

Science Courses and Descriptions

Graduation Requirement: Biology, Chemistry or Physics, and 3rd lab science course

- Advanced Placement science courses, including Advanced Placement Computer Science, may count as a third lab science.
- Dual Enrollment science courses may count for third lab science.
- *CTE Course Substitutions for a third lab course
 - SDC: Introduction to Plant Science
 - Agriscience
 - Engineering Design 1
 - Engineering Design 2
 - Human Anatomy & Physiology
 - Veterinary Science
 - Plant & Soil Science

Biology I (G03H03)

Biology is the study of living organisms. Students will investigate the following: molecules to organisms, ecosystems, heredity, and biological change.

- Grade Level: 9-12
- Prerequisite: NA
- Minimum Credit: 1
- Maximum Credit: 1

Honors Biology I (G03H03H)

This is a more in-depth study of topics presented in biology. Students will be asked to integrate scientific facts into abstract processes

- Grade Level: 9-10
- Prerequisite: NA
- Minimum Credit: 1
- Maximum Credit: 1

Biology IA & Biology IB (G03H06/G03H07)

This two year course sequence introduces students with qualifying disabilities to the world of living things, including basic life processes at the molecular, cellular, systemic, organisms, and ecological levels of organizations within the biosphere.

- Grade Level: 9, 10
- Prerequisite: Must be approved by IEP team
- Minimum Credit: 1 per course
- Maximum Credit: 1 per course

Regular Biology II (G03H09)

The academic standards for high school Biology II are built on the foundation provided by Biology I.

- Grade Level: 10, 11, 12
- Prerequisite: Biology I

- Minimum Credit: 1
- Maximum Credit: 1

AP Biology (G03H10) (through AP Access for All)

AP Biology is designed to be the equivalent of a college introductory biology course usually taken by biology majors.

- Grade Level: 10, 11, 12
- Prerequisite: Biology, Algebra 1, and Chemistry (concurrent and teacher approval)
- Minimum Credit: 1
- Maximum Credit: 1

*This course counts as an EPSO if students successfully complete the course and attempt the exam.

Chemistry I (G03H12)

Chemistry I is a course that explores the properties of substances and the changes that substances undergo. Topics concentrate on four main areas: matter, motion & stability, energy, and waves.

- Grade Level: 10, 11, 12
- **Prerequisite: Algebra I**
- Minimum Credit: 1
- Maximum Credit: 1

Honors Chemistry I (G03H12H)

Chemistry I Honors is a more in depth, faster paced course that explores the properties of substances and the changes that substances undergo. Topics concentrate on four main areas: matter, motion & stability, energy, and waves.

- Grade Level: 10, 11, 12
- **Prerequisite: Algebra I**
- Minimum Credit: 1
- Maximum Credit: 1

AP Environmental Science (G03H25) (through AP access for all)

The goal of the AP Environmental Science lab course is to be the equivalent of the general college-level environmental science course.

- Grade Level: 11, 12
- Prerequisite: Biology, Chemistry, Algebra 1
- Minimum Credit: 1
- Maximum Credit: 1

*This course counts as an EPSO if students successfully complete the course and attempt the exam.

Physical Science (G03H00)

In this lab science, students learn waves, motion & stability, energy, and matter.

- Grade Level: 9, 10, 11, 12
- Prerequisite: NA
- Minimum Credit: 1
- Maximum Credit: 1

Honors Physics I (G3H20H)

Honors Physics is an advanced study of waves, motion & stability, energy, and matter.

- Grade Level: 10, 11, 12
- Prerequisite: Biology, Algebra I, Geometry, Algebra II concurrently

- Minimum Credit: 1
- Maximum Credit: 1

AP Physics 1 (G03H27) (through AP Access for all)

Physics 1 AP is designed to be the equivalent of the general college-level physics course.

- Grade Level: 10, 11, 12
- Prerequisite: Biology, Algebra I, Geometry, Algebra II
- Minimum Credit: 1
- Maximum Credit: 1

*This course counts as an EPSO if students successfully complete the course and attempt the exam.

Science Elective Courses

Preparing for ACT, Postsecondary, & Career (G25H00)

This course provides students with the skills and competencies needed to be successful on the ACT. Students will become familiar with the format and the scoring of the ACT, learn test-taking skills, and receive individualized instruction to improve scores.

- Grade Level: 11, 12
- Prerequisite: Algebra I, Geometry
- Minimum Credit: .5
- Maximum Credit: 1

CTE Courses for Science Credit

Agriculture, Food, and Natural Resources

Agriscience (C18H19)

This is an introductory laboratory science course that prepares students for biology, subsequent science and agriculture courses, and postsecondary study. It serves as the first course for all programs of study in the Agriculture, Food, and Natural Resources Cluster. The content area covers ecology, biological processes, sexual and asexual reproduction, and the study of the chemical and physical laws that govern life. This course helps students understand the important role science serves as the agricultural industry advances to meet the challenges of the 21st century.

- Grade Level: 9,10
- Prerequisite: NA
- Minimum Credit: 1
- Maximum Credit: 1

Veterinary Science (C18H21)

Veterinary Science is an advanced, fourth-level lab science course in animal science and animal care for students interested in learning more about becoming a veterinarian, vet tech, vet assistant, or pursuing a variety of scientific, health, or agriculture professions. This course covers principles of health and disease, basic animal care and nursing, clinical and laboratory procedures, and additional industry-related career and leadership knowledge and skills. This is a capstone course and all prerequisites must be met in order for students to qualify from the Tennessee Specific Industry Certification-Animal Science certification test. This test if successfully passed will earn both an Industry Certification and Dual Credit in the Introduction Animal Science course.

- Grade Level: 12
- Prerequisite: Agriscience, Small Animal Science, and Large Animal Science

- Minimum Credit: 1
- Maximum Credit: 1

*This course counts as an EPSO if students successfully complete the course and earn a passing score on the industry certification assessment.

Plant and Soil Science (C18H15)

This course is an applied-knowledge course focusing on the science and management of plants and soils, with special attention given to current agricultural practices that support the healthy and sustainable cultivation of major crops. Upon completion of this course, proficient students will have been exposed to a range of careers associated with the science and management of plants and soils and will have developed the essential skills and knowledge to be successful in science- or agriculture-related occupations.

- Grade Level 11, 12
- Prerequisite: Applied Environmental Science
- Minimum Credit: 1
- Maximum Credit: 1

Statewide Dual Credit Introduction to Plant Science (C18H09)

This lab science course provides an in-depth study of topics to prepare students to be successful in all plant science-based careers. Topics covered include plant anatomy, reproduction, classifications, nutrition, and pest management. Greenhouse structures and production techniques are also covered. All students enrolled in a statewide dual credit course take the online challenge exam, which is used to assess mastery of the postsecondary-level learning objectives. Students which meet or exceed the exam 'cut score' receive college credit that can be applied to any Tennessee public postsecondary institution. Exam scores are reported on the high school transcript to ensure postsecondary credit is accurately awarded but are not used in any state accountability measures.

- Grade Level: 11, 12
- Prerequisite: Agriscience and Principles of Plant Science & Hydroculture
- Minimum Credit: 1
- Maximum Credit: 1

STEM

Level 2 - C21H05H Honors Engineering Design I

- **1 credit, prerequisite(s): Principles of Engineering & Technology**
- Engineering Design I is a fundamental course in the STEM cluster for students interested in developing their skills in preparation for careers in engineering and technology. The course covers essential knowledge, skills, and concepts required for postsecondary engineering and technology fields of study. Upon completion of this course, proficient students are able to describe various engineering disciplines, as well as admissions requirements for postsecondary engineering and engineering technology programs in Tennessee. They will also be able to identify simple and complex machines; calculate various ratios related to mechanisms; explain fundamental concepts related to energy; understand Ohm's Law; follow the steps in the engineering design process to complete a team project; and effectively communicate design solutions to others.

Level 3 - C21H06H Honors Engineering Design II

- **1 credit, prerequisite(s): Principles of Engineering & Technology, Engineering Design I**
- **Satisfies lab science credit for graduation requirement**
- **EPSO: Solid Works Industry Certification**
- Engineering Design II is an applied course in the STEM career cluster for students interested in further developing their skills as future engineers. This course covers the knowledge, skills, and concepts required for postsecondary engineering and technology fields of study. Upon completion of this course, proficient students are able to explain the differences between scientists and engineers, understand the importance of ethical practices in engineering and technology, identify components of control systems, describe differences between laws related to fluid power systems, explain why material and mechanical properties are important to design, create simple free body diagrams, use measurement devices employed in engineering, conduct basic engineering economic analysis, follow the steps in the engineering design process to complete a team project, and effectively communicate design solutions to others.