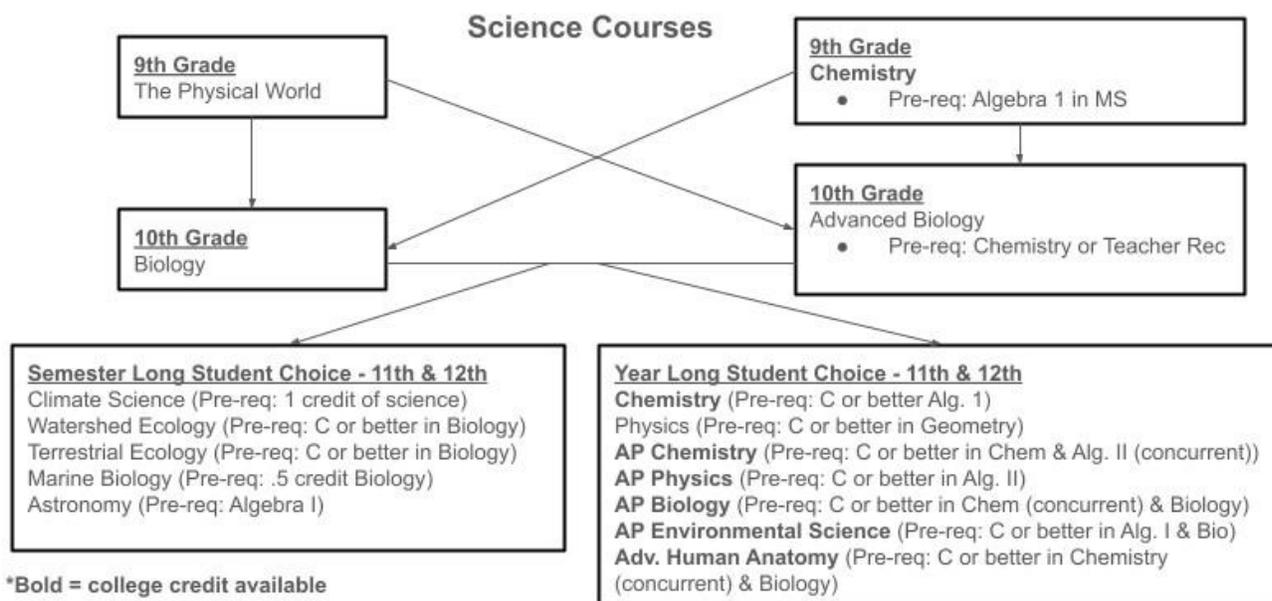


Science Courses



Science Honors Requirements

In order to graduate with Science Honors, a student must:

- Earn 4 or more credits of science
- Have a B (3.0) average in science
- Have active participation in at least one of the following:
 - Academic Masters
 - GPHS Science Clubs
 - Judge or do science demo at elementary science fair
 - Other science activity approved by Science Dept. Instructor (Examples could include a job in the science field, volunteering in a science capacity, attending a science camp, attending a science field study, a science-based community activity, an individual project, etc.)- **Note: prior approval from science dept. needed**

College credit courses available:

GPHS Course Title	Grade	College	College Course	College Credits
Chemistry	9, 10, 11, 12	RCC	CHEM104: Intro Chemistry I w/ Lab and Recitation	5
Adv. Human Anatomy & Physiology	11, 12	RCC	BI121: Elementary Anatomy & Physiology I	4
AP Biology	11, 12	RCC	BI101: General Biology I, BI102: General Biology II BI103: General Biology III w/lab	4, 4, 4
AP Chemistry	11, 12	SOU	CH221: General Chemistry I, CH222: General Chemistry II CH223: General Chemistry III, CHEM 227: Lab	3, 3, 3, 2
AP Physics I	12	SOU	PH201 w/ Lab: General Physics I	5
AP Environmental Science	11, 12	-	College credit opportunity with passing AP Exam score	

THE PHYSICAL WORLD**Course #** 0315915**Grade:** 9 **Credits:** 1 **Prerequisites:** None**Course Description:**

Physical World is an introductory science class that blends principles of physics, chemistry, and Earth science with practical applications. Topics include motion, forces, energy, periodic table, chemical reactions, composition of the Earth, plate tectonics, and climate change. Students are involved in a variety of learning activities including laboratory investigations, reading, writing, and engineering investigations.

BIOLOGY**Course #** 0305110**Grade:** 10 **Credits:** 1 **Prerequisites:** None**Course Description:**

Biology is a science that covers the study of living things. Biology focuses on fundamental concepts of cellular biology, genetics, ecology, and evolution. The Science Inquiry skills are emphasized along with biology's connections to other scientific disciplines. The foundation of the class is based upon the standards developed by the Oregon Department of Education.

ADVANCED BIOLOGY**Course #** 0305115**Grade:** 10 **Credits:** 1 **Prerequisites:** Chemistry or teacher recommendation**Course Description:**

As in regular Biology, this course will provide the opportunity to learn about organisms, their structural and functional similarities & their relationships with each other. Advanced Biology will place an emphasis on themes which recur, connect, and unify our understanding of topics & concepts which enhance understanding of how & why particular processes & patterns occur.

CHEMISTRY**Course #** 0310110**Grade:** 9, 10, 11, 12 **Credits:** 1 **Prerequisites:** Algebra I with a C or higher**Comment:** College Credit Available with college pre-requisite requirements met**Course Description:**

Chemistry is the science dealing with the composition, structure, properties of substances, and the chemical changes matter undergoes. Laboratory experiments are performed in this course in order to make observations about different substances and to develop good laboratory techniques. Students enrolled in Algebra IA/IB may take Chemistry with teacher recommendation.

AP CHEMISTRY**Course #** 0310610**Grade:** 10, 11, 12 **Credits:** 1 **Prerequisites:** Chemistry with a C or higher and concurrent enrollment in Algebra II**Comment:** College Credit Available with college pre-requisite requirements met**Course Description:**

AP Chemistry is the study of matter's composition, structures, properties, and interactions. AP Chemistry is also a college-level course, meaning students have the opportunity to earn college credit for the completion of AP Chemistry. Student will explore and apply principles and applications of chemistry for the pursuit of a science major. There will be an emphasis on atomic and molecular structure, periodic properties of elements, models of chemical bonding, and molecular geometry and its influence on molecular properties; with experiments covering the fundamentals of chemical measurements, quantitative relationships in chemical analysis, and understanding atomic and molecular structure.

PHYSICS**Course #** 0315112**Grade:** 11, 12 **Credits:** 1 **Prerequisites:** Geometry, Physical World or Chemistry**Course Description:**

Physics forms the very foundation of our world and universe. Whether studying a single tiny atom or an enormous cluster of millions of galaxies, physics is where you have to start if you want to understand what is going on. This class is designed to introduce students to the major topics in physics including forces and motion, energy, momentum, electricity and magnetism, and electronics. The goal is to develop knowledge

and skills while awakening students to the beauty and mystery of physics. Students who take this class will have a very sturdy foundation from which to go on and take college or AP level Physics classes.

AP PHYSICS I

Course # 0315521

Grade: 10 (with approval), 11, 12 **Credits:** 1 **Prerequisites:** Algebra II

Comment: College Credit Available with college pre-requisite requirements met

Course Description:

This class is a fast pace and exciting introduction to physics that will develop a solid mathematical and conceptual understanding of some of the major topics in introductory physics. Students taking this course will earn college credit and be extremely well prepared for further college studies in a physics, electronics, engineering, math, and other physical sciences. When taken together, AP Physics 1 and 2 thoroughly cover all major concepts in introductory physics. No prior physics class are required.

AP BIOLOGY

Course # 0305610

Grade: 11, 12 **Credits:** 1 **Prerequisites:** Biology /Chemistry or enrolled in Chemistry

Comment: College Credit Available with college pre-requisite requirements met

Course Description:

This course is designed to be the equivalent of a college introductory biology course, usually taken by biology majors (pre-professional, allied health, and science education). Content includes organic molecules, cellular structure and function, biochemistry of respiration and photosynthesis, mechanics of cell division, genetics, DNA and protein synthesis, evolution, structure and function of plant and animal systems, and ecology.

ADVANCED HUMAN ANATOMY AND PHYSIOLOGY

Course # 0305310

Grade: 11, 12 **Credits:** 1 **Prerequisites:** Biology/Chemistry with a C or higher or concurrent enrollment in Chemistry

Comment: College Credit Available with college pre-requisite requirements met

Course Description:

This course focuses on the structures & functions of the human body. An emphasis is placed on laboratory activities and the use of manipulatives to develop a better understanding of the human body systems and to make it more meaningful. This course provides an essential background for students pursuing careers in medicine, health, and related fields of science. This class does include dissections.

MARINE BIOLOGY

Course # 0300519

Grade: 11, 12 **Credits:** .5 **Prerequisites:** .5 credit in Biology or Life Science

Course Description:

This class will focus on the life of the ocean! We will learn about marine life zones from the surface to the deep. We'll study different groups of marine animals and their characteristics; learning about what makes them special and unique. This class will include dissections looking at basic internal and external anatomy with an emphasis on comparing and contrasting different ways marine animals have adapted to survive. In addition to studying the animals and learning to identify commonly seen species, you will also learn about some of the major issues facing the ocean today and how these issues can affect society.

WATERSHED ECOLOGY

Course # 0306320

Grade: 11, 12 **Credits:** .5 **Prerequisites:** C or higher in Biology or Advanced Biology

Comment: Only available first semester

Course Description:

A project based, hands-on class to study the interactions of the abiotic and biotic factors in local watershed ecosystems and how they influence land management decisions of natural resources. Field trips to local streams will also include learning how to map streams, **fish of the Rogue River**, etc. Students should be grade-level readers, enjoy projects, able to complete task on time and without significant prompting, and participate in 2 of the 3 ALL day field trips.

AP ENVIRONMENTAL SCIENCE

Course # 0320721

Grade: 11, 12 **Credits:** 1 **Prerequisites:** Algebra I and Biology**Comment:** College Credit Available with AP Exam**Course Description:**

The AP Environmental Science (APES) course is designed to engage students with scientific principles, concepts and methodologies required to understand the interrelationships within the natural world. The course requires that students identify and analyze natural and human-made environmental problems, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving or preventing them. Environmental science is interdisciplinary, embracing topics from geology, biology, environmental studies, environmental science, chemistry and geography.

TERRESTRIAL ECOLOGY

Course # 0306330

Grade: 11, 12 **Credits:** .5 **Prerequisites:** C or higher in Biology or Advanced Biology**Comment:** Only available second semester**Course Description:**

A project based, hands-on class to study the interactions of the abiotic and biotic factors in local biomes and how they influence land management decisions of natural resources. Students will learn about plants and pollinators in class and on field trips where they will study birds and honey bees. Students should be grade-level readers, enjoy projects, able to complete task on time and without significant prompting, and participate in 3 of the 4 ALL day field trips.

ASTRONOMY

Course # 0300410

Grade: 11, 12 **Credits:** .5 **Prerequisites:** Algebra I with a C or better**Course Description:**

A student driven, project based course through individual, and collaborative study. Students create presentations or tests in the following areas: Constellations, NASA Missions, Light/EM Spectrum, Sun, Star Life Cycle/ Big Bang, ISS, Mars Exploration. Students will use Newton's Laws and Kepler's Laws to calculate orbits and gravitational influence of celestial bodies, satellites, and wave energies in the EM Spectrum. Students will incorporate calculations to show understanding of the expansion of the universe, galaxies, and solar system. Students will submit individual weekly observations, and current event summaries (lunar phases, eclipses, meteor showers, etc.).

CLIMATE SCIENCE

Course # 0315824

Grade: 11, 12 **Credits:** .5 **Prerequisites:** One credit of science or teacher approval**Course Description:**

In this interdisciplinary elective course, students will explore the topic of climate science. Students will investigate climate history, causes of current climate trends, and effects of Earth's changing climate and propose solutions to mitigate these impacts

General Electives offered by the Science Department

ADVANCED LAB TECHNIQUES

Course # 0306311

Grade: 11, 12 **Credits:** .5 **Prerequisites:** Teacher Approval**Course Description:**

This is an advanced course allowing students to gain additional experience with lab techniques. The skills to be developed in this course include preparation of solutions, proper storage of chemicals, proper storage of equipment, and maintenance of equipment. This course is not offered for Science credit.