



# INTRODUCTORY BIOLOGY I

Molecular and cellular biology is the focus of this introductory biology course. The course revolves around three big ideas of biology starting with the study of the structure and function of biomolecules. The flow of energy through living systems via photosynthesis and cellular respiration is the second big idea of the class. The course finishes with investigation of how genetic information is expressed and transmitted both within and between cells.

While the content of the class is the study of introductory molecular biology, thinking like a scientist is the emphasis of this course. How do scientists think? They acquire knowledge through discovery. They critically apply the knowledge to form hypotheses and reach conclusions. Scientists communicate their conclusions to others and use critical feedback to improve their scientific thinking. Scientific thinking is a skill that grows with practice and becomes stronger with use.

In this year-long class, students will learn how to apply critical thinking and quantitative skills to real world scenarios. Students will have the opportunity to develop their scientific thinking skills through peer instruction and active learning in an inclusive classroom environment. Emphasis will be placed on the integration of verbal, written and graphical communication skills.

[LEARN MORE >>](#)



BIOLOGY I

# BIG IDEAS

## STRUCTURE AND FUNCTION

All life on the planet is united by a common set of molecules with common functions. We will explore how the basics of biochemistry allow us to predict the behavior of molecules in biological systems. Students will apply bonding concepts in order to understand intermolecular attractions observed in cellular structures.

## GENETIC INFORMATION

The relationship between DNA, RNA, and proteins will be studied as we learn about gene expression and the science of recombinant DNA. The regulation of protein synthesis and its role in causing human disease will be explored using real-life examples. We will understand how the transmission of DNA from cell to cell via mitosis, meiosis, and fertilization explains the inheritance of traits and evolution of life on Earth.

## ENERGY TRANSFORMATION

We will explore how electromagnetic energy is transformed into chemical bond energy during photosynthesis. The role of enzymes in metabolism and errors of metabolic pathways will be discovered as students learn how the energy of life is continually being transformed in living systems via cellular respiration.

## CRITICAL THINKING

The development of analytical skills and scientific reasoning will be emphasized throughout the course. Students will be taught how to apply quantitative reasoning when interpreting and analyzing data to make and communicate scientific hypotheses and reach scientifically-based conclusions about the real world.

## TRANSFERABILITY

3 College Credits

BIOL 1306

UT BIO 311C

## PRE-REQUISITES

TEKS-based High School Biology

TEKS-based High School Chemistry