
Advanced Placement Biology
2014-2015

Course Description:
ADVANCED PLACEMENT BIOLOGY is designed to be the equivalent of a college introductory biology course usually taken by biology majors during their first year. The course includes topics regularly covered in a college biology course and includes three major areas of study: Molecules and Cells; Heredity and Evolution; and Organisms and Populations. Because of the demanding nature of this course, it should only be taken by students that are highly motivated and ready for the rigorous academic challenge of the course. Students will be administered the AP exam for college credit at the end of the course at their own expense.

Course Content:
The recommended breakdown of the course content as specified by the Collegeboard Corporation can be found at apcentral.collegeboard.com. We will follow attempt to follow this breakdown, but there will be emphasis on those topics that the students identify as interesting and warrant further investigation.

I. Molecular Biology and Energetics » 25%
   - A. Chemistry of Life
   - B. Cells
   - C. Cellular Energetics

II. Genetics and Evolution » 25%
   - A. Heredity
   - B. Molecular Genetics
   - C. Evolutionary Biology

III. Plant and animal form and function » 50%
   - A. Diversity of Organisms
   - B. Structure and Function of Plants and Animals
   - C. Ecology

Required Textbooks and/or Other Reading/Research Materials

Campbell Biology; AP Edition Reece et al. 2011

Course Requirements:
The students are required to complete all tests, projects and laboratory activities. Failure to do so will negatively impact their grade. While this course is preparation for the AP exam, the students are not required to take the exam. There will be a final exam that is composed of a testing component, a practice AP exam, and an application component that involves a research project.

Grade Components/Assessments:
Grades are based on a point system that is converted into an overall percentage. The following categories will be used to assess the student's performance and provide feedback as to their individual strengths and weaknesses.

Tests: 35% of the grade
Laboratory activities: 35% of the grade
Essays: 15% of the grade
Quizzes: 10% of the grade
Homework: 5% of the grade

The course is focused on developing the skills necessary to successfully pass the AP exam. In preparation for this success, we will concentrate on content acquisition and essay writing skills. We will also work on improving vocabulary through a series of prefix, suffix and root word quizzes.

An integral part of the AP curriculum is the inclusion of 12 required laboratory experiments. We will endeavor to complete all of these labs successfully and analyze to experimental design and determine the variables that were manipulated to test the hypothesis.
Additional projects will focus on applying the science we are learning to real world situations. Here is a list of some of the projects we may do during the year.

- Tree field study – The students will collect data from a homogenous population and attempt to determine the factors that have contributed to the differences between individuals within the population.
- Fruit fly cross– The students will use fruit flies to determine the rules of inheritance. They will be responsible for raising and counting the flies from one generation to the next. They will then use the data collected to analyze and determine the rule of inheritance that apply to their cross.
- Class presentation – Different topic will be assigned to the students to teach to the rest of the class. They will be responsible for researching the topic and determining the most important information to present to the rest of the class.
- Independent research – The students will be encouraged to choose a topic of interest for scientific research. The student will be responsible for researching the topic and designing an appropriate experimental design.

Each marking period is worth 20% of a student's overall grade. The final is worth 20% of a student's overall average:

Quarter 1	20%
Quarter 2	20%
Quarter 3	20%
Quarter 4	20%
Final	**20%**

Required Summer Reading/Assignments:
There is a required summer assignment as per the district's policy. Past summer assignments have focused on biochemistry and ecology. All summer assignments include outlining the required chapters and answering essay prompts. The students also will run a laboratory experiment and prepare themselves to take a test on the material when they return to school.