



# Science 2008-09

College Prep

Honors

Advanced Placement

Electives

Freshman

Physical Science Academy

Physical Science

Biology Honors

Sophomore

Biology Academy

Biology

Chemistry

Chemistry Honors

Juniors

Anatomy & Physiology

Physics

Physics Honors

AP Biology

Medical Careers

Seniors

AP Chemistry

AP Physics

## SCIENCE

Mr. John Kmet, Chairperson  
847/451-3631 or 3604

Two units of science are required—one unit of Biology and one unit of Physical Science or Chemistry Honors.

### PHYSICAL SCIENCE:

#### PHYSICS/CHEMISTRY

SCI131 SCI132 PS:PH/CHM

**Required:** Grade 9. One unit

**Prerequisite:** None

**Grade Weight:** College Prep

Introductory laboratory experience is a fundamental part of this course, which is designed to give students a general knowledge of chemistry and physics. Course content also includes concepts and vocabulary with their applications to life and work in a technological society. The processes, techniques, and methods for scientific investigation are emphasized. A TI-83 Plus or TI-84 graphing calculator is required.

### ACADEMY PHYSICAL SCIENCE:

#### PHYSICS/CHEMISTRY

SCI101 SCI102 ACD PHY SCI

**Required:** Grade 9. One unit

**Prerequisite:** None

**Grade Weight:** College Prep

Academy Physical Science provides the student with a small class size and alternate teaching methods. Introductory laboratory experience is a fundamental part of this course, which is designed to give students a general knowledge of chemistry and physics. Course content also includes concepts and vocabulary with their applications to life and work in a technological society. The processes, techniques, and methods for scientific investigation are emphasized. A TI-83 Plus or TI-84 graphing calculator is required.

### BIOLOGY

SCI251 SCI1252 BIOLOGY

**Required:** Grade 10 One unit

**Prerequisite:** None

**Grade Weight:** College Prep

The course content will include concepts and basic terminology of biology and their application to life and work in a contemporary technological society as well as their implications on social issues. The principles of scientific research are studied and applied to research projects, including dissection. A TI-83 Plus or TI-84 graphing calculator is required.

### ACADEMY BIOLOGY

SCI201 SCI202 ACD BIOLOGY

**Required:** Grade 10 One unit

**Prerequisite:** None

**Grade Weight:** College Prep

Academy Biology provides the student with a small class size and alternate teaching methods. The course content will include concepts and basic terminology of biology and their application to life and work in a contemporary technological society as well as their implications on social issues. The principles of scientific research are studied and applied to research projects, including dissection. A TI-83 Plus or TI-84 graphing calculator is required.

### BIOLOGY HONORS

SCI121 SCI122 BIOLOGY HN

**Required:** Grades 9, 10 One unit

**Prerequisite:** None

**Grade Weight:** Honors

The course content includes concepts and basic terminology of biology and their application to life and work in a contemporary technological society as well as their implications on social issues. The principles of scientific research are studied and applied to research projects, including dissection. There is a stronger emphasis on the process, technique, and equipment used in laboratory experiments than found in the regular biology course. A TI-83 Plus or TI-84 graphing calculator is required.

### CHEMISTRY

SCI311 SCI312 CHEM

**Elective:** Grades 10,11,12 One unit

**Prerequisite:** 2 units of Science or Biology Honors and 2 units of Math

**Grade Weight:** College Prep

Emphasis is on scientific and chemical literacy in a lab intensive environment. Topics include: matter, energy, atomic structure, properties of compounds, chemical equations and reactions, phase changes, acids and bases, nuclear chemistry, and organic chemistry. Problem solving skills and mathematical applications are practiced. A TI-83 Plus or TI-84 graphing calculator is required.

### CHEMISTRY HONORS

SCI221 SCI222 CHEM HN

**Elective:** Grades 10,11 One unit

**Prerequisite:** 1 unit of Biology Honors and Honors math placement

**Grade Weight:** Honors

This is an enriched chemistry course that moves more rapidly than regular chemistry. Topics are covered in depth with emphasis on mathematical applications. Students will receive instruction and practice in problem solving, critical thinking, and the use of technology to acquire and manipulate lab data. Good math ability and a high interest in science are recommended. A TI-83 or TI-84 graphing calculator is required.

## PHYSICS

SCI321 SCI322

PHYSICS

**Elective:** Grades 11, 12 **One unit**  
**Prerequisite:** Two units of science; two units of math, concurrent enrollment in third unit of math

**Grade Weight:** College Prep

Physics is designed as a practical and conceptual approach to the study of sound, light, motion, forces, energy, heat, electricity, magnetism, and atomic and nuclear interactions. The focus is on critical thinking rather than algebraic problem solving. A practical laboratory approach is used, and data manipulation is kept to a minimum. A TI-83 Plus or TI-84 graphing calculator is required.

## PHYSICS HONORS

SCI331 SCI332

PHYSICS HN

**Elective:** Grades 11, 12. **One unit**  
**Prerequisite:** One unit of Chemistry or Chemistry Honors, and concurrent enrollment in a third unit of Math Honors, College Algebra or Trig/Pre-Calc

**Grade Weight:** Honors

The physics honors course is designed for college preparatory and technical preparatory students. Physics honors is the introductory course for engineering degrees in four-year colleges and for mechanics, electricity, and health two-year associate degrees in technical institutes like Triton College. A laboratory-oriented approach is used in the study of sound, light, motion, forces, energy, electricity, magnetism, and atomic and nuclear interactions. Assembly and use of apparatus and evaluation of data is stressed. A thorough understanding of algebra is essential. A TI-83 Plus or TI-84 graphing calculator is required.

## ANATOMY AND PHYSIOLOGY

SCI471 ASCI472

ANT/PHY

**Elective:** Grades 11, 12. **One unit**  
**Prerequisite:** Two units of science including one unit of Chemistry or concurrent enrollment in Chemistry and two units of math

**Grade Weight:** College Prep

Anatomy and Physiology is a year-long course that explores the structure and function of the major systems of the human body. The course offers a more extensive and in-depth account of the human body than is presented in biology and health classes. The course is laboratory intensive, incorporating dissection, physiological measurement techniques, and other activities exploring the human body. A basic understanding of biological and chemical processes is recommended.

## BIOLOGY ADVANCED PLACEMENT

SCI341 SCI342

BIOLOGY AP

**Elective:** Grades 11, 12. **One unit**  
**Prerequisite:** Two units of science including one unit of Chemistry or Chemistry Honors; two units math and concurrent enrollment in third unit of math

**Grade Weight:** Advanced Placement

This college level biology course is designed to investigate the modern biology concepts of biochemistry, cell biology, molecular genetics, ecology, evolution, and plant/animal physiology. Problem solving and critical thinking skills are developed through several analytical laboratory investigations. A mammalian dissection is required. See the Advanced Placement Testing Policy on page 14.

## CHEMISTRY ADVANCED PLACEMENT

SCI431 SCI432

CHEM AP

**Elective:** Grade 12. **Two units**  
**Prerequisite:** Three years of science  
**Physics recommended**

**Grade Weight:** Advanced Placement

This two-period class is a comprehensive study of chemistry involving extensive laboratory experience. Mathematical application of concepts is stressed; therefore, a strong mathematics background is essential. The course will provide excellent preparation for further college studies in science. See the Advanced Placement Testing Policy on page 14.

## PHYSICS ADVANCED PLACEMENT

SCI421 SCI422

PHYSICS AP

**Elective:** Grade 12. **One unit**  
**Prerequisite:** Teacher recommendation, 1 year of Physics Honors or concurrent enrollment in Calculus.

**Grade Weight:** Advanced Placement

This course provides a systematic introduction to the main principles of physics and emphasizes the development of conceptual understanding and problem-solving ability using algebra, trigonometry, and calculus. The instructional goals focus on enhancing physics knowledge, improving problem-solving skills and technical reading skills, and increasing student aptitude in scientific reasoning and critical thinking. See the Advanced Placement Testing Policy on page 14.

## ***MEDICAL CAREERS***

SCI350

MED CAR

**Elective: Grades 11, 12. One unit**

**Prerequisite: Health, successful completion of 2 years of science**

**Grade Weight: College Prep**

In this course, students gain insight about various medical careers by visiting a local hospital. Students observe professionals in various departments: radiology, laboratory, physical therapy, nursing, and exercise physiology. The course meets for two periods and provides one unit of credit upon successful completion of the semester. Students must also enroll in FCS350.

Students study topics that will prepare them for their shadowing experience—the human body, medical terminology, controlling infection, safety, vital signs, interpersonal communications, rules and policies of the hospital. For several weeks, students are bussed to a local hospital or other sites 4 days a week for their “shadowing” experience. The student will select and be assigned to many different areas in the hospital. While observing, they will take part in daily routines and interact with hospital personnel to gather information pertaining to each department. The remaining days, students will meet in the classroom to share their shadowing experiences and to study medical careers in great length.