



4 credits required



Explore The Possibilities

Graduation Requirements

Science





Requirements

- **4 Science credits required for any endorsement**
- **9th - Biology (On-level, K, or H)**
- **10th - IPC, Chemistry, or Physics** (or AP Physics I if completed or concurrent enrollment in Algebra II)
- **An additional science course (see page 4)**
- **+1 additional advanced science course**
 - ❖ All **STEM** endorsements - must take Biology, Chemistry, & Physics (or AP Physics I)
 - ❖ **Multidisciplinary Studies – Option 1 – 4 x 4** – must have Biology + Chemistry and/or Physics (or AP Physics I)



9th Grade

All students must take **Biology**

Choose level:

- On-level
- K
- H



10th Grade

Choose from the following:

- **IPC** (On-level)
- **Chemistry** (On-level, K, or H)
- **Physics** (On-level, K, or H)

or **AP Physics I** (if completed or concurrent enrollment in Algebra II)



Note: Students who do not take Chemistry may meet the high school graduation requirements but this does not position them for career and college readiness.



11th and/or 12th grade

See Page 4



Course Name	Prerequisites	Information
IPC (Integrated Physics & Chemistry) (On-level)		Introduces basic concepts of Chemistry & Physics
Chemistry (On-level, K, or H)	Biology and Algebra I	Characteristics of matter; use of Periodic Table
Physics (On-level, K, or H)	Biology & completion or concurrent with Algebra I	Laws of motion & forces, energy, waves, & electricity
Aquatic Science (On-level)	Biology	Fresh water & marine aquatic systems
Astronomy (On-level)	Biology	Moon, stars, planets, space exploration
Earth and Space (On-level, K, or H)	Biology, Chemistry & completion or concurrent with 3 rd science & 3 rd math	Earth's systems and space
Environmental Systems (On-level)	Biology and IPC or Chemistry	Native plants & animals, endangered species, disasters & events that affect the environment
AP Biology	Biology and Chemistry	Molecular biology, cellular processes, human genetics, plants & animals; college prep course
AP Chemistry	Chemistry and Algebra II	In-depth study of chemistry; comparable to a first year college course
AP Physics I	Biology <u>and</u> completion or concurrent enrollment in Algebra II	May substitute for Physics Medical focus; the equivalent of a first semester algebra-based college course but taught over a full year
AP Physics II	AP Physics I <u>and</u> completion or concurrent enrollment in Precalculus	Medical focus; comparable to a second semester algebra-based college course but taught over a full year
AP Physics C (2 period block)	Physics or AP Physics I <u>and</u> completion or concurrent enrollment in Calculus	Engineering focus; principles of mechanics, electricity, & magnetism; the equivalent of calculus-based college physics for engineers & science majors
AP Environmental Science	Biology and Chemistry	Identify & analyze natural and human-made environmental problems
Anatomy & Physiology K	Biology and Chemistry	Organ systems & physiology; dissection techniques; cause & effect of disease
Forensic Science K	Biology and Chemistry; Grades 11-12	Terminology and investigative procedures related to crime scene investigation – fingerprint analysis, ballistics, and blood spatter analysis
Engineering Design & Problem Solving K	Algebra II + Biology, Chemistry & Physics (or concurrent) & Engineering Design & Presentation I Grades 11-12	Use the engineering design process cycle to investigate, design, plan, create, and evaluate solutions
Advanced Animal Science K	Biology, Chemistry, and Vet Med or at least one credit from the following: Small Animal, Equine Science, or Livestock Production; Grades 11-12	For students seeking career in animal science
Advanced Plant and Soil Science K	Biology, Chemistry, and Horticultural Science; Grades 11-12	Provides a way of learning about the natural world; basis for many other fields of science
Pathophysiology K	Biology and Chemistry; Grades 11-12	Study of the disease process and how humans are affected



Check your work!



Example 1 – STEM, Option 2 – Engineering

Periods	High School Credits Earned in Middle School	9 th Grade	10 th Grade	11 th Grade	12 th Grade
1		English I K	English II K	English III AP	English IV AP
2	Algebra I	Math: Geometry K	Math: Algebra II K	Math: Precalculus K	Math: Calculus AB AP
3		Biology K	Science: Chemistry K	Science: AP Physics I	Science: Eng. Design & Problem Solving K

Example 2 – Business & Industry, Option 1: Ag, Food, & Natural Resources

Periods	High School Credits Earned in Middle School	9 th Grade	10 th Grade	11 th Grade	12 th Grade
1		English I	English II	English III	English IV
2		Math: Algebra I	Math: Geometry	Math: Algebra II	Math: Adv. Algebra
3		Biology	Science: Chemistry	Science: Aquatic Science	Science: Adv. Animal Science K

Example 3 – Multidisciplinary Studies, Option 1 – Four by Four (4 X 4)

Periods	High School Credits Earned in Middle School	9 th Grade	10 th Grade	11 th Grade	12 th Grade
1		English I K	English II K	English III K	English IV K
2		Math: Algebra I	Math: Geometry	Math: Algebraic Reasoning	Math: Algebra II
3		Biology	Science: Chemistry	Science: Aquatic Science	Science: Astronomy

