

SCIENCE

COURSE DESCRIPTIONS

Students must pass one year of Physical Science, one year of Biology and one year of Chemistry to satisfy graduation requirements. Students may not take the next level until they have satisfied the requirements of the prior. It is recommended that students take four years of science. Use the following legend to understand codes:

CC – computer credit
TP – teacher permission
PR – pre-requisite required
Year – year course worth one (1.0) credit
Semester – course worth one-half ($\frac{1}{2}$) credit
F – recommended for Freshmen
SO – recommended for Sophomores

J – recommended for Juniors
S – recommended for Seniors
NCAA – fulfills NCAA requirements for athletic certification
M – fulfills MMC for fourth year math experience
GR – graduation requirement

500/501 Physical Science (A & B) – Two Semesters NCAA, GR

This course is designed to have a special emphasis each of the two terms. The first term will focus on motion, forces, work and energy including electricity. Everyday applications of physical laws will be emphasized. During the second term there will be an emphasis on geophysical processes. As students progress through the course, they will gain an understanding that technological advances are merely applications of basic science principles. Hands on experience in the laboratory will reinforce these concepts and stimulate interest in this material.

507 Environmental Science – Semester, PR, M NCAA

Students who enroll in this course must have successfully completed Physical Science. The course covers a variety of topics concerning ecosystems, pollution and the global environment. The class will specifically focus on the interaction of humans on the earth's environment as well as resources and resource management. The class will be a hands-on activity based class that will explore our local environment.

510/511 Biology (A & B) – SO, Two Semesters NCAA, GR

The course covers the topics of properties of living things that set them apart from nonliving things, molecular and cellular biology that leads to an understanding of heredity and classification, and an

examination of invertebrates and vertebrates and their relationship to the ecological environment. Students will experience hands on labs that involve the use of microscopes and dissection equipment.

520/521 Chemistry (A & B) – M - J, S Two Semesters NCAA, GR

The material covered includes the study of the atom and its' structure, the elements and their properties, the mechanisms of formation of compounds, acid-base chemistry, redox reactions, the relationship between volume, mass and number of chemical units, nuclear chemistry, solubility, the rates of reactions and the energy of reactions. The student is provided with the opportunity to observe and investigate various chemical reactions and develop proper laboratory techniques necessary for future chemistry classes.

561 AP Environmental Science – PR, SO, J, S Two Semesters NCAA

Prerequisites: Successful completion of Biology with a B or better. Students should have completed the class with a C or better. This course provides students with the equivalent of a college introductory environmental science course. Laboratory investigations and fieldwork are a key component of the course. Topics of instruction include scientific analysis, interdependence of Earth's systems, human population dynamics, renewable/nonrenewable resources, environmental quality, global changes and their consequences, environment and society, and Earth's choices for the future.

Each school year is divided into two semesters. Therefore a two semester course requires a commitment for a full school year.

**524/525 Anatomy and Physiology (A-B) , PR, J,
S, Two Semesters,
Offered in odd numbered years only
NCAA**

Due to the foundation needed for this course, it is highly recommended that the student has received a "C" or better in Biology and completed one year of Geometry. This course will include an in-depth study of human biology. The physiological, anatomical and biochemical aspects of the human body will be covered. Among varied laboratory experiences will be the dissection of a cat.

**531/532 Physics (A & B) – Two Semesters
NCAA – M**

Due to the foundation needed for this course, it is highly recommended that the student has receive a C or better in all Algebra and Geometry courses. The course is designed to produce an understanding of the physical laws connection to all sciences. The importance of measurements is first introduced, followed by an emphasis on the use of algebra, graphing, and trigonometry. The concepts of momentum and energy are presented to emphasize the conservation laws.

The laws of motion, Universal Gravitation, work, energy, simple machines, gas, the states of matter, wave motion, sound, light, and electricity are covered. Frequent laboratory experiences incorporating will help the student understand these concepts and enjoy the study of physics.

**527 Conceptual Chemistry (A&B) – TP, J, S,
Two Semesters,
NCAA, GR**

Students who enroll in this course must have teacher recommendation and permission. The material covered includes the study of the atom and its structure, the elements and their properties, the mechanism and formation of compounds, acid-base chemistry, the relationship between volume, mass and number of chemical units, nuclear chemistry, solubility, and the rates and energy of reactions. The student is provided with the opportunity to observe and investigate various chemical reactions using common household products. Conceptual Chemistry class covers the same content as Chemistry, but with less rigor and at a slower pace.

Each school year is divided into two semesters. Therefore a two semester course requires a commitment for a full school year.