



# ADVANCED PLACEMENT BIOLOGY

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Insert Teacher Name

Insert Room Number

Full Year

Insert Period

Insert Email Address

## COURSE DESCRIPTION

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The Advanced Placement Biology course is a college-level laboratory course. The course focuses on helping students gain enduring understandings of biological concepts and the scientific evidence that supports them through a “student directed” approach. The key concepts and related content that define the AP Biology course and exam are organized around four underlying principles called the *big ideas*, which are as follows: evolution, cellular processes: energy and communication, genetics and information transfer, and interactions. A student-directed, inquiry-based lab experience supports the AP Biology curricular requirements by providing opportunities for students to design plans for experiments, data collection, application of mathematical routines, and refinement of testable explanations and predictions. Such a lab experience reinforces the curriculum’s focus on quantitative skills. **This course is part of the University of Connecticut's ECE Program and students can apply for 8 college credits of Biology 1107 and 1108 at the University of Connecticut.**

## COURSE OBJECTIVES

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Students will understand that:

- the fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism’s cells.
- mutation and sexual reproduction lead to genetic variation in a population.
- a multi-cellular organism develops from a single zygote, and its phenotype depends on its genotype, which is established at fertilization.
- genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism.
- the genetic composition of cells can be altered by incorporation of exogenous DNA into the cells.
- the frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time Evolution is the result of genetic changes that occur in constantly changing environments.
- as a result of the coordinated structures and functions of organ systems, the internal environment of the human body remains relatively stable (homeostatic) despite changes in the outside environment.
- organisms have a variety of mechanisms to combat disease.
- stability in an ecosystem is a balance between competing effects.

## UNITS OF STUDY

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- Introduction and Biological Themes
- Biological Chemistry
- Cells
- Cellular Energetics
- Heredity

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- Molecular Genetics
  - Evolution
  - Diversity of Organisms
  - Structure and Function of Plants and Animals
  - Ecology
  - Independent Project

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## COURSE POLICIES AND REQUIREMENTS

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### GRADING

Summative Assessments:	100%
	Insert Categories/Weighting (ie. Papers – 30%)
Formative Assessments:	0%
Behavioral Characteristics:	0%
Insert Additional Grading Information Here	

### MATERIALS

Insert Course Materials Here (ie. Textbook, Binder, Calculator, Highlighters)

### EXPECTATIONS OF STUDENTS

Insert Course Expectations Here

### EXTRA HELP

Insert Course Expectations Here

Insert Additional Information Here