

# Honors Biology Information 2025-2026

## Grading Policy

The following categories will be weighted as follows:

- 60% - MAJOR: unit assessments, projects
- 25% - INTERMEDIATE: quizzes, major labs or CERs, Notebook Checks
- 15%- MINOR: daily assignments
- Semester grades are determined by averaging each nine-week grade (40% per nine weeks) with the semester final exam grade (20%)

## Google Classroom

Google Classroom is the online platform that we will use throughout the year. Extra notes, videos, and assignments will be uploaded to this platform.

## Materials

- Spiral (graph or lined) large!
  - Please make sure this is 9x11. It needs to be slightly larger than a normal piece of paper.
  - <https://www.walmart.com/ip/Pen-Gear-Wide-Ruled-1-Subject-Notebook-with-Inside-Pockets-9-x-11-Green-100-Heavyweight-Sheets/774718841?from=/search>
- 2 packs of Glue Sticks and 2 rolls of tape (wrapping paper kind) to donate to the class supply drawer
- Device- highly recommended
- Pens, pencils, markers, colored pencils, highlighters, corded headphones (earbuds)

## Textbook

- Access to *Campbell Biology: Concepts & Connections* will be available online and in print. Outlined chapter notes will be posted in GC for each unit.

## Late Work

- Notebook Checks: Once an assignment is checked in the notebook, you cannot redo or add for credit.
- Major Labs and Projects should be submitted on time. There may be a penalty or no acceptance of late work if it is submitted late.

## Major Assessment Retake Policy

- Students may retake unit tests up to a 70. Students are encouraged to first come during tutorials to view their original exam. This must be completed at school at a time decided by the teacher and student. All other guidelines will, at a minimum, follow the Kiltie.

## Absent Work

- All absent work should be completed by the unit test. If the end-of-unit assessment or project is missed, it should be made up according to the Kiltie guidelines. For example, if you were absent the day before a test, but the test was scheduled prior, the student is still responsible for taking the test. If the student misses a unit test, then the student will make up that test on the next available day.

## Tutoring

- See Tutoring Schedule on High School Website
- Any Honors Bio teacher is here to help you!
- Tutoring times are available morning and the afternoon

# Honors/TAG Biology Scope and Sequence with Essential Questions 2025-2026

## Fall Semester

### Topic 1: Chemistry of Life

- Explain how water's unique properties impact biological processes.
- Describe the primary macromolecules in living organisms, and how they contribute to cellular function.
- Explain how monomer properties and bonding influence biological macromolecules.

### Topic 2: Enzymes

- Explain how enzymes affect the rate of biological reactions, the properties that enable them to do so effectively, and what factors influence their efficiency in catalyzing these reactions.
- Describe the role that energy plays in living organisms, particularly in relation to enzymatic reactions and cellular processes.
- Explain how changes to the structure of an enzyme due to denaturing affect its function, and what the cellular environment influence enzyme activity and regulation.

### Topic 3: Gene Expression and Regulation

- Explain how nucleotides contribute to genetic information, and what scientific evidence supports the origin of DNA.
- Explain why gene expression is significant in biological systems, and explain how the process of protein synthesis occur.
- Describe the different types of changes that can occur in DNA, and their significance.
- Describe the molecular technologies used in genetic research and engineering practices, and what are their ethical implications.

### Topic 4: Cell Structure and Function

- Explain how prokaryotic and eukaryotic cells differ in terms of compartmentalization and subcellular structures, and how these differences contribute to cellular complexity.
- Describe the structures and functions of subcellular components and organelles, and how they collectively contribute to the overall function of the cell.
- Explain how biological membranes maintain selective permeability, and how concentration gradients influence the movement of molecules across membranes.
- Describe the mechanism that organisms employ to maintain solute and water balance, transport large molecules across the plasma membrane, and efficiently exchange molecules with the environment, particularly in relation to regulation, nutrient absorption, reproduction, and defense from injury or illness.

### Topic 5: Cell Cycle and Reproduction Part I

- Explain how DNA is replicated and what mechanisms ensure the accuracy of this process.

## Spring Semester

### Topic 6: Cell Cycle and Reproduction Part II

- Explain how the key events of the cell cycle, including mitosis, and checkpoints, drives organism growth and development.
- Describe what causes disruptions in the cell cycle leading to diseases like cancer, and how are they related.
- Explain how cell specialization occurs through differentiation, and what role do environmental factors play.

### Topic 7: Plants and Photosynthesis

- Explain how the structures of plant systems facilitate interactions for functions such as transport, reproduction, and response.

- Describe the mechanisms of matter conservation and energy transfer during photosynthesis, as depicted by chemical equations.
- Describe the processes of photosynthesis enabling organisms to capture and store energy, and how cells harness light energy for biological molecule synthesis and utilization.

#### Topic 8: Cellular Respiration

- Describe the mechanisms of matter conservation and energy transfer during cellular respiration, as depicted by chemical equations.

#### Topic 9: Heredity

- Explain how meiosis contributes to genetic diversity and inheritance.
- Explain mendelian genetic inheritance patterns and how they can be used to predict offspring of particular parents.
- Explain deviations from mendelian genetics inheritance patterns and the rules that are used to predict offspring of particular parents.

#### Topic 10: Evolution

- List types of evidence that supports evolution and explain how it supports this theory.
- Explain how cladograms help infer evolutionary relationships.
- Describe each type of mechanism of evolution and how it impacts changes in populations.

#### Topic 11: Ecology

- Explain how ecological interactions and energy flow dynamics within ecosystems contribute to overall stability and resilience.
- Describe the consequences of disruptions to nutrient cycles and energy availability on ecosystem structure, function, and biodiversity.
- Explain how human activities, including the introduction of invasive species and alterations to energy flow, impact ecosystem stability and biodiversity.