SMA Elective Course Offerings 2026–2027

Half-credit electives offered primarily to SMA students must be paired.
Students must choose an elective from each column to receive a full credit (Column A and B).

Column A	Column B
Organic Chemistry	Biochemistry
Algorithm Development	Statistics using R
Linear Algebra	Intro to Mathematical Logic
Bacteriology	Zoology
Health II (BKCAH2)	Health II (BKCBH2)

Algorithm Development for Applications This is an advanced level programming course that will go beyond just learning code. Computational thinking will be the emphasis as students study and apply concrete computer algorithms. Students will learn to think like a computer scientist by mastering the fundamentals of the design and analysis of algorithms as they learn Python.
PREREQUISITES: AP Computer Science A or teacher approval

Bacteriology   This course is designed for students interested in learning basic microbiological techniques, culture methods, and applications of bacteriology. A large portion of the class is devoted to the development of laboratory skills.
PREREQUISITES: Honors Biology and Honors Chemistry

Biochemistry   This semester course is designed for students interested in future or current studies in biological, allied health, medical, or environmental science fields. The course will involve an in-depth study of the structure and function of biomolecules, the mechanism for the storage and transmission of hereditary information, and the metabolism of carbohydrates, lipids, and proteins.
PREREQUISITES: Biology and Chemistry, Organic Chemistry Recommended but not required

Introduction to Mathematical Logic   Students will be introduced to formal mathematical reasoning. We will be looking at examples from Number Theory, Probability, and Analysis, among others. This class will be invaluable for anyone planning on taking mathematics in college. General problem-solving skills will be acquired. **PREREQUISITES: Concurrently enrolled in Calculus AB or completed Calculus AB**

Linear Algebra   Topics covered in this course will include complex numbers, geometric vectors in two and three dimensions and their linear transformations, the algebra of matrices, determinants, solutions of systems of equations, eigenvalues, and eigenvectors. Students will be introduced to formal mathematical reasoning. We will be looking at examples from Number Theory, Probability, and Analysis, among others. The course will be a balanced blend of theory, application, and computation. Useful for anyone interested in pursuing engineering, mathematics, physics, or economics in college. **PREREQUISITES: Concurrently enrolled in Calculus AB or completed Calculus AB**

Organic Chemistry   Organic Chemistry is a branch of Chemistry that studies the structures, synthesis, and function of carbon containing compounds. This introductory course will cover such topics as analysis of molecular formulas, chemical reactivity, functional groups, nomenclature, and aromaticity. **PREREQUISITES: Chemistry, Algebra II**

Statistics using R This is an advanced level statistics course that will focus on the use of the computer language R to carry out various statistical tests and simulations. Students will be exposed to the use of computers in the area of Data Science.
PREREQUISITES: AP Statistics and programming experience

Zoology This course is designed for students interested in learning about animal development, evolution and classification of organisms, and the study of anatomical structures. A large portion of this course will be dedicated to the development of dissection skills. **PREREQUISITES: Honors Biology and Honors Chemistry**

If you pick an elective from Column **A** you MUST pick an elective from Column **B**.
If you pick an elective from Column **C** you MUST pick an elective from Column **D**.

Prerequisite is defined as having earned credit for the specified courses.

SMA Elective Course Offerings 2026–2027

Half-credit electives offered primarily to SMA students must be paired.
Students must choose an elective from each column to receive a full credit (Column C and D).

Column C	Column D
Robotics	Microcontrollers
Pre-Engineering	Design Engineering/CAD
Functional Kinesiology	Biotechnology
Health II (BKCCH2)	Health II (BKCDH2)

Biotechnology   This course provides an overview of biotechnology, covering theory, applications, and hands-on skills. Topics include DNA and protein analysis, genetic engineering, aseptic technique, and applications to medicine, industry, and forensics.
PREREQUISITES: Biology, Chemistry, Algebra II

Design Engineering (with CAD)   Using the principles of materials science and mechanical engineering, students will apply CAD modelling skills to solve a variety of design problems. By understanding the relationship between the structure of materials and their properties, they will be able to choose appropriate materials, and design effective solutions. The emphasis is on the tradeoffs inherent in any engineering problem, and how to maximize parameters of importance. Students should have strong CAD skills, as well as a willingness to tackle open-ended problems with vigor.   **PREREQUISITES: Chemistry, Trigonometry, Co-registration in physics**

Functional Kinesiology   This course investigates the physics of human structure and function. We use goniometry, kinematics, and anatomy of the musculoskeletal system to analyze movement across articulations. Emphasis will be placed upon the biomechanics of injury and corrective form. Additionally, students will apply skills and concepts to completing research projects. **PREREQUISITES: Biology, Physics (can be taken concurrently)**

Microcontrollers   The focus of this course will be programming microcontrollers to be used in robotics applications. Fuzzy logic will be used in the programming of the microcontrollers. Students will build and program a functioning robot in the course.
PREREQUISITES: SRT II or AP Computer Science

Pre-Engineering   Pre-Engineering introduces students to engineering and engineering technologies. Students will learn about the different branches of engineering and the specific fields of science and mathematics applied in each branch. Students will have the opportunity to examine and solve engineering problems and visit sites where engineers work. Practicing engineers will interact with students to help students learn what abilities, skills, attitudes, and experiences are required to be a successful engineer.
PREREQUISITES: Trigonometry

Robotics   This is a semester course which will teach the basics of robotics. Students will understand the design of a line-following robot and build it. Through the course, a basic understanding of DC circuitry will be covered. DC circuitry topics will include: power sources, resistors, LEDs, variable resistors, comparators, and motors. Students will learn how to use a multimeter, set a circuit up on a solderless breadboard, solder wiring and circuits, use small hand tools and power tools. Exposure to robotics in the real-world will be covered through selected readings.   **PREREQUISITES: Two credits of science, Algebra II, and SRT II OR PLTW**

If you pick an elective from Column **A** you MUST pick an elective from Column **B**.
If you pick an elective from Column **C** you MUST pick an elective from Column **D**.

Prerequisite is defined as having earned credit for the specified courses.