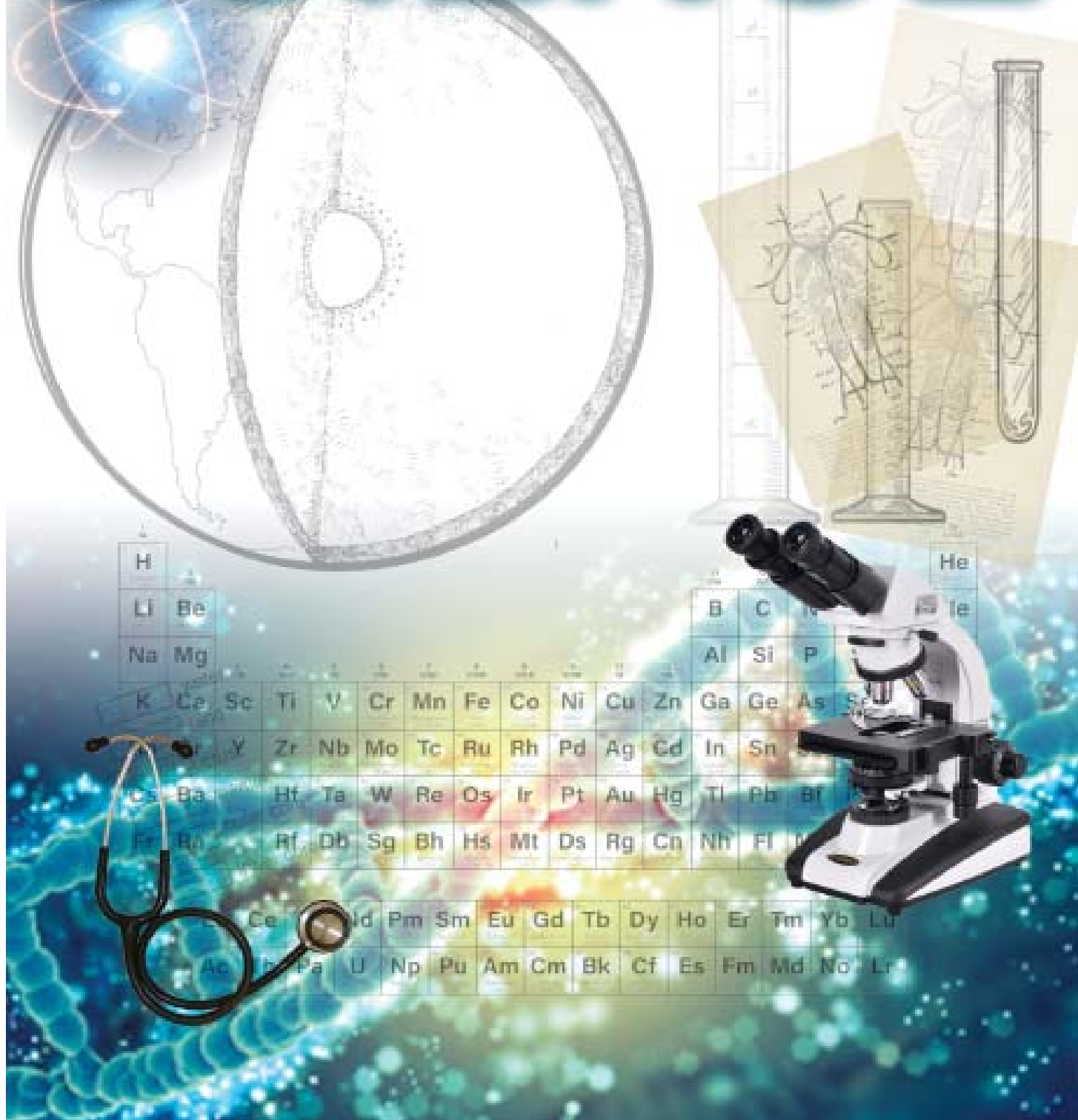


SCIENCE



H																	He	
Li	Be											B	C	N	O	F	Ne	
Na	Mg											Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
		Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Rb	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
Fr	Ra		Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og	
		Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu			
		Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr		

Science Department 2023-2024

Leyden requires students to take biology and physical science or chemistry.

Academy Biology	Academy Physical Science	Chemistry
Biology	Physical Science	Chemistry Honors
Honors Biology		Bilingual Chemistry
Co.lab Biology		
Bilingual Biology		

Elective science courses are taken years 3 & 4 following the pre-requisites.

Food Chemistry	Chemistry	AP Biology	Anatomy & Physiology
Earth Science	Chemistry Honors	AP Chemistry	Environmental Science
Medical Careers	Physics	AP Physics 1	
CNA Program	Physics Honors	AP Physics 2	

SCIENCE

Mr. John Kmet, Chairperson
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PHYSICAL SCIENCE

SCI 101, 102, 103

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

SCI 131, 132, 133

SCI 131CT, 132CT, 133CT

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 as well. 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

SCI 201, 202, 203

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

SCI 251, 252, 253

SCI 251CT, 252CT, 253CT

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 application of these concepts 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 activities which may include 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.*

BILINGUAL BIOLOGY

ELL 211, 212, 213

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

This biology course is designed to give students opportunities to develop life science concepts and terminology. Throughout the year, students will apply learning to everyday life and explore the ways biology helps define issues and solutions seen in our environment. Basic processes, techniques, and equipment as well as biological laboratory experiments will be emphasized. Students will apply scientific research to classroom projects that demonstrate their learning and growth. This course is taught with an emphasis on supporting student acquisition of academic Spanish and English and development of all their linguistic abilities and skills.

BIOLOGY HONORS

SCI 121, 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

SCI 311, 312, 313

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

Grade Weight: College Prep

This is an introductory chemistry course designed to give students working knowledge of chemistry that can be found in everyday life as well as chemistry's role in society and technology. The course surveys major scientific topics including matter, motion, energy, and waves and their application to chemistry. Students will use problem solving skills and mathematical applications to develop and use models, plan and carry out investigations, construct explanations, and design solutions. Emphasis is on scientific and chemical literacy in a lab-intensive environment.

BILINGUAL CHEMISTRY

ELL 391, 392, 393

Grade Weight: College Prep One Credit

This is a chemistry course designed to give students working knowledge of chemistry that can be found in everyday life as well as chemistry's role in society and technology. The course surveys major scientific topics including matter, motion, energy, and waves and their application to chemistry. Students will use problem solving skills and mathematical applications to develop and use models, plan and carry out investigations, construction explanations, and design solutions. Emphasis is on scientific and chemical literacy in a lab-intensive environment. In addition to scientific skills and language, this course will support student acquisition of academic Spanish and English.

CHEMISTRY HONORS

SCI 221, 222, 223

Elective: Grades 10, 11 One Credit

Prerequisite: One unit of Biology Honors, and concurrent 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

SCI 321, 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

SCI 331, 332, 333

Elective: Grades 11, 12 One Credit

Prerequisite: One unit of Chemistry or Chemistry Honors, and concurrent enrollment in 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. Experimental design and evaluation of data is stressed. A thorough understanding of algebra is essential.

ANATOMY AND PHYSIOLOGY

SCI 471, 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 ☀

SCI 341, 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 14.

**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 CHEMISTRY ☼

SCI 431, 432, 433

Elective: Grade 11, 12 Two Credits
Prerequisite: Three years of science; Physics recommended
Concurrent enrollment in PreCalculus or above
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.

AP PHYSICS I ☼

SCI 421, 422, 423

Elective: Grades 11, 12 One Credit
Prerequisite: Concurrent enrollment in Precalculus 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 14.

AP PHYSICS II ☼

SCI 441, 442, 443

Elective: Grade 12 One Credit
Prerequisite: AP Physics I or Physics Honors and concurrent enrollment in Precalculus
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 14.

ENVIRONMENTAL SCIENCE

SCI 411, 412, 413

Elective: Grades 12 One Credit

We live in a rapidly changing world in which the human species is both the cause of and the solution to many of the global environmental problems our generations will face. Our goal for our class is to become environmentally literate individuals and within our communities, poised to make informed decisions based on sound science and to appreciate, value, and respect the diversity of life on our planet.

The goal of this course is to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, to identify and analyze

environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them. Environmental science is interdisciplinary; it embraces a wide variety of topics from different areas of study. Yet there are several major unifying constructs, or themes, that cut across the many topics included in the study of environmental science. Environmental Science is an applied science course. Therefore, it is designed to provide students with the scientific principles, concepts, and methodologies of the natural world and draws from various scientific disciplines.

MEDICAL CAREERS

SCI 350, FCS 350, MEDCAR

Elective: Grades 11, 12 One Credit
Prerequisite: Successful completion of two years of Science
Grade Weight: College Prep

Medical Careers is designed to prepare students for careers in the healthcare industry. Students who enroll in this course will be enrolled in both a Family and Consumers Sciences course as well as a Science course. To give students the best learning experience possible, they will spend a total of eight weeks observing medical professionals in the community at locations such as hospitals, clinics, retirement homes, and fire departments. The Science portion of the course will engage students in hands-on learning opportunities to master skills such as using personal protection equipment in a hospital setting. Students will also be introduced to human anatomy and medical terms that they will use in their future careers. Additionally, in the Family and Consumer Sciences portion, students will discover the importance of medical law and ethics along with professionalism. They will also identify employability skills relevant to this industry and what they can do to improve these skills. Field trips include visiting a hands-on cadaver lab and a college program exploration at Triton College. At the completion of this course, students will receive Red Cross First Aid, CPR, and AED certifications which are basic requirements for entry-level jobs in this field.

Students are required to be up-to-date on Varicella, MMR, Hep B, and TDAP vaccinations, obtain a current flu shot, and receive a negative result on a Tuberculosis Test.

MEDICAL CAREERS Independent Study

TDE 310

Elective: Grades 11, 12 One-Half Credit
Prerequisite: Medical Careers, AP BIO, and/or
Anatomy + Physiology

Grade Weight: College Prep

After completion of Medical Careers, or AP Biology and/or Anatomy and Physiology, students may enroll in the Medical Careers Independent Study. This independent study is for students interested in earning their Certified Nurse's 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 +471 score on the Next Genera-

tion Accuplacer reading placement test. Students that successfully complete the course will be waived of all fees. Students who fail the course will be subject to a \$1,250.00 course and book fee. Students are required to attend an informational session, obtain the seasonal flu vaccine, and a TB test before beginning their lab hours.

EARTH SCIENCE

SCI 360

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

SCI 370

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.