Advanced Placement/Specialized Course Offerings
Science Department, Franklin High School, Franklin, MA

(*Excerpts from course descriptions provided by the Franklin High School*)


The Science Department offers a variety of courses in the biological, earth, physical sciences and engineering. The science program is structured to provide students of all abilities the opportunity to experience four years of science including some opportunities for STEM and STEAM. These four years of science at Franklin High School enables students to achieve an increasingly comprehensive and reliable understanding of the human species and our environment. Students develop awareness of the natural world by engaging in the following practices: observing, critical thinking, inference, experimenting, and validating. Mathematical skills and knowledge are essential in varying degrees for comprehension in all science courses. Students should be careful to select science courses that align with their proficiency in mathematics.

Advanced Placement Biology

Description: AP Biology is equivalent to two semesters of college introductory biology in rigor, pace, and independent work outside of class. Topics include experimental design, biochemistry, genetics, evolution, ecology and the regulatory body systems. Students work in a collaborative environment to build quantitative reasoning and analytical skills transferrable to many disciplines beyond biology. Completion of a substantial summer assignment is required..

Advanced Placement Chemistry

Description: Advanced Placement Chemistry is the equivalent of a general chemistry course taken during the first college year. The theoretical aspects of chemistry are explored with emphasis on mathematical modeling and inquiry labs covering topics such as structure of matter, kinetic molecular theory, equilibrium and thermodynamics. Students electing

this course must complete a substantial summer requirement including basic problem solving strategies and atomic structure.

Advanced Placement Physics

Description: AP Physics 1 is a first year, high-level, physics course that provides students with a challenging opportunity to apply their math and science knowledge to describe and model the physical world. The course is the equivalent of a college-level physics course taken by life science students. Course topics revolve around Newtonian mechanics, rotational motion, work, energy, mechanical waves, sound, and electrical circuits as outlined by the AP College Board ©. Students will be expected to work at a fast pace, solve complex mathematical problems involving trigonometry, work independently and are expected to take the Advanced Placement Exam for Physics 1 given in May

Advanced Placement Physics C Mechanics

Description: AP Physics C Mechanics is an intense second year **calculus-based** course that provides students a challenging opportunity to apply their math and science knowledge to describe and model the physical world. The course is the equivalent of a college-level physics course taken by physical science and engineering majors. Course topics revolve around Newtonian mechanics, including kinematics, Newton's three laws of motion, work, energy, power, system of particles, circular motion, rotation, oscillations and gravitation as outlined by the AP College Board ©. Students will be expected to work at a fast pace, solve complex mathematical problems involving calculus, work independently and are expected to take the Advanced Placement Exam for Physics C Mechanics given in May

Bioengineering

Description: Bioengineering is a laboratory skills course in which students engage in authentic investigations in the fields of microbiology, cell biology, genetics, bioinformatics, and biotechnology. This is an excellent course for students considering careers in the biological or medical fields.

Engineering Design

Description: Are you considering becoming an Engineer? Do you want to design and build both on the computer and with real life materials? If so then this course is for you. In this course you will discover what an engineer does. You will also learn how to use an Industry Standard Engineering Design Software, Autodesk Inventor, while employing the engineering design process to solve real world problems. We will use the 3D printers to produce some of your designs. Projects include designing puzzles, toys, sports equipment and assisted technology. Honors-level students are also required to complete additional assignments and pursue all projects and processes with greater depth and focus.