

SCIENCE COURSES

Course: SC1001A/SC1001B		Biology
Grade: 9-10	All Year	Course offered at: AHS CDO IRHS
Prerequisites: None		
<p>How do we determine if something is alive? Biology is the study of living organisms and their vital processes. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Using hands-on inquiry to investigate the patterns, stability and change in life forms and how they differ from non-life forms • Exploring how living things compete for energy and materials • Investigating theories of how disease, predation, habitat destruction, climate change and invasive species cause living things to change over time • Developing and using models to explain how cells function, communicate, multiply and die • Comparing and contrasting the benefits, detriments and controversies of modern technological advances in genetics and reproduction 		

Course: SC1016A/SC1016B		Honors Biology
Grade: 9	All Year	Course offered at: CDO IRHS
Prerequisites: Algebra I		
<p>How do we determine if something is alive? Biology is the study of living organisms and their vital processes. Students will have the opportunity to investigate topics with more depth and at an accelerated pace as compared to Biology 1001/2001. In this course, students will practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Exploring carbon-based life forms at the cellular level • Becoming acquainted with the field of biotechnology • Examining heredity at the molecular level • Investigating theories of how disease, predation, habitat destruction, climate change and invasive species cause living things to change over time • Practicing in-depth problem-solving and designing authentic experiments • Opportunities to work independently at an accelerated pace <p>This course carries a weighted grade.</p>		

Course: SCl017A/SCl017B		Anatomy and Physiology
Grade: 11-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Two years of science, including Biology, and current science teacher approval required</i>		
<p>This course is for anyone who is interested in learning more about the human body and its many systems, functions and structures. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via</p> <ul style="list-style-type: none"> • Exploring human body structures and functions • Performing dissections of muscles and organs • Exploring the collaboration between bones and muscles • Investigating how body systems maintain homeostasis <p><i>Fee applied to students taking this as a fourth science course.</i></p>		

Course: SCl034A/SCl034B		Astronomy I – Planetary Science
Grade: 11-12	All Year	Course offered at: IRHS
Prerequisites: <i>Completion of two years of science classes and current science teacher approval required</i>		
<p>Astronomy is for anyone who is interested in planets, galaxies, stars cosmology and all things outer space. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Designing experiments to investigate star formations and deaths • Exploring the theories of origin of the universe, galactic formations, worm holes and black holes • Doing projects that investigate deep space science including planets, exoplanets, nebula, quasars and constellations • Making connections between Earth and Space systems and cycles • Comparing the historical and current tools and techniques of astronomy 		

Course: SCl018A/SCl018B		AP Biology
Grade: 11-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Grade of A/B in Chemistry and Biology and teacher recommendation</i>		
<p>This is an accelerated, college-level course. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • An in-depth, accelerated, college-level study of living organisms and their vital processes • Following College Board protocols • Exploring how the relationships between biological systems connect to biodiversity, heredity and evolution • Preparing for success on the AP exam • Practicing independent study skills • For more information on this class, please visit the AP site. <p><i>Fee applied to students taking this as a fourth science course.</i> This course carries a weighted grade.</p>		

Course: CTS137A/JTS137A CTS137B/JTS137B		Bioscience I
Grade: 10-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Biology</i>		
<p>Bioscience/Biotechnology is one of the fastest growing industries in the United States, and there is a thriving bioscience community here in Tucson. This course equips students with technical skills that could lead to an exciting career in bioscience via:</p> <ul style="list-style-type: none"> • Practicing the laboratory skills and techniques necessary to isolate, analyze and identify DNA, proteins, bacteria and enzymes • Gaining authentic, necessary technical skills used in bioscience/biotechnology • Investigating plant-based antibiotics, GMO identification, biofuels and genetic engineering • Applying and practicing collaboration and problem-solving skills <p><i>Dual enrollment with UA's MCB 101 is available.</i></p> <p>This course carries a weighted grade.</p>		Fee required

Course: CTS139A/JTS139A CTS139B/JTS139B		Bioscience II
Grade: 11-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Bioscience I</i>		
<p>Bioscience/Biotechnology is one of the fastest growing industries in the United States, and there is a thriving bioscience community here in Tucson. This course further equips students with technical skills that could lead to an exciting career in bioscience via:</p> <ul style="list-style-type: none"> • Expanding and practicing the techniques learned in Bioscience I • Performing experiments with cellular cloning, DNA bar coding, designing biosensors, plant tissue culturing and more • Designing your own, Independent research project with the guidance of qualified expert(s), conducted in an on/off campus research facility and presenting your findings at a Regional science fair • Exploring off-site research facilities and career opportunities <p><i>Dual enrollment with UA's MCB 102 is available.</i></p> <p>This course carries a weighted grade.</p>		Fee required

Course: SC1003A/SC1003B		Chemistry
Grade: 10-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Concurrent enrollment in Algebra II preferred; current science teacher approval required</i>		
<p>Chemistry is the study of the behaviors and characteristics of matter- and matter is what makes up all things, both living and non-living. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Developing and using models to explore atomic structure • Investigating chemical reactions, conservation of matter, gas laws, chemical bonding and acid-base characteristics • Investigating phenomena through analytical laboratory experiments • Evaluating how the use of chemistry-related technologies have impacted societies ethically, socially, politically and economically • Practicing laboratory skills and accuracy goals <p><i>Fee applied to students taking this as a fourth science course.</i></p>		

Course: SC1014A/SC1014B		Honors Chemistry
Grade: 11	All Year	Course offered at: IRHS
Prerequisites: <i>Concurrent enrollment in Pre-Calculus or above; successful completion of Physics or Honors Physics; teacher recommendation required</i>		
<p>Chemistry is the study of the behaviors and characteristics of matter- and matter is what makes up all things, both living and non-living. Students will have the opportunity to investigate topics with more depth and at an accelerated pace as compared to Chemistry 1003/2003. This Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Opportunities to work independently at an accelerated pace • Preparing for success in AP Chemistry • Developing and using models to explore atomic structure • Investigating chemical reactions, conservation of matter, gas laws, chemical bonding and acid-base characteristics • Investigating phenomena through analytical laboratory experiments • Practicing laboratory skills and accuracy goals <p>This course carries a weighted grade.</p>		Fee required

Course: SCl019A/SCl019B		AP Chemistry	
Grade: 10-12	All Year	Course offered at: CDO IRHS	
Prerequisites: <i>Grade of A/B in Biology and Geometry; concurrent enrollment in Algebra II or above; current science teacher approval required</i>			
<p>This is an accelerated, college-level course. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • An in-depth, accelerated, college-level study of the behaviors and characteristics of matter • Following College Board protocols • Exploring how atomic theory connects to stoichiometry, gas laws, valence bonding, thermodynamics, qualitative analysis and more • Preparing for success on the AP exam • Practicing independent study skills • At CDO, this course combines Honors Chemistry and AP Chemistry into a one-year, two-credit course • For more information on this class, please visit the AP site. <p><i>Fee applied to students taking this as a fourth science course.</i> This course carries a weighted grade.</p>			Fee required

Course: SCl030A/SCl030B		Earth & Space Science	
Grade: 10-12	All Year	Course offered at: CDO	
Prerequisites: <i>Biology</i>			
<p>This course is for anyone who is interested in learning more about the interconnections between land, oceans and the atmosphere that continuously shape, influence and sustain Earth and its inhabitants. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Exploring Earth’s dynamic systems of atmosphere, hydrosphere, biosphere and geosphere • Investigating plate tectonics, the formation of rocks and minerals and forces that shape our planet • Evaluating how climate affects Earth’s resources • Making connections between outer space and Earth’s systems <p><i>Fee applied to students taking this as a fourth science course.</i></p>			

Course: SClo31A/SClo31B		Environmental Science
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Current science teacher approval required</i>		
<p>This course is for anyone who is interested in learning more about the interconnections between humans and our Earth. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Exploring the relationship between humans and our planet Earth through the perspectives of Biology, Earth Science, Chemistry, Math, History, Philosophy, Sociology and Law • Investigating the interrelationships of the natural world • Analyzing past and current environmental problems • Evaluating risks of potential solutions to environmental problems <p><i>Fee applied to students taking this as a fourth science course.</i></p>		

Course: SClo20A/SClo20B		AP Environmental Science
Grade: 11-12	All Year	Course offered at: AHS
Prerequisites: <i>Biology and a Physical Science (Physics, Chemistry, Environmental Science or Earth/Geoscience) and current science teacher approval required</i>		
<p>This is an accelerated, college-level course. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • An in-depth, accelerated, college-level study of the interactions between humans and our Earth • Following College Board protocols • Exploring land and water use, pollution, global climate change, energy resources and species extinction • Preparing for success on the AP exam • Practicing independent study skills • For more information on this class, please visit the AP site. <p><i>Fee applied to students taking this as a fourth science course.</i> This course carries a weighted grade.</p>		

Course: SClo06B		Forensics
Grade: 10-12	Semester	Course offered at: AHS
Prerequisites: <i>Biology, Physics, Chemistry or instructor approval</i>		
<p>Forensics is for anyone interested in the science of solving crimes. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Learning how to investigate a crime scene for evidence • Practicing modern techniques to solve a crime • Exploring the current disciplines and career opportunities contained within Forensic Science <p><i>Fee applied to students taking this as a fourth science course.</i></p>		

Course: SC1007A/SC1007B		Geosciences
Grade: 9-12	All Year	Course offered at: AHS
Prerequisites: None		
<p>Geoscience is for anyone interested in learning more about the origins and unique characteristics of our Earth. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Performing hands-on investigations of Earth’s origins and pre-human environments • Exploring Earth’s most dangerous locations and natural disasters • Investigating technological tools for natural disaster detection and prevention • Analyzing risk factors for Earth’s most populated regions • Combining astronomy, geology, volcanology and seismology to analyze Earth and its continents 		

Course: SC1010A		Oceanography
Grade: 10-12	Semester	Course offered at: AHS
Prerequisites: At least one credit of high school science		
<p>Oceanography is for anyone interested in learning more about our Earth’s oceans. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Exploring recent discoveries of the deep sea floor • Performing laboratory experiments to Investigate multiple characteristics of the ocean, including marine life, tides, currents, pressure, salinity and topography • Examining current topics in ocean research 		

Course: SC1011A/SC1011B		Conceptual Physics
Grade: 10-12	All Year	Course offered at: IRHS
Prerequisites: Successful completion of Biology		
<p>Physics is all around you: It’s embedded within your five senses and helps you to understand how energy, forces and motion influence how the universe behaves. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Exploring how physics concepts connect to the everyday world • Performing hands-on experiments to investigate mechanics, energy, electricity, magnetism, waves and optics • Receiving additional support with mathematics, for improved understanding of physics concepts and enhancement of skills 		

Course: SCl012A/SCl012B		Physics
Grade: 9-12	All Year	Course offered at: AHS CDO IRHS
Prerequisites: <i>Grade of "C" or better in Algebra I and current science teacher approval required</i>		
<p>Physics is all around you: It's embedded within your five senses and helps you to understand how energy, forces and motion influence how the universe behaves. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Exploring how physics concepts connect to the everyday world • Performing hands-on experiments to investigate energy, electricity, magnetism, waves, optics, mechanics and kinematics • Developing and use models to explore Newton's Laws of Motion 		

Course: SCl015A/SCl015B		Honors Physics
Grade: 10-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Grade of A/B in Geometry and concurrent enrollment in Algebra II or higher and current science teacher approval required</i>		
<p>Physics is all around you: It's embedded within your five senses and helps you to understand how energy, forces and motion influence how the universe behaves. Students will have the opportunity to investigate topics with more depth and at an accelerated pace as compared to Physics 10012/20012. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via:</p> <ul style="list-style-type: none"> • Opportunities to work independently at an accelerated pace • Preparing for success in AP Physics • Performing hands-on experiments to investigate energy, electricity, magnetism, waves, optics, mechanics and kinematics • Designing and implementing experiments and interpreting results using high-level math skills <p>This course carries a weighted grade.</p>		

Course: SCl021A/SCl021B		AP Physics I
Grade: 10-12	All Year	Course offered at: AHS
Prerequisites: <i>Concurrent enrollment in (or completion of) Algebra II and current science teacher approval required</i>		
<p>This is an accelerated, college-level course. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via</p> <ul style="list-style-type: none"> • An in-depth, accelerated, algebra-based, college-level investigation of physics concepts • Following College Board protocols • Exploring mechanics, work, energy, power and waves • Preparing for success on the AP exam • Practicing independent study skills • For more information on this class, please visit the AP site. <p><i>Fee applied to students taking this as a fourth science course.</i></p> <p>This course carries a weighted grade.</p>		

Course: SClo23A/SClo23B		AP Physics C: Mechanics
Grade: 11-12	All Year	Course offered at: CDO IRHS
Prerequisites: <i>Concurrent enrollment in (or completion of) Calculus and current science teacher approval required</i>		
<p>This is an accelerated, college-level course. Students will have the opportunity practice critical thinking, problem-solving, collaboration and communication via</p> <ul style="list-style-type: none"> • An in-depth, accelerated, calculus-based, college-level investigation of physics concepts • Following College Board protocols • Exploring forces and motion, work, energy, momentum, vectors and gravity • Preparing for success on the AP exam • Practicing independent study skills • For more information on this class, please visit the AP site. <p><i>Fee applied to students taking this as a fourth science course.</i></p> <p>This course carries a weighted grade.</p>		