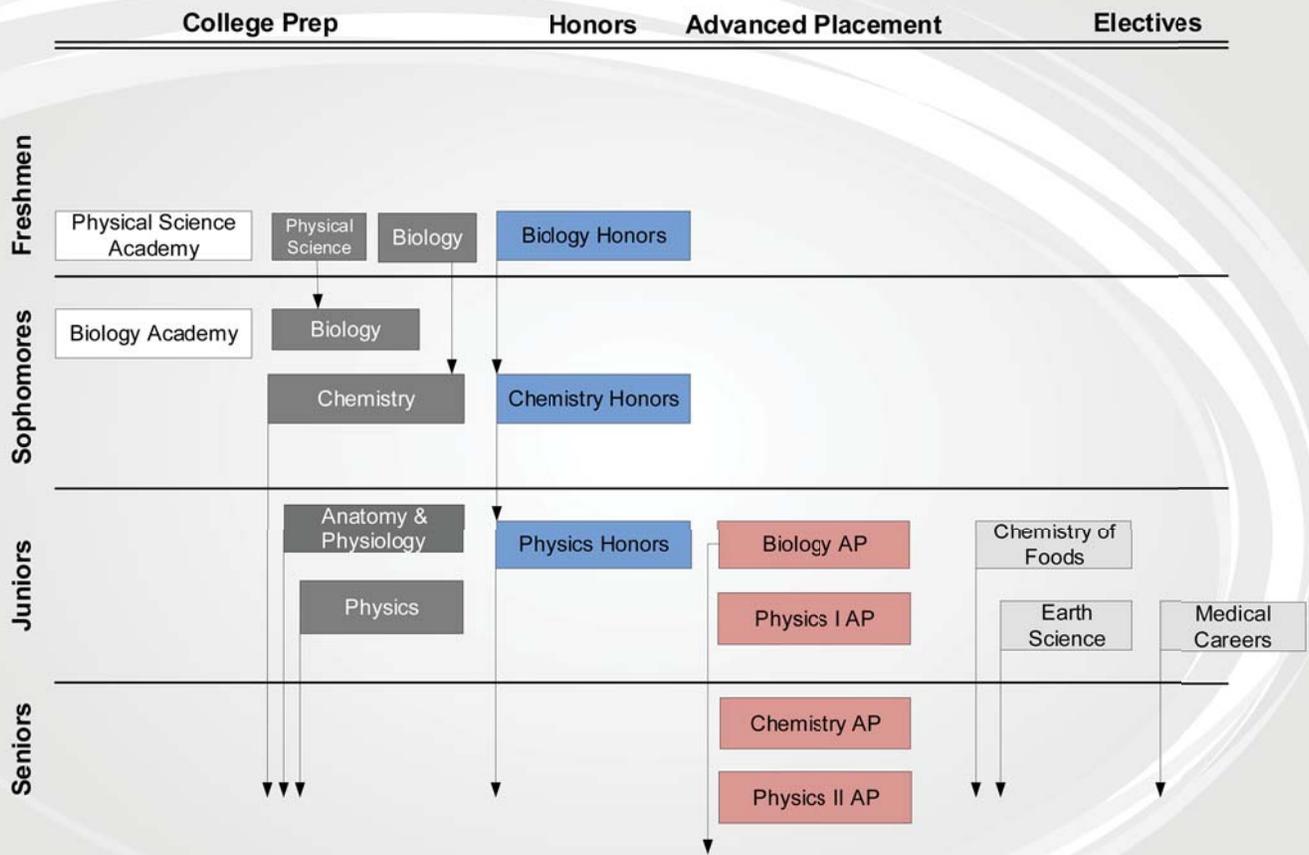


# SCIENCE



# Science 2018-19



## SCIENCE

**Mr. John Kmet, Chairperson**  
**847/451-3631 or 3604**  
**jkmet@leyden212.org**

### PHYSICAL SCIENCE

SCI101/102/103

Required: Grade 9 One Credit  
Prerequisite: None  
Grade Weight: College Prep

SCI131/132/133

Required: Grade 9 One Credit  
Prerequisite: None  
Grade Weight: College Prep

SCI 1317/1327/1337

SCI 1319/1329/1339

Required: Grade 9 One Credit  
Prerequisite: IEP Determination  
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. Major concepts associated with Earth Science and Astronomy are included during second semester. Course content will emphasize the real-life applications of science in a technological society as well as the processes, techniques, and methods for scientific investigation and problem-solving. A graphing calculator is required. Electronic resources are frequently accessed via the student Chromebook.

### BIOLOGY

SCI201/202/203

Required: Grade 10 One Credit  
Prerequisite: None  
Grade Weight: College Prep

SCI251/252/253

Required: Grade 9, 10 One Credit  
Prerequisite: None  
Grade Weight: College Prep

SCI 2517/2527/2537

SCI 2519/2529/2539

Required: Grade 10 One Credit  
Prerequisite: IEP Determination  
Grade Weight: College Prep

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 principals of scientific research are studied and applied to activities, which includes dissection.\*

*\*Alternatives to dissection are available for students who do not wish to participate in this learning opportunity. These may include a*

*written assignment, studying dissection diagrams, viewing the dissection as a non-participant, or using electronic alternatives. Students are still responsible for the information and will be assessed on it.*

### BIOLOGY HONORS

SCI121/122/123

Required: Grades 9, 10 One Credit  
Prerequisite: None  
Grade Weight: Honors

The course content includes concepts and basic terminology of biological science, its implications on social issues as well as applications to life and work in a contemporary technological society. Curricular practices reflect the transition toward the Next Generation Science Standards. The principles of scientific research are studied and applied in a variety of lab experiences, which may include dissection.\* There is a stronger emphasis on the process, techniques, and equipment used in laboratory experiments compared to a regular biology course.

*\*Alternatives to dissection are available for students who do not wish to participate in this learning opportunity. These may include a written assignment, studying dissection diagrams, viewing the dissection as a non-participant, or using electronic alternatives. Students are still responsible for the information and will be assessed on it.*

### CHEMISTRY

SCI311/312/313

Required: Grade 10  
Elective: Grades 11, 12 One Credit  
Prerequisite: Biology or Biology Honors and one unit of Algebra 1 or Algebra I Honors  
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.

### CHEMISTRY HONORS

SCI221/222/223

Elective: Grades 10, 11 One Credit  
Prerequisite: One unit of Biology Honors, enrollment in Honors Geometry or achieved a grade of A or B in Algebra I  
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 scientific calculator is required.

### PHYSICS

SCI321/322 /323

Elective: Grades 11, 12 One Credit  
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 graphing calculator is required.

## PHYSICS HONORS

SCI331/332 /333

Elective: Grades 11, 12 One Credit

Prerequisite: One unit of Chemistry or Chemistry Honors, and concurrent enrollment in a Algebra II Honors or above

Grade Weight: Honors

The physics honors course is designed for college preparatory and technical preparatory students. Physics honors is the introductory course emphasizing mechanics and wave theory. A hands-on approach is used in the study of sound, light, motion, forces, energy, and electricity. Assembly and use of apparatus and evaluation of data is stressed. A thorough understanding of algebra is essential.

## ANATOMY AND PHYSIOLOGY

SCI471/472/473

Elective: Grades 11, 12 One Credit

Prerequisite: Two units of Science and two units of Math (one unit of Chemistry or concurrent enrollment in Chemistry is recommended)

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.

*\*Alternatives to dissection are available for students who do not wish to participate in this learning opportunity. These may include a written assignment, studying dissection diagrams, viewing the dissection as a non-participant, or using electronic alternatives. Students are still responsible for the information and will be assessed on it.*

## AP BIOLOGY ☼

SCI341/342 /343

Elective: Grades 11, 12 One Credit

Prerequisite: Two units of Science including one unit of Chemistry or Chemistry Honors; two units of Math & 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, as outlined by The College Board. Problem solving and critical thinking skills are developed through analytical, inquiry-based laboratory investigations. A mammalian dissection is required.\* See Advanced Placement Testing Policy on page 12.

*\*Alternatives to dissection are available for students who do not wish to participate in this learning opportunity. These may include a written assignment, studying dissection diagrams, viewing the dissec-*

*tion as a non-participant, or using electronic alternatives. Students are still responsible for the information and will be assessed on it.*

## AP CHEMISTRY ☼

SCI431/432/433

Elective: Grade 12 Two Credits

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 12.

## AP PHYSICS I ☼

SCI421/422/423

Elective: Grade 11, 12 One Credit

Prerequisite: Concurrent enrollment in College Algebra/Trig or above.

Grade Weight: Advanced Placement

AP Physics I 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. See the Advanced Placement Testing Policy on page 12.

## AP PHYSICS II ☼

SCI441/442/443

Elective: Grade 12 One Credit

Prerequisite: AP Physics I or Physics Honors with approval of BOTH instructors. Concurrent enrollment in College Algebra/Trig or above.

Grade Weight: Advanced Placement

AP Physics II is an Algebra-based, introductory college-level physics course that explores topics such as fluid statics and dynamics; thermodynamics with kinetic theory; PV diagrams and probability; electrostatics; electrical circuits with capacitors; magnetic fields; electromagnetism; physical and geometric optics; and quantum, atomic, and nuclear physics. Through inquiry-based learning, students will develop scientific critical thinking and reasoning skills. See the Advanced Placement Testing Policy on page 12.

## MEDICAL CAREERS

SCI350

Elective: Grades 11, 12 One Credit

Prerequisite: Health and successful completion of two years of science.

Grade Weight: College Prep

The course meets for two consecutive periods and is team-taught. The curriculum covers the topics of medical terminology, infection control, vital signs, medical ethics, applied math, interpersonal communication, and vocational planning. Guest speakers and field trips are built into the curriculum to support the professional career aspect of the class. The shadowing component of the course enables the students to interact with medical professionals at partner sites. Students will be exposed to a variety of professionals in areas such as nursing, pharmacy, laboratory, physical therapy, ER and medical

surgery. Students are responsible for purchasing scrubs for the on-site visits. (*Students are required to obtain the seasonal flu vaccine and a TB test before beginning their lab hours.*)

## MEDICAL CAREERS Independent Study

SCI900 / FCS900

Elective: Grades 11, 12 One-Half Credit

Prerequisite: Medical Careers, AP BIO, and/or  
Anatomy + Physiology

Grade Weight: College Prep

Description: After completion of Medical Careers, AP Biology and/or Anatomy and Physiology, students may enroll in Medical Careers Independent study. This independent study is for students interested in earning their Certified Nurses Assistant credential. Class meets at Triton College from 2:30 p.m. - 4:15 p.m., Tuesday through Thursday, with additional lab hours required on Saturdays. Upon successful completion of this course students will earn an industry recognized certification (CNA). Students need a 500 on the SAT reading and writing or a +61 score on the Accuplacer reading placement test. (*Students are required to obtain the seasonal flu vaccine and a TB test before beginning their lab hours.*)

## EARTH SCIENCE

SCI360

Elective: Grades 11, 12 One-Half Credit

Prerequisite: Two units Science and two units Math

Grade Weight: College Prep

Earth, its atmosphere, and the universe are dynamic systems that are constantly changing due to forces acting upon them.

The study of Earth Science raises many questions about our past, present, and future. These questions will be addressed through units of study that cover an introduction to Earth Science, the forces within Earth, Meteorology, and Astronomy.

## CHEMISTRY OF FOODS

SCI370

Elective: Grades 11, 12 One-Half Credit

Prerequisite: Two units Science and two units Math

Grade Weight: College Prep

This course will provide a rich lab-based experience following topics found in the traditional chemistry course. Students will study the biochemical reactions that occur during the metabolism of food, the reactions found in the food industry, and the home kitchen. Career exploration in food chemistry, biochemistry, quality control, and nutrition will also be discussed. A graphing calculator is required.