physics is the scientific study of matter, energy, motion, and force. Topics covered in Advanced Physics Honors include forces, kinematics, dynamics, rotation, energy, and momentum specifically within the fields of mechanics and electromagnetism. The course is lab based and employs the mathematics of calculus. The primary goals of Advanced Physics Honors are to develop problem solving skills and the ability to analyze information using our understanding of the fundamental laws of nature. One credit

Advanced Placement Biology **Grade 12**

Prerequisites: Biology Honors, Chemistry Honors, consistently strong performance in math and science courses in high school, and recommendation of the department.

This is a college-level, introductory biology course taught in high school. In May, the students take an internationally administered exam which covers the entire textbook. If they perform well on the exam, the college they attend may grant them advanced placement above the freshman level and/or give credit for the courses skipped. The course is rigorous and demanding. The authors of the AP Biology Exam establish the AP curriculum. One credit