

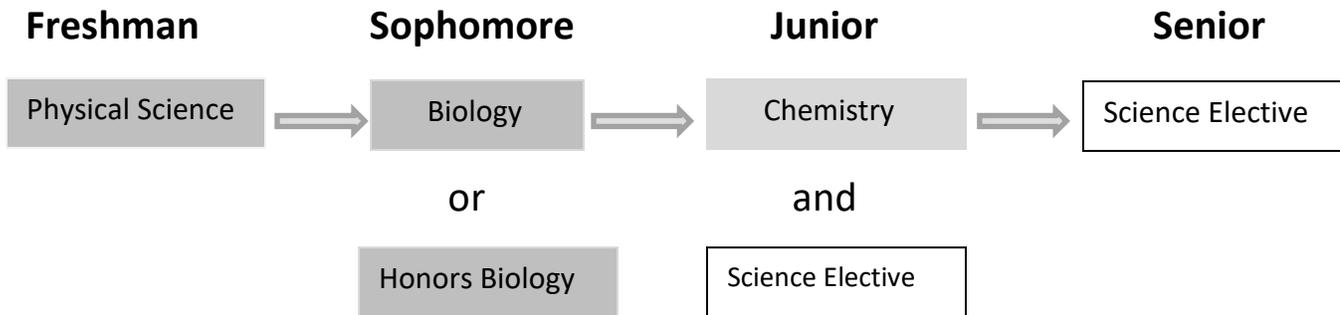
Science

Required Class

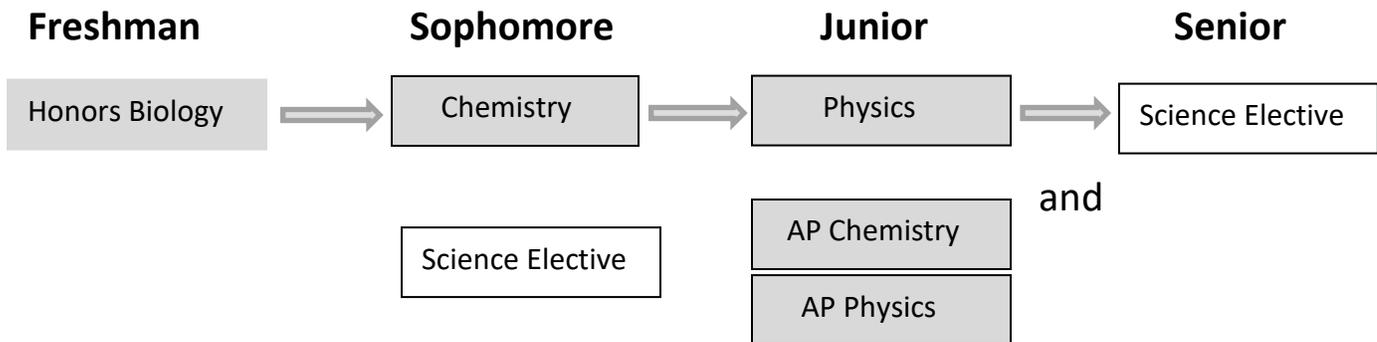
Science Elective

Science Department Class Sequence

Physical Science Track: Students who enter CCHS taking Physical Science should use the following sequence as a guide to meet the CCSD requirements for science. Following this track will best prepare students for the NGSS/OAKS science test at the end of their junior year.



Honors Biology Track: Students who enter CCHS taking Honors Biology should use the following sequence as a guide to meet the CCSD requirements for science. This is an accelerated sequence that not only prepares students for the NGSS/OAKS science test that is administered at the end of their junior year, but will also prepare students for college-level science courses.



Science Electives: Students can take additional science classes by enrolling in one of the following science electives. These electives are not offered to take the place of the required science curriculum, but instead to provide opportunities to enhance a student’s scientific background. Refer to course descriptions for elective prerequisites and possible college credit opportunities.

- | | | |
|------------------------|-----------------------|-------------------|
| Advanced Biology | Anatomy & Physiology | Robotics |
| Wildland Fire & Plants | Wilderness Management | Forest Management |
| AP Chemistry | AP Physics | |

Science

Course Title	Prerequisite	Grade Level	Length of Course	Credits Per Year	Meets Graduation Requirement in:
Physical Science	None	9	2 semesters	1.0	SC, NCAA

Physical Science covers fundamental, current and selected topics in the physical, earth and space sciences. Students will receive instruction in forces and motions, energy and introductory chemistry. We will cover energy and geo-chemical cycles on earth, as well as structure and evolution of the solar system. Scientific methodology and ethics will be stressed throughout the course. The course content is based on state benchmarks.

Biology	Physical Science or 8th grade teacher rec	9-10	2 semesters	1.0	SC, NCAA
----------------	---	-------------	--------------------	------------	-----------------

Biology is a comprehensive course that covers fundamental, current and selected topics in the biological and chemical sciences. Students will learn about the cell, heredity and evolution along with the behavior of organisms and their interdependence on each other and the environment. The course content is designed with state benchmarks in mind. Scientific methodology and ethics will be stressed throughout the course.

Honors Biology	Biology	11-12	2 semesters	1.0	SC, EL, NCAA, HD
-----------------------	----------------	--------------	--------------------	------------	-------------------------

Honors Biology is a comprehensive course that covers fundamental, current and selected topics in the biological sciences. Students will learn about biochemistry, metabolism, genetics, cell biology and evolution. This course is similar in content to Biology, but explores topics at a deeper level and at a faster pace. The honors designation does not indicate more “work”, but simply that the content will be more thorough and delivered at an accelerated pace. The course content is designed with state benchmarks in mind.

General Chemistry	Biology	10-12	2 semesters	1.0	SC, NCAA, EL
--------------------------	----------------	--------------	--------------------	------------	---------------------

The purpose of first year general chemistry is to allow students to study the mechanisms of matter and chemical reactions. Upon completion of the course, the student should have a clear understanding of the chemistry content required to be successful on the NGSS/OAKS science test that is administered to all students at the of their junior year. Topics include matter and energy, atomic structure, the periodic table, chemical bonding and reactions, stoichiometry, and the behavior of gasses. In addition, students will explore the uses of chemistry in various careers, gain an ability to cope with chemical questions and problems related to personal needs and social needs, and have an understanding of laboratory safety. To achieve these goals, a significant amount of time will be spent in the laboratory.

Science

Course Title	Prerequisite	Grade Level	Length of Course	Credits Per Year	Meets Graduation Requirement in:
Honors Chemistry	Biology	10-12	2 semesters	1.0	SC, NCAA, EL

The purpose of this first-year Honors Chemistry course is to allow students to study the mechanisms of matter, the interactions of different forms of matter, and the impact of energy on the changes that occur in matter. Upon completion of the course, the student should have a clear understanding of the chemistry content required to be successful on the NGSS/OAKS science test that is administered to all students at the end of their junior year. In addition, this course has a stronger math emphasis which is designed to prepare students for AP Chemistry and other college-level chemistry courses. Topics include matter and energy, atomic structure, the periodic table, chemical bonding and reactions, stoichiometry, the behavior of gasses, solutions, equilibrium, and acid/base chemistry. In addition to these topics, students will explore the uses of chemistry in various careers, gain an ability to cope with chemical questions and problems related to personal needs and social issues, and have an understanding of laboratory safety. To achieve these goals, a significant amount of time will be spent in the laboratory.

Advanced Biology	Biology	11-12	2 semesters	1.0	SC, NCAA, EL, HD
-------------------------	----------------	--------------	--------------------	------------	-------------------------

Advanced Biology is an integrated study of biology including a discussion of the nature of science, evolution, cell biology, genetics, physiology and ecology of plants and animals, including man. The first semester focuses on the invisible world within cells. Topics will include basic chemistry, macromolecules, cells, classical genetics and cell division. The second semester focuses on the living world around us. Topics include molecular genetics, evolution, speciation, classification, surveying phyla and anatomy/physiology. This should be taken by students who have an interest in science as a profession.

Forensic Biology	Biology Chemistry	11-12	2 semesters	1.0	SC, EL, NCAA HD
-------------------------	------------------------------	--------------	--------------------	------------	----------------------------

This course will be a wide consideration of all aspects of Forensic Biology ranging from general considerations to the latest in molecular techniques. This course will also review current literature, discuss case studies and look at some mass-market publications on crime scene investigation. There will be mock murder investigations and crime scene set ups. This course is designed to offer an insight into the career of a forensic biologist or crime scene investigator.

Physics	Algebra 2 Chemistry is recommended	11-12	2 semesters	1.0	SC, NCAA, EL, HD
----------------	---	--------------	--------------------	------------	-------------------------

This course is designed to give students a solid background in the scientific field of physics. The philosophy of this class is to cover the cornerstone topics of physics in depth, rather than cover many topics superficially. Topics will include one dimensional kinematics, two dimensional kinematics, forces, laws of motion, work, energy, momentum, rotational motion, and gravity. Physics A & B will be taught as an inquiry-based class with a very strong lab component, where students are expected to apply the scientific principals learned in class to lab and real world scenarios.

Science

Course Title	Prerequisite	Grade Level	Length of Course	Credits Per Year	Meets Graduation Requirement in:
AP Physics	Geometry Algebra 2 concurrently or previously	11-12 10 on approval	2 semesters	1.0	SC, NCAA, EL, HD

Algebra-Based introductory college-level physics course. Topics include kinematics (motion), dynamics (forces), circular motion & gravitation, simple harmonic motion, momentum & impulse, energy & work, rotational motion & torque, electric charge & electric force, DC circuits (resistors only), and mechanical waves & sound. The course focuses on high-level understanding of concepts, experimental design and critical thinking, and prepares students for the AP Physics 1 exam in May.

AP Chemistry	Chemistry and teacher approval	11-12	2 semesters	1.0 *See below	SC, NCAA, EL, HD
---------------------	---	--------------	--------------------	---------------------------	-----------------------------

***College credit may be earned through the AP exam which is administered in May. \$ There is an AP exam fee**

This is an advanced chemistry course designed to prepare the student for the AP Chemistry exam. The course will be similar to that of a full year of college-level General Chemistry. The course is a rigorous math-based course with a strong laboratory component. It is intended for students who have demonstrated a willingness to commit considerable time to studying and completing assignments outside of class and who have successfully completed a prior course in chemistry during high school.

Human Anatomy & Physiology	Biology Chemistry is recommended	11-12	2 semesters	1.0	SC, EL, NCAA, HD
---	---	--------------	--------------------	------------	-----------------------------

Human A & P explores the human body system by system. Students learn about the structure (anatomy) and the function (physiology) of the major body systems. Students will learn how the body reacts to its environment and how disease manifests itself in each system. Systems covered may include the digestive system, circulatory system, skeletal system, muscular system, integumentary system, urinary system, nervous system, respiratory system, immune system and the reproductive system. Other systems may be given a cursory review if time permits. **This should be considered an advanced science class and should be taken by students who have an interest in the medical field as a profession.**

Science

Natural Resource Management

Course Title	Prerequisite	Grade Level	Length of Course	Credits Per Year	Meets Graduation Requirement in:
Wilderness and Recreation	None	11-12	1 Semester	0.5 <i>*See below</i>	SC, CTE, EL, HD

***Dual Credit Option from COCC: FOR 195 – 2 credits; \$Course Fee: \$15 per credit = 2 credits for \$30!**

Is the call of the wild drawing you to understand more about wilderness areas and where to go for great backpacking trips? Are you interested in the role of recreation in a healthy community? If so, and you are interested in getting out into the wilderness and trying your hand at some recreational adventures, then sign up for this class. We take at least two trips with natural resource management professionals into wilderness areas surrounding Prineville. The course content focuses on wilderness management concepts by describing the human-nature relationship and how this applies to wilderness and the basic concepts of ecosystems. We examine the basic principles of wilderness and recreation management and their application to real-life management situations including the natural roles of fire, insects, disease and other events in wilderness ecosystems. You will study the concept of wilderness and characterize the role of scientific research in wilderness. You will complete field lab reports and do professional journal article reviews. Having this course on your transcript will give you a distinct advantage when applying for a summer job on a trail crew and could lead you beyond that to a career in the wilderness!

Forest Management	None	11-12	2 semesters	1.0 <i>*See below</i>	SC, CTE, EL, HD
--------------------------	-------------	--------------	--------------------	---------------------------------	------------------------

***Dual Credit Option from COCC: FOR 111 – 4 credits; \$Course Fee: \$15 per credit = 4 credits for \$60!**

If you want to spend afternoons in the field working to restore a stream, planting trees, taking water quality samples and working on juniper removal projects, then don't miss this class. This course requires field trips to view timber harvesting and sawmill operation and learning how to do timber cruising or measuring tree stand volumes. The extended watershed field afternoons could lead to you being awarded a "Watershed Steward Certificate" presented at the annual awards ceremony for your participation in these events for the entire school year. Field lab reports are required for all field-related activities. This is a great resume builder and could lead to a job shadow or internship opportunity to jump start your career in natural resource management. The in-class content will give you an introduction to the entire field of forestry. Outcomes will focus on past and present uses of the forest; distinguishing between conservation, preservation and environmentalism; describing forest regions of the United States; comparing and contrasting the influences of Gifford Pinchot and John Muhr; understanding the U.S. Forest Service, Bureau of Land Management and Oregon Department of Forestry organizations. You will also gain valuable exposure to guest speakers from the forestry profession as well as develop a working vocabulary related to forest management and practices. All these gained skills add up to a great advantage for your entry into a college natural resource program or to a great summer job out in the woods.

Science

Natural Resource Management

Course Title	Prerequisite	Grade Level	Length of Course	Credits Per Year	Meets Graduation Requirement in:
Forest Products	None	11-12	1 Semester	0.5	SC, CTE, EL, HD

Opportunity for advanced students to take what they have learned in Forest Management and apply it to producing forest products.

Wildland Identification & Survey Techniques	None	11-12	1 Semester	0.5	SC, CTE, EL, HD
--	-------------	--------------	-------------------	------------	------------------------

***Dual credit option from COCC: FOR 110 - 2 credits - \$ To receive credit from COCC, there is a fee to the college**
 Introduction to wildlife management, ecology and survey techniques, through hands on labs and field experiences.