# Science Course Descriptions

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| Course Title:<br>**Biology**<br>Course Number (s):<br>26.0120001- fall<br>26.0120002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>9-10 | Course Description and Prerequisite(s)<br>Students will identify patterns, processes, and relationships of living organisms including the interdependence of organisms, the relationship of matter, energy, and organization in living systems, the behavior of organisms, and biological evolution. Students will investigate biological concepts through experiences in laboratories and field work using the process of inquiry.<br><br>Prereq: None |
| Course Title:<br>**Biology Honors**<br>Course Number (s):<br>26.0120041- fall<br>26.0120042- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>9-10 | Course Description and Prerequisite(s)<br>Student will identify of patterns, processes, and relationships of living organisms including the interdependence of organisms, the relationship of matter, energy, and organization in living systems, the behavior of organisms, and biological evolution. Students will investigate biological concepts through experiences in laboratories and field work using the process of inquiry.<br><br>Prereq: ≥ 88 in Advanced Grade 8 Science/ High School Physical Science OR ≥ 95 in On-Level Grade 8 Science |
| Course Title:<br>**Physical Science**<br>Course Number (s):<br>40.0110001- fall<br>40.0110002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>9-11 | Course Description and Prerequisite(s)<br><br>Students will survey of the core ideas in the physical sciences including the structure of atoms, properties of materials, radioactive decay, motion and forces, the conservation of energy and matter, wave behavior, electricity, and the relationship between electricity and magnetism. Students will investigate physical science concepts through experiences in laboratories and field work using the process of inquiry. This class is not appropriate for students who have completed Chemistry.<br><br>Prereq: Student has passed Biology |
| Course Title:<br>**Physical Science Honors**<br>Course Number (s):<br>40.0110041- fall<br>40.0110002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>10 | Course Description and Prerequisite(s)<br><br>Students will survey of the core ideas in the physical sciences including the structure of atoms, properties of materials, radioactive decay, motion and forces, the conservation of energy and matter, wave behavior, electricity, and the relationship between electricity and magnetism. Students will investigate physical science concepts through experiences in laboratories and field work using the process of inquiry. This class is not appropriate for students who have completed Chemistry.<br><br>Prereq: ≥ 90 Biology or ≥ 85 (unweighted) Biology H AND ≥ 80 Algebra C&C or Geometry C&C |

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| Course Title:<br>**Chemistry**<br>Course Number (s):<br>40.0510001- fall<br>40.0510002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>10-12 | Course Description and Prerequisite(s)<br><br>Students investigate chemistry concepts through experiences in laboratories and field work using the process of inquiry: structure of atoms, structure and properties of matter, the conservation and interaction of energy and matter, and the use of Kinetic Molecular Theory to model atomic and molecular motion in chemical and physical processes. Students who complete Chemistry will not be recommended for Physical Science.<br><br>Prereq: ≥ 85 Biology and/or ≥ 80 Physical Science AND 85 Advanced Algebra C&C or Geometry C&C & 80 Algebra C&C |
| Course Title:<br>**Chemistry Honors**<br>Course Number (s):<br>40.0510041- fall<br>40.0510042- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>10-12 | Course Description and Prerequisite(s)<br><br>Students investigate chemistry concepts through experiences in laboratories and field work using the process of inquiry: structure of atoms, structure and properties of matter, the conservation and interaction of energy and matter, and the use of Kinetic Molecular Theory to model atomic and molecular motion in chemical and physical processes. Students who complete Chemistry will not be recommended for Physical Science.<br><br>Prereq: ≥ 90 Biology and/or Physical Science or ≥ 85 (unweighted) in Biology H and/or Physical Science H AND Advanced Algebra C&C |
| Course Title:<br>**Environmental Science**<br>Course Number (s):<br>26.0611001- fall<br>26.0611002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>10-12 | Course Description and Prerequisite(s)<br><br>Students will investigate the systems of our environment, human impact on our planet, the flow of energy and cycling of matter within ecosystems, and evaluate types, availability, allocation, and sustainability of energy resources with a focus on student data collection and analysis from field and laboratory experiences.<br><br>Prereq: None. Course is intended for juniors and seniors |
| Course Title:<br>**Earth Systems**<br>Course Number (s):<br>40.0640001 - fall<br>40.0640002 - spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>10-12 | Course Description and Prerequisite(s)<br><br>Students investigate connections among Earth's systems (atmosphere, hydrosphere, and geosphere); the Earth's landscapes, ecology, and resources; phenomena fundamental to geology and physical geography (including the early history of Earth, plate tectonics, landform evolution, the Earth's geologic record, weather and climate, and history of life on Earth).<br><br>Prereq: None. Course is intended for juniors and seniors |
| Course Title:<br>**Astronomy**<br>Course Number (s):<br>40.0210001- fall<br>40.0210002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>Students will investigate the systems of our environment, human impact on our planet, the flow of energy and cycling of matter within ecosystems, and evaluate types, availability, allocation, and sustainability of energy resources with a focus on student data collection and analysis from field and laboratory experiences.<br><br>Prereq: Student has passed Biology and Physical science. |

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| Course Title:<br>**Physics**<br>Course Number (s):<br>40.0810001- fall<br>40.0810002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>Students will investigate nuclear decay processes, interactions of matter and energy, velocity, acceleration, force, energy, momentum, properties and interactions of matter, electromagnetic and mechanical waves, and electricity, magnetism and their interactions. Students will investigate physics concepts through experiences in laboratories and field work using the process of inquiry.<br><br>Prereq: successful completion of chemistry Pre/co-req: Advanced Algebra C&C |
| Course Title:<br>**Human Anatomy**<br>Course Number (s):<br>26.0730001- fall<br>26.0730002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>In this course students process and develop research skills through the investigation of body organization, skeletal system, muscular and nervous systems, endocrine system, reproductive and urinary systems, circulatory and respiratory systems, integumentary digestive system, immune system, and dissection.<br><br>Prereq: ≥ 80 in Biology AND ≥ 80 Physical Science or Chemistry. |
| Course Title:<br>**Human Anatomy Honors**<br>Course Number (s):<br>26.0730041- fall<br>26.0730041- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>In this course students process and develop research skills through the investigation of body organization, skeletal system, muscular and nervous systems, endocrine system, reproductive and urinary systems, circulatory and respiratory systems, integumentary digestive system, immune system, and dissection.<br><br>Prereq: ≥ 85 in Biology and ≥ 85 Chemistry OR ≥ 80 (unweighted) Biology H and ≥ 80 (unweighted) Chemistry H. |
| Course Title:<br>**AP Biology**<br>Course Number (s):<br>26.0140001- fall<br>26.0140002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>In this Advanced Placement course, students will further develop an understanding of biology through inquiry-based investigations exploring the topics of evolution, cellular processes—energy and communication, genetics, information transfer, ecology, and interactions.<br><br>Prereq: ≥ 85 (unweighted) in Biology H or ≥ 95 in Biology AND<br>≥ 85 (unweighted) in Chemistry H or ≥ 95 in Chemistry |
| Course Title:<br>**AP Chemistry**<br>Course Number (s):<br>40.0530001- fall<br>40.0530002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>In this Advanced Placement course, students will investigate the structure of matter, bonding and intermolecular forces, chemical reactions, kinetics, and thermodynamics and chemical equilibrium through the application of science practices and laboratory investigations.<br><br>Prereq: ≥ 80 (unweighted) Chemistry H Semester 1 AND enrolling in Pre-Calculus OR identification through AP Potential |

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| Course Title:<br>**AP Environmental Science**<br>Course Number (s):<br>26.0620001- fall<br>26.0620002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>In this Advanced Placement course, students investigate ecosystems, human population, major global problems, energy resources, pollution, sustaining biodiversity an ecological integrity, and the environment as it relates to society. This course integrates previous knowledge from biology and chemistry.<br><br>Prereq: ≥ 80% Chemistry Semester 1 AND enrolling in Advanced Algebra C&C OR Identification through AP Potential |
| Course Title:<br>**AP Physics 1: Algebra-Based**<br>Course Number (s):<br>40.0831001- fall<br>40.0831002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>AP Physics 1 is an Algebra-based Advanced Placement course that introduces college-level physics units which explores Kinematics, Dynamics with Newtonian Mechanics (rotational dynamics and angular momentum), Conservation of Energy (including work, energy, and power) and Momentum. This college level course uses conceptual understanding and applications of physics in the real world to understand the mechanisms of physics.<br><br>Prereq: ≥ 90 Chemistry Semester 1 or ≥ 80 (unweighted) Chemistry H Semester 1 OR ≥ 90 Physics AND pre/co-requisite Pre-Calculus OR Identification through AP Potential |
| Course Title:<br>**AP Physics 2: Algebra-Based**<br>Course Number (s):<br>40.0832001- fall<br>40.0832002- spring<br>Term:<br>Year long<br>Eligible Grade(s):<br>11-12 | Course Description and Prerequisite(s)<br><br>AP Physics 2 is an Algebra-based Advanced Placement course which explores principles of fluids, thermodynamics, electricity, magnetism, optics, and topics in modern physics. The course is based on seven Big Ideas, which encompass core scientific principles, theories and processes that cut across traditional boundaries and provide a broad way of thinking about the physical world.<br><br>Prereq: ≥ 80 AP Physics 1 Semester 1 Average |