

3643 Chemistry or 3673 Chemistry PAP**Credit: 1****Prerequisite: Biology and Algebra I**

Students will use critical thinking and scientific problem solving to make informed decisions in field and laboratory investigations. Students will study characteristics of matter; energy transformations during physical and chemical changes; atomic structure; periodic table of elements; behavior of gases; bonding; nuclear fission; oxidation-reduction reactions; chemical equations; solutes; properties of solutions; acids and bases; and chemical reactions.

3743 Physics or 3773 Physics - PAP**Credit: 1****Prerequisite: Biology and Algebra I**

Students will use critical thinking and scientific problem solving to make informed decisions in field and laboratory investigations. Students will study laws of motion; changes within physical systems and conservation of energy and momentum; force; thermodynamics; characteristics and behavior of waves; and quantum physics.

8360CW Principles of Technology (Physics credit)**Credit: 1****Prerequisite: Biology and Algebra II or concurrent enrollment.**

This course is an extensive hands-on course designed to provide a study in force, work, rate, resistance, energy, power and force transformers as applied to mechanical, fluid, thermal, and electrical energy that comprise simple technological devices and equipment. The course can be taken for physics graduation credit, is a Career and Technical Education funded course, and requires 40% laboratory and fieldwork requirements. This course can earn college credit based on Articulation agreements with Alvin Community College, Brazosport Community College and WCJC; Articulation agreements are subject to change.

3933 Earth and Space Science**Credit: 1****Prerequisite: Three credits of math and science; one of which may be taken concurrently.**

Earth and Space Science (ESS) is a capstone course designed to build on students' prior scientific and academic knowledge and skills to develop understanding of Earth's system in space and time.

3943 Aquatic Science**Credit: 1****Prerequisite: Two science credits**

Students will use critical thinking and scientific problem solving to make informed decisions in field and laboratory investigations. Students will study components of an aquatic ecosystem; relationships among aquatic habitats and ecosystems; roles of cycles within an aquatic environment; adaptation of aquatic organisms; changes within aquatic environments; geological phenomena and fluid dynamic effects; and origin and use of water in a watershed.

3843 Environmental Systems**Credit: 1****Prerequisite: Biology and a physical science**

Students will use critical thinking and scientific problem solving to make informed decisions in field and laboratory investigations. Students will study biotic and abiotic factors in habitats; ecosystems and biomes; interrelationships among resources and an environmental system; sources and flow of energy through an environmental system; relationship between carrying capacity and changes in populations and ecosystems; and changes in environments.

7650 Medical Microbiology**Credit: 1****Prerequisite: Two science credits**

Study the role of microbes in infectious diseases and the relationship between microbes and health maintenance. This course requires a greater degree of student skill in math and laboratory proficiency. Field studies and research projects are required in this course. This course is a Career and Technical Education funded course and requires 40% laboratory and fieldwork requirements.

3963 Astronomy**Credit: 1****Prerequisite: Two science credits**

Students conduct field and laboratory investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study the following topics: information about the universe; scientific theories of the evolution of the universe; characteristics and the life cycle of stars; exploration of the universe; role of the Sun in our solar system; planets; and the orientation and placement of the Earth.

7740 Food Science**Credit: 1****Prerequisite: Biology and Chemistry**

How do we know if our food is safe? This course will use scientific methods to analyze the role of acids and bases in food science, apply the principles of food safety, study the chemical properties of food, and learn the purposes of additives and leavening agents in food. Also understand how food provides energy and how digestion and metabolism affect our bodies. This course is a Career and Technical Education funded course and requires 40% laboratory and fieldwork requirements.

8140CW Forensic Science**Credit: 1****Prerequisite: Chemistry**

Forensics is a structured and scientific approach to the investigation of crimes of assault, abuse and neglect, domestic violence, accidental death, homicide, and the psychology of the criminally insane. Learn basic terminology and investigative procedures related to crime scene, question building, interviewing, criminal behavior characteristics, truth detection methodology, and scientific procedures used to solve crimes. You will have the opportunity to collect and analyze evidence through case studies and mock crime scenes. Lab activities will be based on crime scene scenarios and analyzing fingerprints, ballistics, and blood spatter. Learn about the history, legal aspects of forensics, and career options available in the forensic field. This course can earn college credit based on Articulation agreements with Alvin Community College and Brazosport Community College; Articulation agreements are subject to change.

7640CW Anatomy and Physiology**Credit: 1****Prerequisite: Two science credits**

Study the energy needs of the human body, how it maintains homeostasis, and its transport systems, electrical conduction processes, environmental factors affecting the body, and the process of reproduction, growth and development. Special projects, research studies, and creative assignments that reflect independent thinking are required. This course is a Career and Technical Education funded course and requires 40% laboratory and fieldwork requirements. This course can earn college credit based on Articulation agreements with Alvin Community College; Articulation agreements are subject to change.

For expectations in the following AP courses, refer to page 1 in the course catalog (Planning Your Schedule):

3593 Biology II – AP

Credit: 1

Prerequisite: Chemistry or current enrollment

AP Biology is an introductory college-level biology course. Students cultivate their understanding of biology through inquiry-based investigations as they explore the following topics: evolution, cellular processes — energy and communication, genetics, information transfer, ecology, and interactions.

3693 Chemistry II – AP

Credit: 1

Prerequisite: Chemistry and Algebra II or concurrent enrollment in Algebra II

The AP Chemistry course provides students with a foundation to support future advanced course work in chemistry. Through inquiry-based learning, students develop critical thinking and reasoning skills. Students cultivate their understanding of chemistry and science practices as they explore topics such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium.

3893 Environmental Science – AP

Credit: 1

Prerequisite: Algebra I, Chemistry or Physics

The goal 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.

3794 Physics C– AP

Credit: 1

Prerequisite: Physics, Geometry and Algebra II

This AP course will require students to dedicate themselves to study required by rigorous college-level standards. Students taking this course will be prepared for and are expected to take the AP test upon completion. Topics covered include Kinematics; Newton's Laws of Motion; Work, Energy, and Power; Systems of Particles and Linear Momentum; Circular Motion and Rotation; and Oscillations and Gravitation.

3883D Physics II - Dual

Credit: 1

Prerequisite: Physics; College/University Requirements

This course gives high school credit for Advanced Physics and college credit for Physics. This course provides advanced academic instruction that includes the study of Newtonian mechanics, forces, statics, laws of motion, gravity, energy, momentum, temperature, specific heat, heat exchange, simple harmonic motion, wave motion, sound, electric charge, electric field and potential, DC circuits, magnetism, electromagnetic induction, AC circuits, optics, optical instruments, relativity, the solid state, atomic and nuclear physics, and elementary particles. Students are responsible for payment of college tuition, fees, and books required for this course. Refer to the section describing the Dual/Concurrent College Courses in the "High School Overview" page of this catalog. No High School 1/2 credit will be awarded.

8371 Scientific Research & Design: Science Olympiad

Credit: 1

Prerequisite: A passing score on the Biology EOC

This course is designed to emphasize problem solving aspects and an in-depth understanding of scientific concepts. Students will apply critical thinking skills, creating solutions to various challenges. Students will work collaboratively in teams. This course prepares students for the Science Olympiad competition and future careers.

7130W Advanced Animal Science

Credit: 1

Prerequisite: Two science credits and Small Animal Management or Livestock Production

This course will provide a closer look at the various livestock anatomy and physiology. Sample topics are diseases, reproduction, feeding rations and discussion of good livestock management practices. This course is a Career and Technical Education funded course and requires 40% laboratory and fieldwork requirements.

8325CW Engineering Design and Problem Solving: PLTW

Credit: 1

Prerequisite: Three PLTW credits, Algebra II, Chemistry & Physics.

This engineering research course allows students to work in teams to research, design, and construct a solution to an open-ended engineering problem. Students apply principles developed in previous PLTW courses, present progress reports, submit a final written report and defend their solutions to reviewers. This course can earn college credit based on Articulation agreements with Brazosport Community College; Articulation agreements are subject to change.

8329CW Engineering Science – PLTW

Credit: 1

Prerequisite: A PLTW Engineering Specialization course

This survey course of engineering exposes students to major concepts they'll encounter in a post-secondary engineering course of study. Students employ engineering and scientific concepts in the solution of engineering design problems. They develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, documenting their work and communicating solutions to peers and members of the professional engineering community. This course is a Career and Technical Education funded course. This course can earn college credit based on Articulation agreements with Alvin Community College and Rochester Institute of Technology; Articulation agreements are subject to change.