

Advanced Placement Biology

School Year 2016-2017

Alisal High School

Course Description:

The AP Biology course is designed to be the equivalent of a two-semester college introductory biology course usually taken by biology majors during their first year. After demonstrating their qualifications by passing the AP Biology Exam in May, some students, in their freshman year of college, are permitted to undertake upper-level courses in biology or to register for courses for which biology is a prerequisite. The AP Biology course is designed to be taken by students after the successful completion of a first course in high school biology and one in high school chemistry as well. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology.

Course Content:

What makes this AP course difficult is the amount of content needed to be covered in order to ensure success on the AP exam. You will find that the content is extremely broad. With that being said, the course content is built around four "big ideas":

- 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

These big ideas tie into general content areas which include:

- Biochemistry
- Cellular structure and function
- Cellular energetics
- Cellular transport
- Maintaining homeostasis at ALL biological levels
- Cellular division
- Cellular communication
- Genetics (Mendelian and Molecular)
- Evolution
- Interaction of biological systems (homeostasis)
- Ecology

What are the suggested math skills for students entering an AP Biology course?

Math is a vital part of any science course. The following mathematical skills are most helpful to the AP Biology student:

- basic algebra and geometry
- how to measure and collect experimental data with respect to volume, size, mass, temperature, and pH
- how to determine the rates of chemical reactions
- how to calculate solute concentrations
- scientific notation
- ability to apply basic concepts of probability and to conduct statistical analysis
- graphing, including how to set up axes and plot data

There are seven Science Practices students will develop throughout this course. These practices incorporate knowledge and skill, as well as, combine content with inquiry and reasoning. Listed below are the seven science practices:

- SP1: The student can use representations and models to communicate scientific phenomena and solve scientific problems
- SP2: The student can use mathematics appropriately
- SP3: The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the course
- SP4: The student can plan and implement data collection strategies appropriate to a particular scientific question
- SP5: The student can perform data analysis and evaluation of evidence
- SP6: The student can work with scientific explanations and theories
- SP7: The student is able to connect and relate knowledge across various scales, concepts, and representations in and across domains

Course Format:

This course is a college course and, therefore, consists mainly of:

- Lecture
- Group activities
- LOTS OF READING AND WRITING!!
- Projects, papers (reports), and research
- Classroom discussion
- Labs

How Is This Class Different Than Most?

- Lots of reading and writing ... remember material is broad (much to cover)
- More emphasis on personal responsibility ... more independent work, stay on top of it!
- More emphasis on assessments and labs versus homework
- **No extra credit** ... this is college now
- Better study habits and organizational skills
- Fast paced class
- More class participation

The Exam:

The AP Biology Exam is three hours in length and is designed to measure a student's knowledge and understanding of modern biology. The exam has two major sections. Section I is 90 minutes and includes 63 multiple choice questions, along with 6 grid in questions that integrate science and math. Section II of the exam is 90 minutes with a 10 minute mandatory reading period. This section includes 2 long free response questions and 6 short free response questions. Fifty percent of your exam score comes from section I and the other 50% comes from section II. Since data manipulation is one of the components of the exam, a four function calculator with a square root button will be allowed on the exam. Graphing calculators, as well as, scientific calculators will NOT be allowed on the exam. All students will be provided a formula sheet. In the free-response portion of the exam, essay questions can be taken from any of the four big ideas which includes ALL general content areas. The free responses may require the student to analyze and interpret data or information drawn from laboratory experience, as well as from lecture material, and may require students to integrate material from different areas of the course. The answers to the free-response questions must be in essay form; outlines alone or unlabeled and unexplained diagrams alone are not acceptable. The students should read each question carefully, organize their material neatly, and compose answers that are as comprehensive and precise as time permits. To provide the maximum information about differences in students' achievements in biology, the exams are intended to have average scores of about 50 percent of the maximum possible score for the multiple-choice section and for the free-response section. Thus, students should be aware that they may find these exams more difficult than most classroom exams. However, it is possible for students who have studied most but not all of the topics in the outline to obtain acceptable grades. To be broad enough in scope to give every student who has covered an adequate amount of material an opportunity to perform well, the multiple-choice section must be so comprehensive that no student should be expected to attain a perfect or near-perfect score. Thought-provoking problems and questions based on fundamental ideas from biology are included, along with questions based on the recall of basic facts and major concepts.

Do colleges and universities give credit or advanced placement for a grade of 3 on an AP Exam?

Students should check the credit-and-placement policy at the schools they are considering. Policies vary from one institution to another; they may also vary from department to department within an institution. The amount of college credit given may vary depending upon your AP score. For example, some colleges will only give credit for one biology course if you score a 3, whereas, credit for two biology courses will be given if you score a 4 or 5. It is your responsibility to check into this!

Late Assignment Policy:

In all reality, late work is NOT accepted by a college professor. However, because this class is still taken in a high school setting, you have one day to turn late work in. One day late work will be 50% off your total points. Any assignments that are more than one day late will receive NO credit. When you walk into this room, your homework should be done. If you do not turn in your homework as soon as it is collected, then it is considered late. Turning homework in later that day but not when collected is 25% off the total points. Note: there will be some assignments that will NOT be accepted late at all!

PLEASE MAKE SURE YOU ARE IN THIS CLASS FOR THE RIGHT REASONS! I CANNOT STRESS THIS ENOUGH!

You must possess a genuine and deep interest in the topics.

You will be expected to come to class each day prepared and to contribute to class discussions.

You must be willing to work hard and put in at least 40 min. per day to AP Biology.

You must be willing to give 100% and be proactive by coming in for extra help outside of class time.

You must be willing to devote additional time (beyond the class period) to complete labs or a group projects.

You must be willing to complete a Summer Assignment.

