**Biology I**

**Course Description:** In this course, 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. This course meets the graduation requirement of one unit of Biology.

**Pre-requisites:** Eighth grade placement chart

**Grade Levels:** 9-12

**Terms Offered:** Fall & Spring

**Units of Credit:** 1.0

**Biology (Honors)**

**Course Description:** Honors level courses are accelerated courses designed for students interested in pursuing advanced sciences or careers in science, engineering, or medicine. In this course, 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. This course meets the graduation requirement of one unit of Biology. To be successful in this freshman class, a student should exhibit the following characteristics: higher level reading comprehension, good writing skills, able to work independently, good study skills/habits, motivated self-learner, good work ethic – consistent daily homework completion, experienced in problem solving, analysis, and interpretation.

**Pre-requisites:** Students should have an 85% test average in Math I or Math 8 as well as an 85% test average in 8th grade Science OR Teacher Recommendation.

**Grade Levels:** 9-12

**Terms Offered:** Fall & Spring

**Units of Credit:** 1.0

**Advanced Placement Biology**

**Course Description:** Designed to be the equivalent of a college introductory biology course usually taken by biology or other science majors during their first year, the AP 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. Some college freshmen are permitted to undertake upper-level courses in biology or register for courses for which biology is a prerequisite after achieving an adequate score on the optional Advanced Placement Examination.

**Pre-requisites:** One unit of Biology and one unit of Chemistry, both with a recommended grade of 90 or higher in either classes; or Honors Biology and Honors Chemistry.

**Grade Levels:** 11-12

**Terms Offered:** Spring

**Units of Credit:** 1.0
**Chemistry**

**Course Description:** This course includes a 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 component in its study, including both qualitative and quantitative laboratory work and mathematical analysis.

**Pre-requisites:** One science and Math I with a minimum grade of 75

**Grade Levels:** 10-12

**Terms Offered:** Fall & Spring

**Units of Credit:** 1.0

**Chemistry (Honors)**

**Course Description:** Honors level courses are accelerated courses designed for students interested in pursuing advanced sciences or careers in science, engineering, or medicine. This course includes a 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 component in its study, including both qualitative and quantitative laboratory work and mathematical analysis. The honors level includes a significant amount of mathematics.

**Pre-requisites:** Grade B in Honors Bio, Grade A in On-level Bio, or Grade A in On-level Physics

Math pre-requisite: Completion of Accelerated Math I or 85 & above in Math I. Teacher recommendation

**Grade Levels:** 10-12

**Terms Offered:** Fall & Spring

**Units of Credit:** 1.0

**Combo Chemistry:**

**Course Description:** Combo chemistry is an accelerated course where students will earn Honors and Advanced Placement Chemistry credit. This course is designed to be the equivalent of a college introductory chemistry course. Content covered will encompass the foundational knowledge of chemistry, outlined in the Georgia Standards of Excellence, and the AP curriculum outlined by the College Board. This course is different from the traditional format of honors chemistry one semester and then AP chemistry another semester. In Combo Chemistry, the Honors and AP curriculum is taught concurrently and credit for both will be earned at the end of 2nd semester.

This course is intended for accelerated 10th graders or 11th graders who have an interest in taking honors and AP chemistry. This course is a yearlong course and will provide students with the conceptual framework, factual knowledge, and analytical skills needed to deal with the rapidly changing science of chemistry.

**Prerequisite:** Honors Biology and Algebra I, both with a recommended grade of 90 or higher.

**Grade Levels:** 10-11

**Terms Offered:** Fall

**Units of Credit:** 1.0
**Advanced Placement Chemistry**

**Course Description:** 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.

**Pre-requisites:** Honors Chemistry with a minimum score of 80 AND Accelerated Analytic Geometry B/Advanced Algebra with a minimum score of 80 or Advanced Algebra with a minimum score of 85 OR Teacher Recommendation with the same math requirements cited.

**Grade Levels:** 10-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0

**Physics I**

**Course Description:** This course includes 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 one unit of a physical science or may be used as regular science credit.

**Pre-requisites:** Completion of Biology and a 70 or better in Algebra I or Math I with Support.

**Grade Levels:** 10-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0

**Advanced Placement Physics I**

**Course Description:** AP Physics 1 is an algebra-based, introductory college-level physics course that explores topics such as Newtonian mechanics (including rotational motion); work, energy, and power; mechanical waves and sound; and introductory, simple circuits. Through inquiry-based learning, students will develop scientific critical thinking and reasoning skills. This course requires that 25 percent of the instructional time will be spent in hands-on laboratory work, with an emphasis on inquiry based investigations that provide students with opportunities to apply the science practices.

**Pre-requisites:** No prior course work in physics is necessary, but at least one science course should have been completed. Students should have a minimum score of 80 in geometry OR received a science teacher recommendation.

**Grade Levels:** 10-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0
Advanced Placement Physics C (Mechanics)
Course Description: This calculus-based course 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.
Pre-requisites: Honors Physics with a minimum score of 80 and Calculus or concurrent with AP Calculus OR Teacher Recommendation.
Grade Levels: 11-12
Terms Offered: Spring
Units of Credit: 1.0

Combo Physics
Course Description: Combo physics is an accelerated course where students will earn Honors and Advanced Placement Physics 1 credit. This course is designed to be the equivalent of a college introductory physics course. Content covered will encompass the foundational knowledge of physics, outlined in the Georgia Standards of Excellence, and the AP curriculum outlined by the College Board. This course is different from the traditional format of honors Physics one semester and then AP Physics another semester. In Combo Physics, the Honors and AP curriculum is taught concurrently and credit for both will be earned at the end of 2nd semester. This course is intended for accelerated 11th graders who have an interest in taking honors and AP physics. This course is a yearlong course and will provide students with the conceptual framework, factual knowledge, and analytical skills needed to deal with the science of physics.
Prerequisite: Honors Biology, Honors Chemistry, Algebra I and Geometry with a recommended grade of 90 or higher.
Grade Levels: 11
Terms Offered: Fall
Units of Credit: 2.0

Advanced Placement Physics 2
Course Description: AP Physics 2 is an algebra-based, introductory college-level physics course that continues the study of physics beyond the topics in AP Physics 1. In AP Physics 2, students further explore electricity and circuits (including capacitors), electromagnetism, optics, fluids, thermodynamics, and modern physics (including nuclear physics, quantum mechanics, and relativity). Through inquiry-based learning, students will further develop scientific critical thinking and reasoning skills. This course requires that 25 percent of the instructional time will be spent in hands-on laboratory work, with an emphasis on inquiry-based investigations that provide students with opportunities to apply the science practices.
Pre-requisites: A previous physics course with a minimum score of 80. Students should also have a minimum score of 80 in geometry OR science teacher recommendation.
Grade Levels: 10-12
Terms Offered: Spring only
Units of Credit: 1
Astronomy
Course Description: With a study of the matter and energy beyond the earth's atmosphere and the relationship between the earth and that matter and energy, topics in this course include the structure and origin of planets and planetesimals, stars, galaxies and galaxy clusters, dark matter, the edge of the universe, and the energy of the universe.
Pre-requisites: One unit of science
Grade Levels: 10-12
Terms Offered: Fall & Spring
Units of Credit: 1.0

Environmental Science
Course Description: Designed as an integrated and global approach to science and technology, this course focuses 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 themselves and the environment.
Pre-requisites: One credit in Biology
Grade Levels: 10-12
Terms Offered: Fall & Spring
Units of Credit: 1.0

Advanced Placement Environmental Science
Course Description: With a scientific systematic examination of the interrelationships of the natural world, 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.
Pre-requisites: One unit of Biology and one unit of Chemistry, both with a recommended grade of 90 or higher in either classes; or Honors Biology and Honors Chemistry with Teacher Recommendation.
Grade Levels: 11-12
Terms Offered: Fall & Spring
Units of Credit: 1.0

Forensic Science
Course Description: Students will learn the scientific protocols for analyzing a crime scene, how to use chemical and physical separation methods to isolate and identify materials, how to analyze biological evidence, and the criminal use of tools, including impressions from firearms, tool marks, arson, and explosive evidence.
Pre-requisites: Completion of honors level Biology and Chemistry with a minimum score of 74; OR completion of three regular science classes— two of which should be from the following list: Biology, Chemistry and one other science; with a minimum score of 74.
Grade Levels: 10-12
Terms Offered: Fall & Spring
Units of Credit: 1.0
**Forensic Science (Honors)**
Course Description: Students will learn the scientific protocols for analyzing a crime scene, how to use chemical and physical separation methods to isolate and identify materials, how to analyze biological evidence and the criminal use of tools, including impressions from firearms, tool marks, arson, and explosive evidence. Honors level courses are accelerated courses designed for students interested in pursuing advanced sciences or careers in science, engineering, or medicine.
**Pre-requisites:** Successful completion of 2 Honors Science classes OR successful completion of 3 on-level science classes.
**Grade Levels:** 10-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0

**Human Anatomy/Physiology (Honors)**
Course Description: Designed to give the student an overview of the structures and functions of the major systems of the human body, this honors level course is an accelerated course, designed for students interested in pursuing advanced sciences or careers in science, engineering, or medicine.
**Pre-requisites:** Two units of science, at least one in biology, and an understanding of basic chemistry is recommended but not required.
**Grade Levels:** 10-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0

**Meteorology**
Course Description: This course includes the study of the structure and function of the atmosphere. Emphasis is given to the major variables that influence weather and climate such as temperature, pressure and humidity. Students will use observational and measured data to make predictions and description of atmospheric conditions. Students will also investigate the influence of humans on weather and climate conditions as well as the influence of weather on human activities.
**Pre-requisites:** One unit of science
**Grade Levels:** 10-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0

**Oceanography**
Course Description: Students analyze the ocean's composition and structure, and the dynamics of energy within the ocean. Included in the course are the ocean basins, floors, tides, currents, and impact on weather and climate, as well as the interaction with human systems. Marine biology will comprise a small portion of the course.
**Pre-requisites:** One unit of science
**Grade Levels:** 11-12
**Terms Offered:** Fall & Spring
**Units of Credit:** 1.0
Zoology

Course Description: With a systematic study of the animal kingdom and their basic identification characteristics, emphasis in this course will be placed on comparative anatomy, as well as on the methods that each phyla uses to accomplish the basic life processes.

Pre-requisites: One credit in Biology

Grade Levels: 10-12

Terms Offered: Fall & Spring

Units of Credit: 1.0