Science is a creative endeavor of the human mind. It offers a special perspective of the natural world in terms of understanding and interaction. The goal of science education is to develop in students a rich and full understanding of the inquiry process; the key concepts and principles of life, physical, and earth sciences. Students will work to earn half of the unit(s) of credit listed in the description for each semester, unless it is paired with another course.

**BIOLOGY**
1 Unit of Credit (300109/300110)

This course is designed to give the student a general knowledge of the following areas: biology, zoology, botany, microbiology, genetics, ecology, and cytology. A constant effort is made to include recent scientific discoveries. The course will stress the interrelationship of these areas and give a student the understanding that living things depend on each other. The laboratory portion of this course includes animal dissections, as well as certain microscope and other laboratory exercises.

**BIOLOGY (Enriched WT)**
1 Unit of Credit (300111/300112)

This course is open to students who have earned above average grades in middle school, and who are thinking in terms of entering one of the branches of science or technology as their life’s work. Biology Enriched stresses and develops the experimental and investigative approach to the life sciences. The concepts of molecular biology, physiology, genetics, ecology, and botany are the foundations of each topic throughout the course. Topics are supplemented by group discussions, lectures, open-ended experiments, co-curricular reading, and supervised individual research when applicable. The ultimate goal of this course lies in the interpretation, analysis, and utilization of the phenomena studied rather than the mere recall of a large number of facts. It is expected that students enrolled in this course will move on to enriched courses in chemistry and physics in their sophomore and junior years, respectively. Students in the enriched program may enroll in advanced courses in chemistry, biology, or physics in their senior year. The laboratory portion of this course includes a required animal dissection.

**ADVANCED PLACEMENT BIOLOGY (WT)**
1 Unit of Credit (300149/300150)
Lab Fee Required
Prerequisite: Biology and Chemistry
Physics is highly recommended
At least a “B” average in Biology, Chemistry, or Physics is recommended

This course is designed to be equivalent to an introductory college biology course usually taken in the first year of college and meets the objectives outlined by the College Board. Students study major themes that include molecules and cells, heredity, evolution, organisms, and populations. Students are required to take the AP exam.

**ANATOMY AND PHYSIOLOGY (Enriched WT)**
1 Unit of Credit (300709/300710)
Prerequisite: Biology and Chemistry

This course deals with the structure and function of the human organism. It is recommended for students interested in pre-medical, pre-dental, pre-nursing, and other health-related services or for those planning to major in physical education at the college level. It is a lecture-laboratory-centered course that includes an 8-12 week unit on a large mammal dissection and some written research reports and/or projects.

**CHEMISTRY**
1 Unit of Credit (300309/300310)
Prerequisite: Student must have successfully completed the equivalent of Algebra I - at least a “C” average is recommended

This course is the study of basic concepts of the structure, composition, and properties of matter and the energy relationships involved. This course is designed to stress descriptive chemistry. An attempt has been made to limit the use of mathematics as much as possible, but the student should, at a minimum, be able to manipulate fractions, calculators and interpret percents, set up and solve simple ratio and proportion problems, set up and solve simple formulas involving basic algebra, and express and manipulate large numbers utilizing scientific notation. During the course, students will be required to memorize certain key symbols, chemical formulas, technical terms and scientifically significant numbers. Chemistry provides a minimum background for those who intend to take a beginning college level course in chemistry.

**CHEMISTRY (Enriched WT)**
1 Unit of Credit (300311/300312)
Prerequisite: Algebra I and teacher recommendation - at least a “B” average in this course is recommended

This course includes the basic concepts covered in Chemistry; however, special emphasis is placed on general chemical principles and chemistry as a quantitative science. Mathematical applications are stressed. This course is an integral part of the four year enriched science program and provides a firm college preparatory background in chemistry. The methodology of the course is designed to stimulate growth of logic and deductive/inductive reasoning ability. The course consists of lectures, demonstrations, and laboratory investigations with emphasis on the latter as a means to develop observation and interpretation skills.
ADVANCED PLACEMENT CHEMISTRY (WT)
1 Unit of Credit (300349/300350)
Lab Fee Required
Recommendation: Chemistry and Algebra II;
Physics is highly recommended.
At least a “B” average in Chemistry, Algebra II,
and Physics is recommended.

This course is a rigorous treatment of general chemical
principles with emphasis on chemistry as a quantitative
and laboratory based science. It is designed to be the
equivalent of a general chemistry course usually taken in
the first year of college and meets the objectives outlined
by the College Board. Students will study topics such
as structure of matter, states of matter, reactions, and
descriptive chemistry. Students are required to take the
AP exam.

PHYSICS
1 Unit of Credit (300509/300510)
Prerequisite: Geometry and Algebra II
At least a “C” average in Geometry and Algebra II
is recommended.

This course is a combination of traditional and the newer
analytical approaches to the subject. Particular emphasis
is given to mechanics, wave motion, light, and electric-
ity. Atomic and nuclear energy are also included which
expand upon concepts the student learned in chemistry.
Physics serves as an excellent example of application
of mathematics and should be taken by mathematically
inclined students. Some basic trigonometry concepts are
taught relative to the vector nature of physical phenomena.
Dimensional analysis is stressed which is vitally important
in college science and engineering courses.

PHYSICS (Enriched WT)
1 Unit of Credit (300511/300512)
Prerequisites: Geometry Enriched and Algebra II
Enriched. At least a “C” average in Geometry and
Algebra II is recommended.

This course covers modern concepts of physics using a lab-
oratory approach. It is a combination of traditional and
the newer analytical approaches to the subject. Particular
emphasis is given to mechanics, wave motion, light, and
electricity. Atomic and nuclear energy are also included
which expand upon concepts the student learned in chem-
istry. Physics serves as an excellent example of application
of mathematics and should be taken by mathematically
inclined students. Some basic trigonometry concepts are
taught relative to the vector nature of physical phenomena.
Dimensional analysis is stressed which is vitally important
in college science and engineering courses.

ADVANCED PLACEMENT PHYSICS I (WT)
1 Unit of Credit (300549/300550)
Lab Fee Required
Prerequisites: Geometry Enriched and Algebra II
Enriched
Recommendation: Chemistry Enriched

This course is designed to be equivalent to a non-calculus
college course usually taken in general physics and meets the
objectives outlined by the College Board. In this course, em-
phasis is placed upon systematic methods of solving problems.
Topics include Newtonian mechanics (motion, work, energy,
and power), fluid mechanics, and Thermal Physics (pressure,
buoyancy, temperature and heat, gas laws), electricity and
magnetism, waves and optics, and atomic and nuclear physics.
Students are encouraged to take the AP exam.

ADVANCED PLACEMENT PHYSICS II (WT)
1 Unit of Credit (300553/300554)
Lab Fee Required
Prerequisite: Advanced Placement Physics I

This course is designed to be equivalent to an Algebra-Based
Physics college course and meets the objectives outlined by
the College Board. The course covers fluid mechanics; ther-
modynamics; electricity and magnetism; optics; and atomic
and nuclear physics. Students are encouraged to take the AP
exam.

PHYSICAL SCIENCE
1 Unit of Credit (300719/300720)
Prerequisite: Algebra I

This course provides a basic knowledge of both chemistry and
physics. The curriculum includes the study of the structure
of atoms, structure, and properties of matter, motions, and forces.
It also covers conservation of energy, matter, and charge. (This
course does not qualify as a laboratory course as defined by
most colleges and universities.)

EARTH SCIENCE
1 Unit of Credit (300729/300730)

This course is a practical study of the earth, its matter, its
features, its forces, its processes, and its place in the universe.
Attention is given to important principles, concepts, and sci-
entific processes that serve as a framework for understanding
and interpreting the general characteristics of the earth and its
matter. The students are taught to recognize and appreciate
the applications of these principles, concepts, and processes to
everyday living. The topics in this course include the study of
physical geology, historical geology, meteorology, oceanogra-
phy, and astronomy. (This course does not qualify as a labora-
tory course as defined by most colleges and universities.)
ADVANCED PLACEMENT ENVIRONMENTAL SCIENCE (WT)
1 Unit of Credit (300749/300750)
Recommendation: Biology, and Algebra I

This course is designed to be equivalent to an introductory college course usually taken in the first year of college and meets the objectives outlined by the College Board. The purpose of this course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. Students are required to take the AP exam.

BIOLOGY 140 (Human Anatomy and Physiology) (WT)
Early College Credit
½ Unit of Credit (300770)
Lab Fee Required
Corequisite: This course is taught in the Fall and paired with Forensics
Prerequisite: ACCUPLACER Reading score of 90 or higher or ACT Reading score 18 or higher.

This course presents an investigation of human organisms on the cellular, histological, and organ systems level of development. Relationships of anatomy and physiology are considered.
Richwoods

BIOLOGY 106 (Human Biology) (WT)
Early College Credit
½ Unit of High School Credit (300772)
This course is taught in the Spring Semester

This course is designed for the student desiring knowledge relative to the gross structure and basic functioning of the human body. This course meets the basic needs of all requiring in-breadth, but not in-depth, study of the human body.
WCTC

FORENSIC SCIENCE
½ Unit of Credit (300771)
This course is taught in the Spring Semester in conjunction with HLTH 121
Lab Fee Required
Corequisite: 2nd semester only and paired with Biology 140 (must take both classes)

The focus of the course will introduce students to some of the specialized fields of forensic science, the principles of science and technology upon which they are based, and the application of these principles to various analyses of crime scene evidence. The laboratory experience will involve simple analyses based upon physical methods such as thin-layer chromatography and complex analyses. Students will work in cooperative learning groups and will experience the following: crime scene investigation methods, examining physical evidence, toxicology, serology, DNA, trace evidence, fire investigation, fingerprints, document examination, and the analysis of glass.
Richwoods

IB BIOLOGY HL (WT)
2 Year Course
1 Unit of Credit (300189/300190 - year 1)
1 Unit of Credit (300191/300192 - year 2)
Lab Fee Required
Prerequisite: Biology Enriched and Chemistry Enriched

This two-year course is comparable to two college biology courses. Students learn about cell theory, the chemistry of living things, plant science, genetics, and organisms/populations. Laboratory work encourages higher level thinking skills, the operation of scientific equipment and technical writing. Students also engage in activities which develop statistical analysis skills, and which make them aware of how scientists work with each other.
Richwoods

IB CHEMISTRY SL (WT)
1 Unit of Credit (300389/300390)
Lab Fee Required
Prerequisite: Chemistry Enriched, Algebra II or higher

This is the equivalent of a college chemistry course. Topics include equilibrium, bonding, kinetics, thermodynamics, organic, and descriptive chemistry. Student laboratory experience is a major component of the course.
Richwoods

IB PHYSICS (WT)
1 Unit of Credit (300589/300590)
Lab Fee Required
Prerequisite: Algebra II Enriched, Geometry Enriched, and recommended concurrent enrollment in an IB Math class

This course is designed for IB students who have a high interest in Physics. Topics include mechanics, kinetic theory, wave phenomena, electricity, magnetism, thermodynamics, and particle physics.
Richwoods