

Science Courses

Science

Course Name	Credits	Grade Levels	Prerequisites
Integrated Physics and Chemistry	1	9-10	None
Biology	1	9-11	None
Biology Honors	1	9-11	None
Chemistry	1	10-12	<i>Required:</i> One science and Algebra I <i>Recommended:</i> 2 nd year math credit or co-requisite
Chemistry Honors	1	10-12	<i>Required:</i> One science and Algebra I <i>Recommended:</i> 2 nd year math credit or co-requisite
Physics	1	9-12	Algebra I
Sheltered Science: IPC, Biology, Chemistry, Physics	1	9-12	<i>Required:</i> Language Proficiency Test and/or LPAC recommendation
<i>Engineering Science</i>	1	10-12	<i>Recommended:</i> Introduction to Engineering Design, Algebra I, and Biology
Advanced Science Courses			
AP Biology	1	10-12	<i>Recommended:</i> Biology and Chemistry
AP Chemistry	1	11-12	<i>Recommended:</i> Chemistry and Algebra II
Dual Chemistry: UT OnRamps	1	10-12	Algebra I
AP Physics I	1	10-12	<i>Recommended:</i> Algebra I and Geometry <i>Corequisite:</i> Algebra II
Dual Physics: UT OnRamps	1	10-12	<i>Required:</i> Algebra I and Geometry <i>Recommended:</i> Algebra II and Precalculus
AP Physics II	1	11-12	<i>Recommended:</i> Physics and concurrent Precalculus
AP Physics C: Electricity and Magnetism	1	11-12	Physics and concurrent Calculus
AP Physics C: Mechanics	1	11-12	Physics and concurrent Calculus
AP Environmental Science	1	11-12	<i>Recommended:</i> Biology, physical science, and Algebra I
<i>Advanced Animal Science</i>	1	11-12	Algebra I, Geometry, Biology, Chemistry or IPC, Veterinary Medical Applications
<i>Advanced Animal Science Honors</i>	1	11-12	Algebra I, Geometry, Biology, Chemistry or IPC, Veterinary Medical Applications
Anatomy and Physiology	1	10-12	Biology and second science credit

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Anatomy and Physiology Honors	1	10-12	Biology and second science credit
Aquatic Science	1	10-12	<i>Required:</i> Biology <i>Recommended:</i> Chemistry or concurrent enrollment
Astronomy	1	11-12	One credit of science
Environmental Systems	1	11-12	Biology and one credit of a physical science
<i>Engineering Design and Problem-Solving Honors</i>	1	12	3 credits of Engineering courses
Forensic Science	1	11-12	Biology, Chemistry
Medical Microbiology	1	11-12	Biology and Chemistry
Medical Microbiology Honors	1	11-12	Biology and Chemistry
Pathophysiology	1	11-12	Biology and Chemistry
Pathophysiology Honors	1	11-12	Biology and Chemistry
<i>Scientific Research & Design: Unmanned Aerial Vehicles</i>	1	11-12	Engineering Science
<i>Scientific Research & Design: Veterinary Clinical Skills</i>	1	11-12	Principles of Agriculture, Food, and Natural Resources; Biology, Chemistry, IPC, or Physics
<i>Scientific Research & Design: Veterinary Clinical Skills Honors</i>	1	11-12	Principles of Agriculture, Food, and Natural Resources; Biology, Chemistry, IPC, or Physics

Italicized courses in the chart above are to be taken as part of a CTE pathway only**

Special Education Science Courses			
Basic Integrated Physics and Chemistry	1	9	ARD Decision
Basic Biology	1	10	ARD Decision
Basic Chemistry	1	11	ARD Decision
Basic Aquatic Science	1	10-12	ARD Decision
Basic Principles of Technology	1	10-12	ARD Decision
Fundamentals of Integrated Physics and Chemistry	1	9	ARD Decision
Fundamentals of Biology	1	10	ARD Decision
Fundamentals of Chemistry	1	11	ARD Decision

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<i>Recommended Science Sequence</i>				
	9 th Grade	10 th Grade	11 th Grade	12 th Grade
4 Credits			Physics	
			Or	
	Biology	Chemistry	AP Physics	
	Or	Or	Or	
	Biology Honors	Chemistry Honors	3 rd Science	4 th Science

Integrated Physics and Chemistry (IPC)

TEDS: 03060201

KISD: 3003/C3003

Credit: 1

Grade: 9-10

Prerequisite: None

In Integrated Physics and Chemistry, students conduct laboratory and field investigations, use scientific practices during investigation, and make informed decisions using critical thinking and scientific problem solving. This course integrates the disciplines of physics and chemistry in the following topics: force, motion, energy, and matter.

Biology

TEDS: 03010200

KISD: 3103/C3103

Credit: 1

Grade: 9-10

Prerequisite: None

Biology is a course designed around the study of living things. Students will study a variety of topics that include structures and functions of cells and viruses, growth and development of organisms, cells, tissues and organs, nucleic acids and genetics, biological evolution, metabolism and energy transfers in living organisms, living systems, homeostasis, ecosystems and the environment.

Biology Honors

TEDS: 03010200

KISD: 3113

Credit: 1

Grade: 9-10

Prerequisite: None

Biology Honors is a comprehensive study of biology, ecology, evolution, biochemical pathways, organic and biochemistry, cell biology, genetics, molecular biology, homeostasis and human body systems. Students will be expected to show commitment to the Honors curriculum and be motivated to utilize higher level thinking skills. The course will include a more rigorous study of biological

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concepts. Honors students should expect to continue in the AP program with a goal of taking AP Biology.

AP Biology

TEDS: A3010200

KISD: 3123

Credit: 1

Grade: 10-12

Prerequisite: Biology and Chemistry

This course is a comprehensive study of advanced biology designed to prepare students to take the AP Biology Exam. The class covers material a student would encounter in a freshman level college biology class. Special emphasis will be placed on the principles and processes of biology along with understanding how biological information is collected and interpreted. The content of the course will meet College Board standards. **AP students prepare to take the Advanced Placement Exam in May for possible college credit.**

Chemistry

TEDS: 03040000

KISD: 3303/C3303

Credit: 1

Grade: 10-12

Prerequisite: Biology (or one science) and Algebra I

In Chemistry, students conduct laboratory and field investigations, use scientific practices during investigation, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include characteristics of matter, use of The Periodic Table, development of atomic theory and chemical bonding, chemical stoichiometry, gas laws, solution chemistry, thermochemistry, and nuclear chemistry. Students will investigate how chemistry is an integral part of our daily lives.

Chemistry Honors

TEDS: 03040000

KISD: 3313

Credit: 1

Grade: 10-12

Prerequisite: Biology (or one science) and Algebra I

Chemistry Honors is a comprehensive study of chemistry, properties of matter, atomic structure and its history, electron configurations, periodic table characteristics and trends, chemical bonding, gas laws, nomenclature of compounds, moles, chemical reactions, stoichiometry, aqueous mixtures, acid/bases and neutralization reactions. The course will be lab based and students will be asked to analyze and evaluate data from lab investigation. Chemistry Honors covers additional rigorous College Board topics that require critical thinking and a higher level of math skills, such as solving equations for variables, exponential and mathematical abstraction. Students should expect a challenging college preparatory curriculum with the goal of taking AP Chemistry.

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AP Chemistry

TEDS: A3040000

KISD: 3333

Credit: 1

Grade: 11-12

Recommended prerequisite: Chemistry and Algebra II

This course is a comprehensive study of advanced chemistry designed to prepare students to take the AP Chemistry Exam. The class covers most of the material a student would encounter in a freshman level college chemistry course. Special emphasis is placed on atomic structure and bonding, thermochemistry, kinetics, equilibrium and electrochemistry. The content of the course will meet College Board standards. **AP students prepare to take the Advanced Placement Exam in May for possible college credit.**

Dual Chemistry: UT OnRamps

TEDS: 03040000

KISD: 33236

Credits: 1

Grade: 10-12

Prerequisite: Algebra I

Principles of Chemistry I address the nature of matter, energy, chemical reactions, and chemical thermodynamics. The course reviews descriptive chemistry of matter in the natural world as well as compositional and reaction stoichiometry of chemical compounds. Throughout the course, students learn to think like scientists by exploring the underlying theoretical foundations of chemistry, making intuitive arguments for how the world works, and supporting those arguments with quantitative measures. Built with an intention to engage students from a variety of backgrounds, students in the course will learn how to successfully study science by organizing their learning around mastery and ownership of materials. Introduction to Chemical Practices I, the course's lab component, provides an introduction to the techniques of modern experimental chemistry, and is designed to instill basic laboratory and analytical skills. *This course receives AP weight for the class of 2025 and beyond.*

Physics

TEDS: 03050000

KISD: 3403

Credit: 1

Grade: 9-12

Prerequisite: Algebra I

Physics is designed to provide a laboratory-oriented approach to the study of matter and energy. Students are introduced to fundamental concepts in the areas of mechanics, light, sound, heat, electricity, magnetism, forces, energy, momentum, waves and nuclear phenomena. Student investigations emphasize accurate observations, collection of data, analysis of data, and the safe manipulation of laboratory apparatus and materials.

AP Physics I

TEDS: A3050003

KISD: 3443

Credit: 1

Grade: 10-12

Prerequisite: Algebra I and Geometry

Corequisite: Algebra II

Algebra-Based is the equivalent to a first-semester college course in algebra-based physics. The course covers Newtonian mechanics (including rotational dynamics and angular momentum); work, energy, and power; and mechanical waves and sound. It will also introduce electric circuits. **AP students prepare to take the Advanced Placement Exam in May for possible college credit.**

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Dual Physics: UT OnRamps

TEDS: 03050000

KISD: 34246

Credit: 1

Grade: 10-12

Prerequisite: Algebra I and Geometry

Recommended prerequisite: Algebra II and Precalculus

Mechanics, Heat, and Sound introduces big ideas in physics, such as Newtonian mechanics, which describes objects changing their state of motion because of forces causing them to accelerate. Taken together, the topics reinforce the general idea that the behavior of many objects in the world can be described precisely with simple mathematics. This is an algebra-based (non-calculus) course in mechanics that fulfills a general physics requirement. Proficiency in algebra and geometry is assumed. Students will practice problem-solving and analyzing physical situations involving motion, force, energy, rotations, heat, oscillations, waves, and sound. Students will explore concepts in small groups, develop ideas, and explain them. This course lays the groundwork for college majors including engineering, physics, chemistry, or math. This course may be used to fulfill the science component of the university core curriculum. *This course receives AP weight for the class of 2025 and beyond.*

AP Physics C: Electricity and Magnetism

TEDS: A3050005

KISD: 3435

Credit: 1

Grade: 11-12

Prerequisite: Physics, Algebra I, Geometry, Algebra II, concurrent Calculus

AP Physics C: Electricity and Magnetism is calculus-based, appropriate for students planning to specialize or major in physical science or engineering. The course explores topics such as electrostatics; conductors, capacitors, and dielectrics; electric circuits; magnetic fields; and electromagnetism. Introductory differential and integral calculus are used throughout the course. The course should prepare students for successful completion of the AP Physics C Exam. The content of the course will meet College Board standards. **AP students prepare to take the Advanced Placement Exam in May for possible college credit.**

AP Physics C: Mechanics

TEDS: A3050006

KISD: 3434

Credit: 1

Grade: 11-12

Prerequisite: Physics, Algebra I, Geometry, Algebra II, concurrent Calculus

AP Physics C: Mechanics is calculus-based, appropriate for students planning to specialize in or major in physical science or engineering. The course explores topics such as kinematics; Newton's laws of motion; work, energy, and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Introductory differential and integral calculus is used throughout the course. The course should prepare students for successful completion of the AP Physics C Exam. The content of the course will meet College Board standards. **AP students prepare to take the Advanced Placement Exam in May for possible college credit.**

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Anatomy and Physiology

TEDS: 13020600

KISD: 3203

Credit: 1

Grade: 10-12

Prerequisite: Biology and a second science credit

This course offers a comprehensive study of the structures and functions of the human body. It will include dissections and the study of the organization of organs and organ systems. Students will utilize critical thinking skills and scientific problem solving as they conduct lab investigations. To receive credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum). Class is taught at all the main campuses and at the Keller Center for Advanced Learning.

Anatomy and Physiology Honors

TEDS: 13020600

KISD: 3204

Credit: 1

Grade: 10-12

Prerequisite: Biology and a second science credit

This course offers a comprehensive study of the structures and functions of the human body. It will include dissections and the study of the organization of organs and organ systems. Students will utilize critical thinking skills and scientific problem-solving as they conduct lab investigations. To receive credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum). Students will be expected to show commitment to the Honors curriculum and be motivated to utilize higher-level thinking skills. The course will also include special projects and a more in-depth study. This course receives Honors weight for the class of 2025 and beyond.

Aquatic Science

TEDS: 03030000

KISD: 3513/C3513

Credit: 1

Grade: 10-12

Prerequisite: Biology

Suggested: Previous or concurrent Chemistry

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In Aquatic Science, students study the interactions of biotic and abiotic components in aquatic environments, including impacts on aquatic systems. Investigations and fieldwork in this course may emphasize fresh water or marine aspects of aquatic science depending primarily upon the natural resources available for study near the school. Students who successfully complete Aquatic Science will acquire knowledge about a variety of aquatic systems, conduct investigations and observations of aquatic environments, work collaboratively with peers, and develop critical thinking and problem-solving skills.

Astronomy

TEDS: 03060100

KISD: 3503

Credit: 1

Grade: 11-12

Prerequisite: One credit of science

In Astronomy, students will acquire knowledge within a conceptual framework, conduct observations of the sky, work collaboratively, and develop critical thinking skills. Students study the following topics: astronomy in civilization, patterns and objects in the sky, our place in space, the moon, reason for the seasons, planets, the sun, stars, galaxies, cosmology, and space exploration.

AP Environmental Science

TEDS: A3020000

KISD: 3543

Credit: 1

Grade: 11-12

Prerequisite: Biology, physical science, Algebra I

This course is designed to provide students with the scientific principles, concepts, and methodologies required to understand the inter-relationships 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 and/or preventing environmental problems. **AP students prepare to take the Advanced Placement Exam in May for possible college credit.**

Environmental Systems

TEDS: 03020000

KISD: 3533/C3533

Credit: 1

Grade: 11-12

Prerequisite: Biology and a physical science

Students will conduct field and laboratory investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Students will study a variety of topics that include biotic and abiotic factors in habitats, ecosystems and biomes, interrelationships among resources and an environmental system, sources and flow of energy through an environmental system, relationship between carrying capacity and changes in populations and ecosystems, and changes in environments.

Forensic Science

TEDS: 13029500

KISD: 82420

Credit: 1

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Grade: 11-12

Prerequisite: Biology and Chemistry

Forensic Science is a course that uses a structured and scientific approach to the investigation of crimes of assault, abuse and neglect, domestic violence, accidental death, homicide, and the psychology of criminal behavior. Students will learn terminology and investigative procedures related to crime scene, questioning, interviewing, criminal behavior characteristics, truth detection, and scientific procedures used to solve crimes. Using scientific methods, students will collect and analyze evidence through case studies and simulated crime scenes such as fingerprint analysis, ballistics, and blood spatter analysis. Students will learn the history, legal aspects, and career options for forensic science. Class is taught at all the main campuses and at the Keller Center for Advanced Learning.

Medical Microbiology

TEDS: 13020700

KISD: 81821

Credit: 1

Honors: 82821

Grade: 11-12

Prerequisite: Biology and Chemistry

This science elective course is designed to explore medical based microbiology. The student will discover relationships between microbes and health maintenance as well as the role of microbes in infectious diseases. To receive credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum). Class is taught at the Keller Center for Advanced Learning and counts for a science credit.

Pathophysiology

TEDS: 13020800

KISD: 81822

Credit: 1

Grade: 11-12

Prerequisite: Biology and Chemistry

In this course students conduct laboratory investigations and fieldwork, use scientific methods during investigations, and make informed decisions using critical thinking and problem solving. Students study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of diseases. Students will differentiate between normal and abnormal physiology. To receive credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum). Class is taught at the Keller Center for Advanced Learning. This course counts as a science credit.

Pathophysiology Honors

TEDS: 13020800

KISD: 82822

Credit: 1

Grade: 11-12

Prerequisite: Biology and Chemistry

In this course, students conduct laboratory investigations and fieldwork, use scientific methods during investigations, and make informed decisions using critical thinking and problem-solving. Students study disease processes and how humans are affected. Emphasis is placed on the prevention and treatment of diseases. Students will differentiate between normal and abnormal physiology. To receive

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credit in science, students must meet the 40% laboratory and fieldwork requirement identified in §74.3(b)(2)(C) of this title (relating to Description of a Required Secondary Curriculum). This course counts as a science credit. Students will be expected to show commitment to the Honors curriculum and be motivated to utilize higher-level thinking skills. The course will also include special projects and a more in-depth study of pathophysiology concepts. This course counts as a weighted science credit and receives Honors weight for the class of 2025 and beyond.

Basic Integrated Physics and Chemistry

TEDS: 03060201

KISD: M3003

Credit: 1

Grade: 9-12

Prerequisite: ARD decision

This course meets the requirements of students by focusing on Recommended Prerequisite skills for the grade level of Integrated Physics and Chemistry (IPC) TEKS. In Integrated Physics and Chemistry, students conduct field and laboratory investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. This course integrates the disciplines of physics and chemistry with the following topics: force, motion, energy, and matter.

Basic Biology

TEDS: 03010200

KISD: M3103

Credit: 1

Grade: 9-12

Prerequisite: ARD decision

This course meets the individual learning requirements of students by focusing on Recommended Prerequisite skills for the grade level Biology TEKS. The course may cover cell structure and function of systems in organisms, scientific processes and basic concepts of biochemistry, genetics, microbiology, botany, physiology, and zoology. Some variation in course content/emphasis may occur on campus depending on the individual learning needs of the students.

Basic Chemistry

TEDS: 03040000

KISD: M3303

Credit: 1

Grade: 9-12

Prerequisite: ARD decision

This course uses modified/ co-teach Chemistry content to meet the individual learning requirements of students. Students conduct laboratory and field investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include characteristics of matter, use of The Periodic Table, development of atomic theory and chemical bonding, chemical stoichiometry, gas laws, solution chemistry, thermochemistry, and nuclear chemistry. Students will investigate how chemistry is an integral part of our daily lives. Some variation in course content/emphasis may occur on campus depending on the individual learning needs of the students.

Basic Aquatic Science

TEDS: 03030000

KISD: M3513

Credit: 1

Grade: 10-12

Prerequisite: Biology and ARD decision

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This course meets the individual learning requirements of students by focusing on the Recommended Prerequisite skills for the grade level Algebraic Reasoning TEKS. Some variation in course content/emphasis may occur on campus depending on the individual learning needs of the students. In Aquatic Science, students study the interactions of biotic and abiotic components in aquatic environments, including impacts on aquatic systems. Investigations and fieldwork in the course may emphasize fresh water or marine aspects of aquatic science depending primarily upon the natural resources available for students near the school. Student who successfully complete Aquatic Science will acquire knowledge about a variety of aquatic systems, conduct investigations and observations of aquatic environments, work collaboratively with peers, and develop critical thinking and problem-solving skills.

Basic Principles of Technology

TEDS: 13037100

KISD: M8266

Credit: 1

Grade: 10-12

Prerequisite: ARD decision

This course meets the individual learning requirements of students by focusing on the Recommended Prerequisite skills for the grade level Algebraic Reasoning TEKS. Some variation in course content/emphasis may occur on campus depending on the individual learning needs of the students. In Principles of Technology, students conduct laboratory and field investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Various systems will be described in terms of space, time, energy, and matter. Students will study a variety of topics that include laws of motion, conservation of energy, momentum, electricity, magnetism, thermodynamics, and characteristics of behavior of waves.

Fundamentals of Integrated Physics and Chemistry

TEDS: 03060201

KISD: T3003

Credit: 1

Grade: 9-12

Prerequisite: ARD decision

This course meets the requirements of students by focusing on Recommended Prerequisite skills for the grade level of Integrated Physics and Chemistry (IPC) TEKS. In Integrated Physics and Chemistry, students conduct field and laboratory investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. This course integrates the disciplines of physics and chemistry with the following topics: force, motion, energy, and matter.

Fundamentals of Biology

TEDS: 03010207

KISD: T3103

Credit: 1

Grade: 9-12

Prerequisite: ARD decision

This course meets the individual learning requirements of students by focusing on Recommended Prerequisite skills for the grade level Biology TEKS. The course may cover cell structure and function of systems in organisms, scientific processes and basic concepts of biochemistry, genetics, microbiology, botany, physiology, and zoology. Some variation in course content/emphasis may occur on campus depending on the individual learning needs of the students.

Fundamentals of Chemistry

TEDS: 03040000

KISD: T3303

Credit: 1

Science Courses

Grade: 9-12

Prerequisite: ARD decision

This course uses alternate Chemistry content to meet the individual learning requirements of students. Students conduct laboratory and field investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Students study a variety of topics that include characteristics of matter, use of The Periodic Table, development of atomic theory and chemical bonding, chemical stoichiometry, gas laws, solution chemistry, thermochemistry, and nuclear chemistry. Students will investigate how chemistry is an integral part of our daily lives. Some variation in course content/emphasis may occur on campus depending on the individual learning needs of the students.