SCIENCE OFFERINGS 2023 - 2024

Course Description	Prerequisites	Units
Biology I A & B is a recommended course in which the students will learn and understand biological functions and systems on the cellular, genetic, evolutionary, systematic, and ecological levels. Students will also be able to implement applications of biological processes to everyday situations. **Required for graduation**	8th Grade Placement	1/2 unit per semester
Biology I Honors A & B is an accelerated course designed for students interested in pursuing advanced sciences or careers in the science or engineering fields. Students will learn and understand biological processes that occur on the molecular, cellular, systemic, and environmental levels. Students will also be able to implement applications of biological processes to everyday situations. **Required for graduation**	Teacher/Department Recommendation	1/2 unit per semester 1/2 QP
Advanced Placement Biology A & B is designed to be the equivalent of a college introductory biology course usually taken by biology or other science majors during their first year. The Advanced Placement course in biology differs significantly from the usual first high school course in biology with respect to the textbook used, the range and depth of topics covered, laboratory work done by students, and the time and effort required of students. It provides students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. **Students completing this course will be expected to take the AP Exam.**	1 unit of H. Biology 1 unit of H. Chem. Teacher/Department Recommendation	1/2 unit per semester 1 QP
Earth Systems A & B is an inquiry based qualitative and quantitative analysis of the complexly interacting parts of our Earth. This course is designed to continue student investigations that connect Earth's systems (atmosphere, hydrosphere, geosphere, and biosphere) through history. This course develops the explanations of phenomena to the sciences of geology and physical geography, including the early history of life on Earth, plate tectonics, landform evolution, the Earth's oceans and geologic record, weather and climate, and the history of life. The course presents a holistic view of the Earth and emphasizes the interrelatedness of its systems and how the impact of our modern industrial society is influencing the Earth through changes in these systems. The course has laboratory and field-work components that are perfect for the student who enjoys hands-on learning.	1 unit of Science	1/2 unit per semester
Environmental Science is designed as an integrated and global approach to science and technology. The concepts in this course focus on the links between living things, their surroundings, and the total environment of the planet. The scientific principles and related technology will assist the student in understanding the relationships between local, national, and global environmental issues. The intent of the course is to help individuals become informed, get involved, and care for one's self and the environment.	1 unit of Biology	½ unit per semester
Chemistry I A & B is the study of the structure, properties, and functions of matter, and is the foundation for a variety of fields of study and careers in industry and business. Because of the abstract nature of atoms and molecules there is a strong conceptual component in its study, including both qualitative and quantitative laboratory work and some mathematical analysis.	1 Unit of Biology Teacher/Department Recommendation	1/2 unit per semester
Chemistry I Honors A & B is an accelerated introduction to the study of the structure, properties, and functions of matter, and is the foundation for a variety of fields of study as well as the basis for much of modern day industry and economics. Because of the abstract nature of atoms and molecules, there is a strong conceptual and abstract application component in its study, including both qualitative and quantitative laboratory work and mathematical analysis. At the honors level there is a significant amount of mathematics.	1 unit of Science Teacher/Department Recommendation	1/2 unit per semester 1/2 QP

Advanced Placement Chemistry A & B is designed to be the equivalent of a college introductory chemistry course usually taken by students who have an interest in biological sciences, physical sciences, or engineering. The Advanced Placement Chemistry course expands the knowledge and skills gained during the introductory high school chemistry course. It provides students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of chemistry. **Students completing this course are expected to take the AP exam.**	1 Unit Honors Chemistry Teacher/Department Recommendation	1/2 unit per semester 1 QP
Physics A & B is a detailed study of energy and its relation to matter, beginning with mechanics (the study of motion) and extending to nuclear, sound, and electromagnetic energies. Electromagnetic energies include optics and electricity and magnetism. Vector mathematics and Algebraic analysis are used extensively. This course will satisfy the graduation requirement of 1/2 unit per semester of a physical science course or may be used as a regular science credit. **Required for Graduation**	2 Units of Science	1/2 unit per semester
Advanced Placement Physics I is an algebra-based Physics course that is equivalent to a first-semester college course. This course provides a systematic introduction to the main principles of physics and emphasizes the development of problem-solving ability. This course is the equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and harmonic motion. Some students, as college freshmen, are permitted to undertake upper-level courses in physics or register for courses for which physics is a prerequisite after achieving an adequate score on the optional Advanced Placement Examination. **Students completing this course are expected to take the AP exam.**	2 Units of Science Teacher/Department Recommendation	1/2 unit per semester 1 QP
Advanced Placement Physics II is an Algebra-Based AP Physics II course is the equivalent to a second-semester college course in algebra-based physics. The course covers fluid mechanics; thermodynamics; electricity and magnetism; optics; and atomic and nuclear physics. Some students, as college freshmen, are permitted to undertake upper-level courses in physics or register for courses for which physics is a prerequisite after achieving an adequate score on the optional Advanced Placement Examination. **Students completing this course are expected to take the AP exam.**	2 Units of Science AP Physics 1 Teacher/Department Recommendation	1/2 unit per semester 1 QP
Advanced Placement Physics C: Mechanics is a calculus-based course that includes a detailed study of classical (Newtonian) mechanics. Some students, as college freshmen, are permitted to undertake upper-level courses in physics or register for courses for which physics is a prerequisite after achieving an adequate score on the optional Advanced Placement Examination. **Students completing this course are expected to take the AP exam.**	2 Units of Science AP Physics 1 AP Calculus (co-req) Teacher/Department Recommendation	1/2 unit per semester 1 QP
Advanced Placement Physics C: Mechanics/Electricity and Magnetism (Super Physics) is a calculus-based course that includes a detailed study of electricity and magnetism as well as Newtonian mechanics. This course covers the content for two AP Physics C courses; Mechanics and E&M, in one year so only students who have successfully completed AP Physics 1 are eligible for enrollment. Students enrolled in this course will receive one unit for each semester. Some students, as college freshmen, are permitted to undertake upper-level courses in physics or register for courses for which physics is a prerequisite after achieving an adequate score on the optional Advanced Placement Examination. **Students completing this course are expected to take both AP exams.**	2 Units of Science AP Physics 1 AP Calculus (co-req) Teacher/Department Recommendation	1 unit per semester 1 QP

Advanced Placement Computer Science is a yearlong course that emphasizes programming methodology and data abstractions. It takes an object-oriented approach to programming based on encapsulating procedures and data. AP Computer Science is taken in order to prepare students to take the College Board AP Computer Science AB exam. This course uses the Java programming language. **Note:** Student who enroll in this course ***must be inquisitive, able to work independently and self-directed.*** **Students completing this course are expected to take the AP exam.**	2 units of Science Advance Algebra, **80** *or* better in Analytic Geometry Math Teacher/ Department Recommendation	1/2 unit per semester 1 QP
Advanced Placement Environmental Science is scientific systematic examination of the inter-relationships of the natural world, and the student will be able to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving and/or preventing them. **Students completing this course are expected to take the AP exam.**	1 unit of Biology 1 unit of Chemistry Teacher/Department Recommendation	1/2 unit per semester 1 QP
Human Anatomy/Physiology Honors A & B is an accelerated course designed to give an in-depth look at the structures and functions of the human body. Intended for the student who is interested in pursuing a career in the allied medical fields or who is interested in advanced competency in medical science. Significant depth is to be expected.	1 unit of Biology 1 unit of Chemistry Teacher/Department Recommendation	1/2 unit per semester 1/2 QP
Forensics A & B is the application of science to the law. Students apply the principals and techniques of science to analyze crime scene evidence. Emphasis is on laboratory techniques, scientific inquiry, speaking and writing skills, as well as evidence evaluation. The course will cover selected topics in toxicology, drug and alcohol abuse, serology, terrorist and disaster response and emergency medical procedures. Other topics include ballistics, fingerprinting, and trace evidence interpretation, explosive incident and arson investigation.	1 unit Biology 1 unit Chemistry Teacher/Department Recommendation	1/2 unit per semester
Zoology A & B is an introduction to the field of zoology, which is a sub discipline of biology, the study of life. Zoology, the study of animals, is itself divided into many sub disciplines. It is one of the broadest fields of biology. The sub disciplines are based on functional, structural, and ecological interests that span many groups. Throughout this semester we will examine the interrelationship of different animal groups, the criteria used to classify and organize animals into phyla, and animal adaptations. Since the greatest diversity of the animal kingdom is found in invertebrates, much of the semester will be devoted to their study.	1 unit of Biology	1/2 unit per semester

STEM ACADEMY SCIENCE OFFERINGS 2023-2024

Course Description	Prerequisites	Units
STEM Biology I Honors A & B is an accelerated course designed for students interested in pursuing advanced sciences or careers in the science or engineering fields. Students will learn and understand biological processes that occur on the molecular, cellular, systemic, and environmental levels. Students will also be able to implement applications of biological processes to everyday situations. This course is integrated with STEM 9th Literature, Principles of Biomedical Science and Introduction to Engineering and has increased focus on critical thinking, collaboration, creativity and communication. **Required for graduation from STEM Academy.**	ACCEPTANCE INTO STEM ACADEMY	1/2 unit per semester 1/2 QP
STEM Chemistry I Honors A & B is an accelerated introduction to the study of the structure, properties, and functions of matter, and is the foundation for a variety of fields of study as well as the basis for much of modern day industry and economics. Because of the abstract nature of atoms and molecules, there is a strong conceptual and abstract application component in its study, including both qualitative and quantitative laboratory work and mathematical analysis. At the honors level there is a significant amount of mathematics. This course is integrated with STEM 10th Literature, Human Body Systems and Principles of Engineering and has increased focus on critical thinking, collaboration, creativity and communication. **Required for graduation from STEM Academy.**	ACCEPTANCE INTO STEM ACADEMY	1/2 unit per semester 1/2 QP
STEM Advanced Placement Physics I is an Algebra-Based AP Physics I course is the equivalent to a first-semester college course. This course provides a systematic introduction to the main principles of physics and emphasizes the development of problem-solving ability. This course is the equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. It will also introduce electric circuits. This course is integrated with STEM AP Language, Medical Interventions and Aerospace Engineering and has increased focus on critical thinking, collaboration, creativity and communication. **Required for graduation from STEM Academy.** Some students, as college freshmen, are permitted to undertake upper-level courses in physics or register for courses for which physics is a prerequisite after achieving an adequate score on the optional Advanced Placement Examination. **Students completing this course are expected to take the AP exam.**	ACCEPTANCE INTO STEM ACADEMY	1/2 unit per semester 1 QP