



# AP Biology Study Guide



Are you preparing for the AP Biology exam? This study guide covers exam basics, what's covered on the exam, and how to prepare for the exam.

To access practice tests, check out [Peterson's AP Biology test prep](#).

## Exam Basics



- **Test time:** 3 hours
- **Section I of the exam:** 60 multiple-choice questions; 50% exam weighting; 90 minutes to complete; four-function, scientific, or graphing calculator is allowed.
- **Section II of the exam:** 6 free-response questions; 50% exam weighting; 90 minutes to complete; four-function, scientific, or graphing calculator is allowed.



### The exam assesses the following content:

1. Evolution
2. Energetics
3. Information storage and transmission
4. Systems interactions

## What's on the AP Biology Exam?



### Chemistry of Life

- The structure and chemical properties of water
- The makeup and properties of macromolecules
- The structure of DNA and RNA

Exam weighting: 8-11%



### Cell Structure and Function

- Cellular components and functions of those components
- Cell interaction with its environment
- The cell membrane structure and function
- Cell regulatory mechanisms like osmosis and selective permeability
- Cellular compartmentalization

Exam weighting: 10-13%



### Cellular Energetics

- The structure and function of enzymes
- The role of energy in living systems
- The processes of photosynthesis
- The processes of cellular respiration
- Molecular diversity and cellular response to environmental changes

Exam weighting: 12-16%



### Cell Communication and Cell Cycle

- The mechanisms of cell communication
- Signal transduction
- Cellular responses and feedback mechanisms
- The events in a cell cycle

Exam weighting: 10-15%



### Heredity

- The process and function of meiosis
- The concepts genetic diversity
- Mendel's laws and probability
- Non-mendelian inheritance
- Factors affecting inheritance and gene expression

Exam weighting: 8-11%



### Gene Expression and Regulation

- The roles and functions of DNA and RNA
- The mechanisms of gene expression
- How genotype affects phenotype
- Mutations, genetic diversity, and natural selection
- Genetic engineering and biotechnology

Exam weighting: 12-16%



### Natural Selection

- Evidential support for evolution and common ancestry
- The mechanisms of natural selection and speciation
- Environmental and human-caused factors in evolution
- Charting species ancestry through phylogenetic trees and cladograms
- Extinction
- Models of the origin of life on Earth

Exam weighting: 13-20%



### Ecology

- Communication and responses to environmental changes
- Energy flow within and across ecosystems
- Factors in the growth, density, and success of populations
- Factors in community and ecosystem dynamics
- Invasive species, human interaction, and environmental changes

Exam weighting: 10-15%



### More Resources

- [AP Biology Equations and Formulas Sheet](#)
- Approved calculator types:
  - Four-function calculator (with square root)
  - Scientific (nongraphing) calculator, but must not have unapproved features or capabilities
  - Graphing calculator



## Preparing for the AP Biology Exam

### Make a study plan



Creating a study plan can help guide you in the right direction to ensure success on the AP Biology exam.

Determine how much time you have before the exam and how much time you can devote to prepare for the exam. Answering these questions will help you set a pace for your review.

### Take a diagnostic test



The diagnostic test will help you identify your weak spots in the course. Based on the results of the test, plan your study time to address the areas where you need improvement.

### Take practice tests



Completing practice tests will help you maintain pacing, and in understanding and answering multiple-choice question, and practice in writing timed questions.

Pacing is important! Work quickly and carefully throughout the test. Answer as many questions as you can as quickly as you can, and then go back and try to fill in the others.



### Complete assignments



Complete all assignments for your regular AP Biology class. The test is designed to measure your development and understanding of biology.

#### Tip

In the free-response sections, be neat, thorough, and very clear. You don't want those scoring your exam to guess what you wrote or what you meant.

### Test Prep



To help you prepare for the AP Biology exam, check out Peterson's [AP Biology test prep course](#), which includes two full-length practice tests, self-learning skills, and strategies.