

LIFE SCIENCE (one required- a second course would count as an elective science)

Course	Graduation	A-G	Description	Schools
Life Science #0455 Grades: 9-12	Life Sci		Students are placed into this course based on reading diagnostic exams and/or teacher recommendation. This is an introductory course in the basic biological principles aimed at understanding life processes common to living things. This course emphasizes and practices the use of reading skills and vocabulary development. Major areas of emphasis will include cellular biochemistry, cell structure, genetics, ecology, physiology, and evolution.	AHS BCHS IHS GVHS MHS
Agriculture Life Science #0127 Grades: 9-12	Life Sci		This is an introductory course in the basic biological principles aimed at understanding life processes common to living things. Major areas of emphasis will include cellular biochemistry, cell structure, genetics, ecology, physiology, and evolution. In addition, learners will gain experience through leadership development, SAE projects, and career exploration in the area of agriculture	AHS BCHS GVHS MHS
Biology #0453 Grades: 9-12	Life Sci	D	Biology requires analytical thinking and considerable lab work. Students learn the concepts of basic chemistry, evolution, physiology, reproduction, genetics, plant life and animal life (simple to complex), the human body (structure and function), and ecology.	AHS BCHS ECHS GVHS LHS MHS
Integrated Agricultural Biology #0126 Grades: 9-12	Life Sci or Art/WL	D	Designed for the college-bound student with career interests in agriculture, this course emphasizes the following topics: the molecular and cellular aspects of life; the chemical and structural basis of life; energies of life; growth and reproduction in plants; animal genetics; taxonomy of modern agricultural plants and animals; health and diseases in animals; and the similarities between animals and humans. Extensive laboratory activities connect the major ideas of life science with agricultural applications. The course emphasizes written and oral reporting skills.	AHS BCHS ECHS GVHS LHS MHS YHS

<p>AP Biology #0457 Grades: 10-12 <i>Recommended: Biology and Chemistry</i></p>	Life Sci	D	<p>This is a rigorous class taught at the college level. Students are expected to have already completed an introductory biology class as well as chemistry (unless otherwise approved by the AP teacher). Students must plan to devote 5 to 10 hours a week to reading, as specified by the teacher. There are 10 required AP labs and AP exam practice sessions that may be required to be completed outside of the school day. Students enrolled in AP Biology can anticipate a homework requirement of 5 to 10 hours per week.</p>	<p>AHS BCHS ECHS GVHS LHS MHS</p>
PHYSICAL SCIENCE (one required- a second course would count as an elective science)				
<p>Earth Science #0452 Grades: 11-12</p>	Phy Sci	G	<p>This is a college preparatory laboratory science course designed to provide students with quantitative analysis and experimental tools that will enable them to critically analyze content knowledge in the areas of geology, meteorology, oceanography, and astronomy. The course will focus on the earth's place in the universe, dynamic earth processes, and energy in the earth's system, biogeochemical cycles, the structure and composition of the atmosphere, California geology, and investigation and experimentation as outlined in the California Science Standards for Earth Science.</p>	<p>AHS BCHS ECHS GVHS IHS LHS MHS</p>
<p>Agriculture Earth Science #0125 Grades: 10-12</p>	Phy Sci	G	<p>This is a college preparatory science course designed to provide students with a general understanding of geology, meteorology, oceanography, and astronomy. The course will focus on the earth's place in the universe, dynamic earth processes, energy in the earth system, biogeochemical cycles, the structure and composition of the atmosphere, California geology, and investigation and experimentation as outlined in the California Science Standards for Earth Science. It brings together the agriculture interactions that occur in the living and nonliving world, and provides the learner with a solid understanding of the processes that take place on and around the Earth and the synergies that exist between them.</p>	<p>AHS BCHS ECHS GVHS LHS MHS YHS</p>
<p>Chemistry #0461.1 Grades: 10-12 <i>Recommended: Successful completion of Algebra 1 and Biology with a "C" or better</i></p>	Phy Sci	D	<p>Chemistry is the science of materials, their composition, interaction and transformation. It is the study of elements, compounds, and mixtures found in nature or made by man. Chemistry requires the use of algebraic concepts, analytical thinking, and considerable lab work.</p>	<p>AHS BCHS ECHS GVHS LHS</p>

				MHS
AP Chemistry #0462.1 Grades: 11-12 <i>Recommended: Completion of Chemistry with a "B" or better</i>	Phy Sci	D	AP Chemistry is a college-level course designed to prepare students for the AP Chemistry exam. Areas covered include quantum theory, bonding, thermochemistry, kinetics, equilibrium, thermodynamics, and electrochemistry.	AHS BCHS ECHS GVHS MHS
Agriculture & Soil Chemistry #0137 <i>Recommended: Successful completion of Algebra 1 and Biology with a "C" or better</i>	Phy Sci	D	Please see the UCCI course description at the following website: http://ucci.ucop.edu/integrated-courses/chemistry-and-agricscience.html	MHS
Physics #0463 Grades: 10-12 <i>Recommended: Algebra 1, Geometry with a grade of "C" or better and concurrent enrollment in Algebra 2, or teacher recommendation</i>	Phy Sci	D	Physics is the study of energy in all of its various forms. This course takes a quantitative look at classical mechanics, waves, optics, and electricity using a hands-on, experiential approach combined with problem solving.	AHS BCHS ECHS GVHS LHS MHS
AP Physics #0468.1 Grades: 11-12 <i>Recommended: Physics</i>	Phy Sci	D	AP Physics is a college-level course designed to prepare students for the AP Physics exam. Content areas covered by this course include: Newtonian mechanics, thermal physics, electricity and magnetism, waves and optics, and atomic and nuclear physics.	BCHS ECHS GVHS MHS
ELECTIVE SCIENCE				
AP Environmental Science #0469 Grades: 10-12	Elective Sci	D	This college-level course prepares the student to take the AP exam in Environmental Science. The course provides students with a foundation of understanding, knowledge and skills to deal effectively with environmental problems such as global warming, pollution, alternative energies, population dynamics, human health and the environment, endangered species and invasive species. Students learn a variety of basic laboratory and field techniques including air, soil, and water sampling. The course incorporates	GVHS

			both academic and applied studies that include fieldwork, field trips, and visiting experts in the field. The structure and function of natural ecosystems, the history of the environmental movement, and the impact of legal, economic and political systems on environmental concerns are analyzed. Students also gain a broad awareness of environmental science and technological career opportunities. An emphasis is placed on students using critical thinking and analytical skills to make a positive impact on the environment.	
Anatomy and Physiology #0458 Grades: 11-12	Elective Sci	D	This is a course designed to teach basic Anatomy and Physiology of the human body. It is an introductory course to the subject area. This course will cover the structure and function of the major systems of the human body. This course will build the necessary conceptual and vocabulary foundation for post-high school academic study in the health or medical related fields.	AHS BCHS ECHS GVHS LHS MHS
Animal Anatomy and Physiology #0107 Grades: 10-12 <i>Recommended: Ag Life Science or Ag Biology</i>	Elective Sci	G	This course is designed to give instruction in animal nutrition, reproductive physiology, animal genetics, and disease and parasites of livestock. In addition, students will explore careers in agriculture and develop electronic portfolios, and learn cooperative marketing structure and how it applies to the agriculture industry. General agribusiness management skills and leadership skills will be included.	ECHS GVHS
Biotechnology 1 #2461 Grades: 11-12 <i>Prerequisite- Biology, Algebra and Geometry with a grade of B or better</i>	Elective Sci	D	This course is an introductory course in the theory and principles of biotechnology and how the field applies to meeting the needs of today's world.	ECHS
Biotechnology 2 #2462 Grades: 11-12 <i>Prerequisite- Biology, Algebra and Geometry with a grade of B or better</i>	Elective Sci	D	This course is the secondary course in the theory and principles of biotechnology and how the field applies to meeting the needs of today's world.	ECHS

Environmental Science #0477 Grades: 10-12	Elective Sci		Students will develop an understanding of issues related to air quality, soils, geology, plant life, biodiversity and habitat, including such topics as endangered species and global warming.	BCHS ECHS GVHS IHS MHS
Environmental Ag Science #0109 Grades: 10-12	Elective Sci		This course will provide the student with an introduction to ecological principles with an emphasis on earth science, biology, and physics while allowing the student to gain insight into the practical application of these principles with respect to agriculture.	BCHS GVHS
Food Science 1/2 #0937/0947 Grades: 11-12	Elective Sci	G	Course applies fundamental scientific principles to the research, development, manufacturing, packaging, storage, and marketing of food products. This applied, laboratory-based course, which focuses on food processing, is designed to educate students about functional components of foods, food safety, nutrition, sensory evaluation, quality assurance, new product development, food chemistry, food processing and engineering.	AHS LHS
Forensic Science #0485 Grades: 11-12 <i>Recommended: Grade of "C" or better in a one-year life science course and a grade of "C" or better in a one-year physical science course.</i>	Elective Sci	G	In this course, students will be introduced to various facets of the major sciences (Biology, Chemistry, Physics and Earth Science), and how math, English, social studies, 43 psychology, processing skills and technology apply to Forensic Science. Students will analyze evidence in the areas of fingerprinting, blood type, hair, fibers, toxicology, tool marks, DNA analysis, forensic anthropology, ballistics and much more.	AHS BCHS GVHS IHS LHS MHS
Intro to Genetics #0473 Grades: 9-12	Elective Sci	D	Introduction to Genetics - This course is an introductory into genetic principles, inheritance, variation and evolution in plants and animals. This course will include the study of Mendelian genetics, molecular genetics and population genetics. Current research into genetic engineering will also be explored. This course will serve as the first course in a series of four for the Biotechnology pathway students. This science elective will support and enhance the existing science core courses.	ECHS

<p>Marine Biology-Honors #0454 Grades: 11-12 <i>Recommended: Successful completion of Biology and Chemistry or teacher recommendation</i></p>	<p>Elective Sci</p>	<p>D</p>	<p>In this course, students will study ocean life and marine environments. Topics that will be covered include physical and chemical properties of the ocean, the origin of life, taxonomy, the evolution of marine mammals, photosynthesis and respiration, reproduction, ocean biomes, ocean ecology and pollution. Students will investigate the marine ecosystem through lecture, lab, biomes, field trips and snorkeling.</p>	<p>MHS</p>
<p>Microbiology #0474 Grades: 10-12</p>	<p>Elective Sci</p>		<p>Microbiology - This is an introductory course familiarizing students with basic laboratory techniques and fundamental topics of microbiology. Laboratory work includes aseptic techniques, staining procedures, biochemical characterization, serology, and DNA technology used in the identification of microorganisms. Lecture topics consist of a historical overview, genetics, metabolism, cell physiology, growth requirements, immunology, and host-parasite interactions between humans and bacteria, viruses, protozoa, and helminthes. This course will serve as the second course in a series of four for the Biotechnology pathway students. This science course will support and enhance the existing science core courses.</p>	<p>ECHS LHS</p>
<p>ROP Veterinary Science #0984 Grades: 11-12 <i>Recommended: Completion of an Ag Class and advisor approval</i></p>	<p>Elective Sci</p>	<p>G</p>	<p>Veterinary Science is designed to provide students with an opportunity to study the science of veterinary medicine, including animal anatomy and physiology, animal health, nutrition, and cause/prevention of disease. Students will also learn various veterinary laboratory skills, aseptic and surgical procedures, basic radiology, and scientific research and writing skills.</p>	<p>AHS ECHS GVHS LHS MHS</p>
<p>ROP Environmental Horticulture #0951 Grades: 11-12 Articulated with Merced College</p>	<p>Elective Science or Art/WL</p>	<p>G</p>	<p>Horticulture is an applied plant science course that prepares students for careers in the nursery, landscaping, and floral industries. Emphasis is placed on horticultural terminology, plant identification, plant physiology, soil science, plant reproduction, Cal OSHA and labor laws, nursery production, floriculture, integrated pest management, marketing and retail concepts, landscape design, installation, and maintenance</p>	<p>AHS ECHS GVHS MHS</p>
<p>Sierra Nevada Science #0488.1 Grades: 11-12</p>	<p>Elective Sci</p>		<p>This course will be aimed at providing access to outdoor learning experiences in the Sierra Nevada's, particularly, Yosemite National Park</p>	<p>AHS</p>

			and Calaveras Big Trees State Park. Students will be studying the effects of fire on Sequoia trees as well as learning about the fire ecology and its impacts on mixed conifer ecosystems. Students will be exposed to a variety of employment opportunities that exist throughout the national and state park systems as well as those involved in controlling and maintaining fire. Course includes study of climate of the Sierra Nevada's, how it changes throughout the year how climate change has impacted the range. Included will be components of the history of the Sierra Nevada's from the gold rush up to today.	
Social Work and Health Advocacy in Action #2463	Elec Sci	G	Course information can be found at the following website: http://ucci.ucop.edu/integrated-courses/social-work-and-health-advocacy-in-action.html	
Developing Future Mental and Behavioral Health Professionals # 2464	Elec Sci	G	Course information can be found at the following website: http://ucci.ucop.edu/integrated-courses/developing-future-mental-behavioral-health.html	