



# Science



## WCSD High School Science Course Sequence

Not all science classes are offered at every school

| Course Title  | Course #  |
|---|-----------|
| <b>9<sup>th</sup> Grade *</b>   |           |
| Biology   | 3141/3142 |
| Biology (H)   | 3143/3144 |
| <b>10<sup>th</sup> Grade</b>  |           |
| Chemistry   | 3201/3202 |
| Chemistry (H)   | 3203/3204 |
| Physical Science  | 3101/3102 |
| Earth Science   | 3131/3132 |
| <b>11<sup>th</sup> Grade/12<sup>th</sup> Grade</b>  |           |
| Environmental Science   | 3111/3112 |
| Human Anatomy & Physiology (H)  | 3261/3262 |
| Earth Science   | 3131/3132 |
| <b>Advanced Placement Science Classes:</b> Curriculum for AP classes is regulated by College Board. AP courses can be taken after successfully meeting the prerequisite(s) as stated in the course catalog. |           |
| AP Biology  | 3149/3150 |
| AP Chemistry  | 3211/3212 |
| AP Environmental Science  | 3115/3116 |
| AP Physics 1  | 3263/3264 |

\* Students who have successfully completed HS Honors Biology as part of the GATE MS Magnet program may start high school in Chemistry or Chemistry (H) with teacher recommendation. In addition to Chemistry, with permission from the school, students may choose to enroll in an additional science course if their schedule permits and the school offers the course. Please note that HS Honors Biology taken in 8<sup>th</sup> grade will not count as one of the required science courses for graduation or the honors diploma.

## Biology 1-2

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Course #3141-3142

Course Fee: \$13

Full Year = 1 credit

This one-year laboratory science course is intended to develop an understanding of the fundamental concepts of biological science. This course meets the Nevada Academic Content Standards for Science. The course is organized into five main topics: 1) *Interdependent Relationships in Ecosystems*; 2) *Matter and Energy in Organisms and Ecosystems*; 3) *Structure and Function*; 4) *Inheritance and Variation of Traits*; 5) *Natural Selection and Evolution*. The performance expectations for high school life science blend Disciplinary Core Ideas with both Science and Engineering Practices and Crosscutting Concepts to support students in developing an understanding of life science. In this course, students will use basic mathematical computations and read and write critically to analyze biological investigations. A common district final exam will be administered at the end of both semesters.

## Biology 1-2 - Honors

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Course #3143-3144

Course Fee: \$20

Full Year = 1 credit (Honors)

This one-year laboratory science course is intended to build a deeper understanding of the fundamental concepts of biological science. Emphasis is placed on developing critical-thinking skills through greater analysis, more complete explanations, using multiple sources when engaging in argument from evidence, and planning and carrying out advanced laboratory investigations. This course meets the Nevada Academic Content Standards for Science. The course is organized into five main topics: 1) *Interdependent Relationships in Ecosystems*; 2) *Matter and Energy in Organisms and Ecosystems*; 3) *Structure and Function*; 4) *Inheritance and Variation of Traits*; 5) *Natural Selection and Evolution*. The performance expectations for high school life science blend Disciplinary Core Ideas with both Science and Engineering Practices and Crosscutting Concepts to support students in developing an understanding of life science. Students will use advanced mathematical computations, critically read and analyze biological text, and learn from complex biological investigations. A common district final exam will be administered at the end of both semesters. In addition, students will take a constructed response assessment designed specifically for honors biology near the end of both semesters.

## Physical Science 1-2

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Course #3101-3102

Course Fee: \$15

Full Year = 1 credit

This one-year course is intended to develop an understanding of fundamental concepts in physical science and is intended as a second-year science course. This course meets the Nevada Academic Content Standards for Science. The Disciplinary Core Ideas to be studied are: 1) *Motion and Stability: Forces and Interactions*; 2) *Waves and Their Applications in Technology for Information Transfer*; 3) *Earth's Place in the Universe as it Relates to Physics*; and 4) *Chemistry: Matter and its Interactions*. The performance expectations for high school physical science blend Disciplinary Core Ideas with both Science and Engineering Practices and Crosscutting Concepts to support students in developing an understanding of physical science. In this course, students will use basic mathematical computations and read and write critically to analyze investigations.

## Chemistry 1-2

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Course #3201-3202

Course Fee: \$20

**Prerequisites:** Successful completion of Biology 1-2 and Algebra 1.

**Requisite:** Concurrent enrollment in Geometry or higher.

Full Year = 1 credit

This one-year laboratory science course is intended to develop an understanding of the fundamental concepts of chemical science. This course meets the Nevada Academic Content Standards for Science. The Disciplinary Core Ideas are: 1) *Structure and Properties of Matter*; 2) *Chemical Reactions*; and 3) *Energy in Chemical Processes*. The performance expectations for high school chemical science blend Disciplinary Core Ideas with both Science and Engineering Practices and Crosscutting Concepts to support students in developing an understanding of chemistry. Students will use mathematical computations, read scientific text, and write critically to analyze data in chemical investigations.

## Chemistry 1-2 - Honors

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Course #3203-3204

Course Fee: \$20

**Prerequisites:** Successful completion of Biology 1-2 and Algebra 1.

**Requisite:** Concurrent enrollment in Geometry or higher.

Full Year = 1 credit (Honors)

This one-year honors laboratory science course is intended to build a deeper understanding of the concepts of chemical science and prepare students for AP Chemistry. Emphasis is placed on developing critical-thinking skills by solving more complex problems and participating in advanced laboratory investigations. This course meets the Nevada Academic Content Standards for Science. The disciplinary core ideas are: 1) *Structure and Properties of Matter*; 2) *Chemical Reactions*; and 3) *Energy in Chemical Process*. The performance expectations for high school chemistry blend Disciplinary Core Ideas with both Science and Engineering Practices and Crosscutting Concepts to support students in developing an understanding of chemistry. Students will use advanced mathematical computations, critically read scientific text, analyze chemical data, and prepare formal written laboratory reports following investigations.

## Earth Science 1-2

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Course #3131-3132

Course Fee: \$10

**Prerequisites:** One year of science; credit earned in Algebra 1.

Full Year = 1 credit

This one-year laboratory science course is intended to develop an understanding of the fundamental concepts of Earth science. This course meets the Nevada Academic Content Standards for Science. There are five Earth science Disciplinary Core Ideas: 1) *Earth's Systems*; 2) *Human Impacts*; 3) *History of Earth*; 4) *Weather and Climate*; and 5) *Space Systems*. The performance expectations for high school Earth science blend the Disciplinary Core Ideas with Science and Engineering Practices and Crosscutting Concepts to support students in developing a deeper understanding of how the Earth's key systems interact and result in conditions that vary in complex yet predictable ways. In this course, students will use basic mathematical computations and read and write critically to analyze earth science investigations.

## Environmental Science 1-2

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Course #3111-3112

Course Fee: \$10

**Prerequisites:** Two years of science and successful completion of Algebra 1.

Full Year = 1 credit

This one-year laboratory science course is intended to develop an understanding of the fundamental concepts of environmental science. This course meets the Nevada Academic Content Standards for Science. The disciplinary core ideas are: 1) *Ecosystems: Interactions, Energy and Dynamics*; 2) *Biological Evolution: Unity and Diversity*; 3) *Energy*; 4) *Earth's Place in the Universe*; 5) *Earth's Systems*; and 6) *Earth and Human Activity*. Performance expectations for this course blend the Disciplinary Core Ideas with Science and Engineering Practices and Crosscutting Concepts to support students in developing a deeper understanding of how humans interact with the environment. Students will understand the complex and significant interdependencies between humans and the rest of Earth's systems by reading scientific text and writing critically to analyze data.

## Human Anatomy and Physiology 1-2 - Honors

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Course #3261-3262

Course Fee: \$40

**Prerequisites:** Successful completion of Biology 1-2 and Chemistry 1-2 and successful completion of Algebra 1 and Geometry.

Full Year = 1 credit (Honors)

This one-year advanced level laboratory science course will cover an introduction to the structural and functional aspects of the human body. This course is for students interested in medical fields or biological science. The course is designed to cover the structure and function of cells, tissues, organs, and an in-depth look at body systems. Demonstrations and laboratory investigations, including dissections, are an integral part of the teaching of this course.

Upon successful completion of Human Anatomy and Physiology, students will develop: 1) an understanding of the methods and techniques used to study the human body; 2) knowledge of the structure of all systems in the body; 3) an understanding of the functions of all the systems of the human body; 4) an understanding of the role of each body system in maintaining the homeostatic balance of the human body; 5) an awareness of relevant pathologies associated with human body systems; and 6) an awareness of the professional opportunities and requirements in the health sciences and related fields.

## AP Chemistry

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Course #3211-3232

Course Fee: \$94 for AP Exam

**Prerequisites:** Completion of Chemistry 1-2 and Algebra 2.

**Requisite:** Concurrent enrollment in AP Chemistry Lab.

Full Year = 1 credit (Advanced Placement)

AP Chemistry is a one-year laboratory science course that reinforces the basic concepts covered in general chemistry and deals with additional topics not covered previously. After a brief review of concepts learned in general chemistry, topics covered will include electron structure, Lewis structures, molecular structure and shape, thermochemistry, equilibrium chemistry, kinetics, and electrochemistry. Students must also register for AP Chemistry Lab if it is offered separately; please check with your school's counseling department to determine if the lab is part of the regular class or if students must register for a separate course. Students are required to take the AP exam in May. All AP exams have a cost associated with them.

## AP Chemistry Lab

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Course #3223-3224

Course Fee: \$50

**Requisite:** Concurrent enrollment in AP Chemistry.

Full Year = 1 credit (Honors)

In addition to the regular course, AP Chemistry students must enroll in a one-half-credit per-semester chemistry lab at McQueen. The lab class will focus on supporting the concepts learned in class through the inquiry method. This course DOES NOT earn AP or Science credit. It counts as an elective.

## AP Biology

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Course #3149-3150

Course Fee: \$50  
\$94 for AP Exam

**Prerequisites:** Successful completion of Biology 1-2 and Chemistry 1-2.

Full Year = 1 credit (Advanced Placement)

This one-year laboratory science course is designed to be the equivalent of a college introductory course usually taken by biology majors during their first year. AP Biology builds upon the introductory high school biology course by using a college level textbook, increasing the depth and range of topics covered, and presenting advanced laboratory investigations all of which require additional time and effort from students. Successfully completing the AP Biology exam may allow students to receive advanced placement, college credit, or both, upon entering college. Students are required to take the AP exam in May. All AP exams have a cost associated with them.

## AP Environmental Science

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Course #3115-3116

Course Fee: \$10  
\$94 for AP Exam

**Prerequisites:** Successful completion of two years of science; students will be best prepared for the course if they have successfully completed Biology 1-2 and Chemistry 1-2.

Full Year = 1 credit (Advanced Placement)

AP Environmental Science is designed so students use their knowledge of scientific principles and methodologies to understand the interrelationships of the natural world, identify and analyze environmental problems, evaluate the risks associated with current environmental problems, and examine alternative solutions for resolving and/or preventing additional problems. Course goals are focused on environmental issues that have a global impact from the scientific, political and sociological viewpoints. Coursework includes rigorous laboratory and field experiences utilizing the tools of the discipline. Students are required to take the AP exam in May. All AP exams have a cost associated with them.

## AP Physics 1

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Course #3263-3264

Course Fee: \$15  
\$94 for AP Exam

**Prerequisites:** Successful completion of Geometry and Algebra 2 or concurrent enrollment in Algebra 2.

Full Year = 1 credit (Advanced Placement)

This one-year laboratory science course is the equivalent of a first semester college course in algebra-based physics. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; mechanical waves and sound. It will also introduce electric circuits. Students are required to take the AP exam in May. All AP exams have a cost associated with them.