

# Biology Syllabus

## **Course Description/Goals:**

In Biology, students investigate the structures, functions, and interactions of living organisms through hands-on exploration, scientific inquiry, and engineering design. Grounded in 3D science instruction and the 5E model, students develop and use models, conduct investigations, and apply evidence-based reasoning to explain natural phenomena. Key areas of study include cellular processes, genetics and inheritance, mechanisms of evolution, and interdependence within ecosystems. Students build their ability to evaluate scientific theories, explore ethical considerations, and analyze systems by identifying patterns, relationships, and changes. The course emphasizes critical thinking and problem solving to prepare students to make informed decisions about real-world biological issues.

## **Course TEKS/Objectives:**

The Biology TEKS are organized into key concepts that support deep understanding of living systems: Biological Structures, Functions, and Processes; Mechanisms of Genetics; Biological Evolution; and Interdependence within Environmental Systems. Students explore topics such as biomolecules, cell structure, homeostasis, cellular reproduction, and body system interactions. Genetics instruction includes DNA, protein synthesis, inheritance patterns, and genetic technologies. Students investigate natural selection, evolutionary mechanisms, and evidence for common ancestry. Ecosystem concepts focus on energy flow, matter cycling, biodiversity, and ecological stability. Throughout the course, students apply scientific and engineering practices to model systems, conduct investigations, and analyze patterns and relationships in biological phenomena. Each category contains specific standards (TEKS) that students are expected to master and can be [referenced here](#).

## **Course Outline:**

Semester 1	Semester 2
<ul style="list-style-type: none"><li>-Biomolecules and Cells</li><li>-Energy in Cells</li><li>-Cell Growth and Differentiation</li><li>-Inheritance and Variation of Traits</li><li>-DNA, RNA, Gene Expression</li></ul>	<ul style="list-style-type: none"><li>-The Challenge of Disease &amp; Viruses</li><li>-Mechanisms and Evidence of Evolution</li><li>-Plant Systems</li><li>-Animal Systems</li><li>-Ecology</li><li>-Biotechnology</li></ul>