SCIENCE OFFERINGS 2019-2020

Course Description	Prerequisites	Grade	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	9-12	1/2 unit per semester
Biology I A & B (T) is the same as above. This course is team taught with special education support to make needed adjustments in methodology and/or management. **Required for graduation**	IEP Rec.	9-12	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	9-10	1/2 unit per semester 1/2 QP
AP 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.**	*85 or better in Honors Chemistry AND Accelerated Math II* *85 or better in Honors Chemistry AND 90 or better in Math* *90 or better in on-level Chemistry AND 90 or better in Math* Teacher/Department Recommendation	10-12	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	10-12	1/2 unit per semester of ***elective credit***
Earth Systems A & B (T) is the same as above. This course is team taught with special education support to make needed adjustments in methodology and/or management.	IEP Rec.	10-12	1/2 unit semester of ***elective credit***

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 and *80 or better in on-level Biology* *AND 80 or better in on-level Math* *80 or better in on-level Biology* *AND 75 or better in Acc/Honors Math* Teacher/ Department Recommendation	10-12	1/2 unit per semester of ***elective credit***
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.	*80 or better in Honors Biology* *AND 80 or better in on-level Math* *90 or better in on-level Biology* *AND 80 or better in Acc/Honors Math* *Teacher/Department Recommendation*	9-12	1/2 unit per semester of ***elective credit*** 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 **and** *85 or better in Honors Chemistry* *AND Accelerated Math II* *85 or better in Honors Chemistry* *AND 90 or better in Math* *90 or better in on-level Chemistry* *AND 90 or better in Math*	10-12	1/2 unit per semester of ***elective credit*** 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	11-12	1/2 unit per semester
Physics A & B (T) is the same as above. This course is team taught with special education support to make needed adjustments in methodology and/or management. **Required for graduation**	IEP Rec.	10-12	1/2 unit per semester
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. 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 *80 or better in Honors Chemistry* *AND 80 or better in Acc. Math* *80 or better in Honors Chemistry* *AND 90 or better in Math* *90 or better in on-level Chemistry* *AND 80 or better in Acc. Math*	11-12	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.**	3 Units of Science and completion of AP Physics 1 *90 or better in on-level Physics AND 80 or better in Adv. Algebra* *80 or better in AP Physics 1 AND 80 or better in Pre-calculus*	12	1/2 unit per semester of ***elective credit*** 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 Physics, must be enrolled/completed AP Calculus and receive a Teacher/ Department Recommendation	11-12	1/2 unit per semester of ***elective credit*** 1 QP
Advanced Placement Physics C Electricity and Magnetism is a calculus-based course that includes a detailed study of electricity and magnetism. 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 Physics, must be enrolled/completed AP Calculus and receive a Teacher/ Department Recommendation	12	1/2 unit per semester of ***elective credit*** 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 with **C or better** in Algebra II Teacher/ Department Recommendation	10 (accelerated math) 11-12	1/2 unit per semester of ***elective credit*** 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.**	*90 or better in on-level Biology AND on-level Chemistry* *80 or better in Honors Biology AND 85 or better in Honors Chemistry* *80 or better in AP Biology OR 80 or better in AP Chemistry* Teacher/ Department Recommendation	11-12	1/2 unit per semester of ***elective credit*** 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.	*80 or better in Chemistry AND 80 or better in Biology* Teacher/ Department Recommendation	11-12	1/2 unit semester of ***elective credit*** 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, **and** Teacher/ Department Recommendation	11-12	1/2 unit per semester of ***elective credit***

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.	Biology and 1 other unit of Science	11-12	1/2 unit per semester of ***elective credit***
Zoology A & B (T) is the same as above. This course is team taught with special education support to make needed adjustments in methodology and/or management.	IEP Rec.	11-12	1/2 unit per semester of ***elective credit***

STEM ACADEMY SCIENCE OFFERINGS 2019-2020

Course Description	Prerequisites	Grade	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	9	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	10	1/2 unit per semester of ***elective credit*** 1/2 QP
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	11	1/2 unit per semester 1 QP