

# Science Courses

Course Title	9th Grade	10th Grade	11th Grade	12th Grade
AP Biology			•	•
AP Chemistry			•	•
AP Environmental Science			•	•
AP Physics C			•	•
Aquatic Biology			•	•
Astronomy		•	•	•
Biology		•		
Biology Honors	•	•		
Intro to Biotech		•	•	•
Chemistry		•	•	•
Earth, Space & Environmental Science	•			
Forensic Science			•	•
Global Science			•	•
Honors Chemistry		•	•	•
Honors Earth, Space & Environmental Science	•			
Human Anatomy & Physiology			•	•
Physics			•	•
Zoology			•	•
Zoology II			•	•

*Science is a way of thinking much more than it is a body of knowledge.*

*Carl Sagan*



**Aquatic Biology**  
**80475**

**Credit:**  
**0.5**

**\$10 Lab Fee**

**Grade:**  
**11-12**



**Prerequisites:** Biology or teacher recommendation  
**Graduation Req:** Science

Aquatic Biology is a course designed to acquaint students with the biology and ecology of freshwater and/or marine environments. The course is designed for the student who has a general interest in science. Students will study the ecological importance and interrelations of aquatic organisms. Laboratory investigations and dissections will be performed.

**Astronomy**  
**80600**

**Credit:**  
**0.5**

**\$5 Fee**

**Grade:**  
**10-12**



**Prerequisites:** Earth, Space and Environmental Science  
**Graduation Req:** Science

This lab-based course includes the study of our place in the universe, motion of celestial objects, planets, moons, stars, galaxies, and cosmology. The study of our solar system draws upon the student's current knowledge of earth science (geology and weather) and chemistry. Much of the course includes problem solving, requiring a strong understanding of basic algebraic concepts.

**Biology – 10th**  
**80350S1 & 80350S2**

**Credit:**  
**1**

**\$10 Lab Fee**

**Grade:**  
**10**



**Prerequisites:** 9<sup>th</sup> Grade Science  
**Graduation Req:** Science

Biology is a laboratory course. It is the study of living organisms, their life processes and their relationship with the environment. Students develop an understanding of the process of biology through science inquiry. Topics studied may include, but are not limited to: Nature of Science, Cell, Bioenergetics, Homeostasis, Biodiversity, Genetics and Evolution, and Ecology.

**Biology Honors**  
**80356S1 & 80356S2**

**Credit:**  
**1**

**\$10 Lab Fee**

**Grade:**  
**9-12**



**Prerequisites:** Co-Enrollment in Honors Geometry or higher  
**Graduation Req:** Science

This course is designed to prepare students for AP (Advanced Placement) courses. Students will be expected to successfully investigate and perform higher cognitive demands tasks that maintain the complexity of the discipline. They must make a commitment to put forth the required effort to move from acquisition to application of knowledge at a faster pace, with greater depth, and increasing complexity. Honors Biology is a laboratory course. It is the study of living organisms, their life processes and their relationship with the environment. Students develop an understanding of the process of biology through science inquiry. Topics studied may include, but are not limited to: Nature of Science, Cell, Bioenergetics, homeostasis, Biodiversity, Genetics and Evolution, Ecology. Honors Biology and Biology will study the same topics, but the sequence may be different. It is not recommended to make a level change mid-year as this will create gaps and overlaps in the student's learning.

**Intro to Biotech**                      **Credit:**                      **\$15/Semester + \$10**                      **Grade:**  
**69073S1 & 69073S2**                      **1**                      **workbook**                      **10-12**

**Prerequisites:** C or better in Biology, C or better in 1 semester of Chemistry if concurrently enrolled in Chemistry, C or better in both semesters of Chemistry if already completed Chemistry.  
**Graduation Req:** Science

These advanced genetics course introduces students to modern biotechnology. Students gain hands-on laboratory experience as they gain knowledge in the rapidly expanding field of health care. Topics of study include, but are not limited to, DNA structure and replication, protein synthesis, protein structure and function, and gene expression and regulation. Other topics covered include genetic engineering and bacterial transformation, AgriBiotechnology, medical biotechnology, environmental biotechnology, nanobiotechnology, bioinformatics, DNA sequencing and bioinformatics and gene silencing. To be in this class, students need to have strong reading and critical thinking skills, ability to make connections, ability to work independently, and strong test taking skills.

**Chemistry**                                      **Credit:**                                      **\$10 Lab Fee**                                      **Grade:**  
**80375S1 & 80375S2**                                      **1**                                      **10-12**



**Prerequisites:** Grade of C or better in Algebra I, currently enrolled in math higher than Algebra I. Passed Biology.  
**Graduation Req:** Science

Chemistry at Ponderosa is a rigorous course that prepares students for college level science. Chemistry covers the broad concepts upon which modern chemistry rests including the mathematics of science, atomic structure, naming and writing formulas, chemical reactions, stoichiometry, gas laws, periodicity, bonding, kinetics and equilibrium, solutions and concentrations, acids and bases, with possible enrichment in: redox, thermochemistry, nuclear chemistry, and organic chemistry/biochemistry. Laboratory work is an essential part of the course requiring extensive data analysis. Extensive time outside of class will be required to be successful in this course.

**Earth, Space & Environmental Science – 9<sup>th</sup> Grade**                      **Credit:**                      **\$10 + Goggles**                      **Grade:**  
**80325S1 & 80325S2**                      **1**                      **9**



**Prerequisites:** 8<sup>th</sup> Grade Science  
**Graduation Req:** Science

Earth/Environmental Science is a High School Level course in which students will investigate essential learnings related to cycles, systems, and energy flow related to the topics: geology, weather, astronomy, and natural resources, physics, and chemistry. The relationship between these earth systems and living systems will be explored so that students will be able to make informed decisions regarding the use and care of the resources the earth provides.

**Forensic Science**                                      **Credit:**                                      **\$10 Lab Fee**                                      **Grade:**  
**80420**                                      **0.5**                                      **11-12**



**Prerequisites:** Co-enrolled or passing grade in Chemistry  
**Graduation Req:** Science

In this upper level science elective, students will learn how forensic scientists process evidence and analyze their findings in the context of crime scene investigation. Topics include fingerprinting analysis, serology and blood analysis, human remains, hair and fiber analysis, toxicology, and questioned document analysis. This is a laboratory-based science class. We will also have guest speakers in the field.

**Global Science**  
**80624S1 & 80624S2**

**Credit:**  
**1**

**\$10 Fee**

**Grade:**  
**11-12**



**Prerequisites:** Biology

**Graduation Req:** Science

Global science is an integrated science course combining life, earth and physical science topics in a lab-based and inquiry-driven environment enriched by basic chemistry and physics principles. Students will apply data collected in laboratory investigations to understand and interpret the scientific and social challenges of the future.

**Honors Chemistry**  
**80385S1 & 80385S2**

**Credit:**  
**1**

**\$10 + Goggles**

**Grade:**  
**10-12**



**Prerequisites:** Successful completion of Honors Biology or Biology teacher recommendation and successful completion or concurrent enrollment of Algebra II.

**Graduation Req:** Science

This course is designed to prepare students for AP (Advanced Placement) courses. Students will be expected to successfully investigate and perform higher cognitive demand tasks that maintain the complexity of the discipline. They must make the commitment to put forth the required effort to move from acquisition to application of knowledge at a faster pace, with greater depth, and increasing complexity. Honors Chemistry covers the broad concepts upon which modern chemistry rests, including the mathematics of science, atomic structure (periodicity, bonding) chemical nomenclature, chemical reactions, stoichiometry, gases, kinetics and equilibrium, acids and bases, Energy processes (electrochemistry, thermochemistry, nuclear chemistry). Laboratory work is an essential part of the course requiring extensive data analysis. Transfer at semester time to different levels of Chemistry will not be recommended due to gaps and overlaps in the curriculum. Extensive outside class time will be required to be successful in this course.

**Honors Earth,  
Space &  
Environmental Science – 9<sup>th</sup> Grade**  
**80326S1 & 80326S2**

**Credit:**  
**1**

**\$10 + Goggles**

**Grade:**  
**9**



**Prerequisites:** Student must have an A in 8th Grade Science with 8th grade science teacher recommendation. Student should also be high achieving, and is not going into Honors Biology due to math requirement.

**Graduation Req:** Science

This course is designed to prepare students for AP (Advanced Placement) courses. Students will be expected to successfully investigate and perform higher cognitive demand tasks that maintain the complexity of the discipline. They must make the commitment to put forth the required effort to move from acquisition to application of knowledge at a faster pace, with greater depth, and increasing complexity. Honors Earth/Environmental Science is a course in which students will master concepts related to earth, atmosphere, and oceans. Important science ideas, such as cycles, systems, and energy flow will be applied to the study of topics including geology, weather, astronomy, and natural resources. The relationship between these earth systems and living systems will be explored so that students will be able to make informed decisions regarding the use and care of the resources the earth provides.

**Human Anatomy & Physiology**  
**80525**

**Credit:**  
**0.5**

**\$20 Fee**

**Grade:**  
**11-12**



**Prerequisites:** "C" or better in Biology/Honors Biology and Chemistry/Honors Chemistry or concurrent enrollment in Chemistry/Honors Chemistry

**Graduation Req:** Science

Anatomy and Physiology is an advanced course for students who are interested in exploring human body structures and functions in greater depth. Students will be expected to conduct numerous laboratory investigations as well as dissections. Human health and disease will be emphasized and explored through inquiry. The course is designed for the biology/health care related student. However, the non-biology major will benefit as well. A college level text is used to support the material.

**Physics**  
**80430S1 & 80430S2**

**Credit:**  
**1**

**WebAssign**  
**Approx. \$11**

**Grade:**  
**11-12**



**Prerequisites:** Successful completion of Algebra II

**Graduation Req:** Science

In this lab-based course, students will study the structure and behavior of the physical world and how these ideas relate to human society. Students will study physical principles of dynamics, light, electricity, magnetism, and atomic structure. The emphasis of this course will be on understanding the mathematical relationships that characterize the behavior of the physical world.

**Zoology**  
**80500**

**Credit:**  
**0.5**

**\$10 Lab Fee**

**Grade:**  
**11-12**



**Prerequisites:** Biology or Honors Biology

**Graduation Req:** Science

Zoology is a course designed to present the student with representatives of all the major animal groups, their comparative anatomy, evolutionary origins and record, ecology, and behavior. Students will begin to consider the difficulties of wildlife management. It is primarily lab-oriented with dissections and two field trips. This course is a preparation for Zoology II.

**Zoology II**  
**80501**

**Credit:**  
**0.5**

**\$10 Lab Fee**

**Grade:**  
**11-12**



**Prerequisites:** Successful completion of Zoology I

**Graduation Req:** Science

Zoology II will be a continuation of the study of representatives of arthropods and vertebrates integrating the anatomy, physiology, ecology, evolution and behavioral adaptations that enable them to survive effectively in their natural environment. Zoology II arching focus will be field research as it is applied to management, in addition, dissections and guest speakers in the field will be presented. This course is geared toward students seeking a future in scientific studies. Students will be required to meet at a Douglas County Open Space for class.