

AP BIOLOGY



Grade Level: 11-12 grade (___ Credits)

- **Prerequisites:** successful completion of HS Biology and Chemistry
- **Elective Life Science course, full year course**
- **Meets the UC/CSU subject area "D" requirement**
- **Samples of the books utilized in this course will demonstrate prior knowledge expectations, reading level and lab skill level.**
[sample of class textbook](#) [class lab book](#)

General Information

Description

AP Biology is designed to be the equivalent of a two-semester college biology course usually taken by biology majors during their freshman year in college. AP Biology is an elective life science course for students who are highly motivated and have a strong interest in science. Major topics of study include biochemistry, cells, cellular energetics, genetics, evolution, organism structure/function, and ecology.

As in a college biology course, the AP Biology course is designed to have both a lecture and a lab component. This class is for juniors and seniors who really love biology and science. The textbook used in this class is the book that many of the UC schools use for their biology classes. Use this link to see a [sample of the textbook's](#) reading level and prior knowledge assumptions.

[Here is a link to the AP Biology labs](#) that will be conducted over the span of the year long course.

Labs conducted by AP Biology students are the equivalent of those experienced by college biology students and will consume a minimum of 25% of the class instructional time. The labs are conducted and analyzed at a high level and will teach many skills useful for college including statistical analysis, graphing, presenting findings, making modifications and re-conducting labs, designing future experiments to test other aspects of the labs and writing lab reports. Some of the unique and high level laboratory work should include gel electrophoresis, bacterial transformation, fruit fly culturing and genetic analysis, spreadsheet modelling, online genetic database search & analysis, enzyme catalysis, plant selective breeding over multiple generations, plant transpiration, and more.

At the completion of this course, students are expected to take the College Board's scheduled AP Biology exam in May. Some students may earn college credit if they achieve high enough marks on this exam. To assist students in their preparation for this test, the format of the assessments used throughout this course are similar to the AP Biology exam assessments.

This course is fast-paced, intensive, and requires more at-home, individual study time than the standard, honors level college-prep courses.

The College Board determines AP course content, content level, pacing and prerequisites. Sample test questions and a detailed course outline can be found on the College Board's AP Biology website and in the following .pdf files :

http://www.collegeboard.com/student/testing/ap/sub_bio.html

<http://media.collegeboard.com/digitalServices/pdf/ap/13b-7589-AP-Biology-ADA-v0.1.pdf>

The College Board has organized the AP Biology course into four big ideas.

The entire course will be centered around the instruction and the overlapping of these four themes:

Big Idea 1: The process of evolution drives the diversity and unity of life.

Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.

Big Idea 3: Living systems store, retrieve, transmit and respond to information essential to life processes.

Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.

Expectations and Goals

Before taking this class, the College Board highly recommends taking a high school level, rigorous, full year high school chemistry course. Some of the many chemistry skills and prior knowledge that are necessary include: pH, examples of acids and bases and how they react, polar vs non-polar, electronegativity, types of molecular interactions, basic element properties and bonding rules, orbitals and varying energy states of an electron, molar solutions, free energy, oxidation and reduction, chemical changes vs physical changes, functional groups, etc.

Semester I instruction usually includes many of chapters 1-26 and Semester II instruction usually includes many of the chapters 27-55. AP Biology is an extremely fast paced course; students will be assigned written homework and reading for every class period. Note taking is expected in class as well as from the text in conjunction with the homework assignments. Students will demonstrate appropriate higher writing skills, problem solving skills and critical thinking skills in their daily assessments. Assignments will contain correct spelling and grammar, legible writing, complete thoughts, and citations when necessary.

Estimated Homework

On average, students should expect to spend 6-10 hours each week reading and studying AP Biology outside of class. Daily attendance is expected and late work is not accepted in this course. Homework mainly consists of reading the textbook daily--sometimes up to 40 pages. There may also be assigned lab completion, practice worksheets, reports, projects, or other homework in addition to reading the textbook.

Unit tests will cover between 3 to 7 chapters at a time and will be given every 5 to 10 class periods. Tests mainly consist of multiple-choice questions, essay questions, some short answer questions and some math calculation questions. The course provides students with opportunities to connect their biological and scientific knowledge to major social issues to help them become scientifically literate citizens.

This Class Is Best For...

This class is designed for juniors and seniors who love science and biology and who are looking for a challenge before they begin a science degree in college. This class is rigorous and challenging and it will keep you busy but you will get a chance to practice some high level lab skills. You will also experience new ways to see the living world around you as an intricate and amazingly fascinating interconnected system!

Course Materials

Required Materials

- Text Book: *Biology*, 7th Ed., Campbell, Reece, Mitchell. Addison Wesley Publishing, 2005.

- [Here are a few photos of the textbook](#). Observe the level of difficulty, prior knowledge necessary and detail of figures.
- On-line resource: [Lab Manual-free online](#) (required)
- Lab Notebook: All students are required to maintain a lab notebook (lined, 70-100 page, bound notebook) for daily lab notes, observations and analysis.

Additional Information and Resources

- course websites: [Mrs Rall](#) and [Mrs Olson](#)
(although the styles of the two websites are slightly different, the AP Biology teachers work closely together sharing the same calendar, same assessments, and same labs.)