**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: Biology**

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.

**7650C Medical Microbiology**

**Credit: 1**

**Prerequisite: Biology and Chemistry**

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.

**7640C 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 which 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**

**Credit: 1**

**Prerequisite: Biology, and Chemistry, IPC, or Physics**

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.