

## AP Biology Syllabus

Text: Unity and Diversity of Life by Starr Taggart, 2010

Supplemental Text: Campbell Biology

AP Biology is a rigorous college level course which covers biology in its entirety.

Topic/Unit	Start-Taggart chapter(s)	Campbell Chapter(s)
Evolution Unit 1	17,18	22-24
Chemistry, Enzymes	2-3	2-5
Evolution Unit 2	19-20	25-26
Cells, Membranes	4-5	6-7
Cell Communication/Endocrine System	35	11, 45
Human Systems	32-41	40-44
Mitosis, Meiosis, Reproduction	9, 10, 42	12, 13, 46
Genetics	11-14	14-17, 19
Ecology	44-49	
Plants, Photosynthesis, Respiration	7, 8, 23, 28-31	9, 10, 29-30, 35-39
Bacteria, Viruses, Protists	4, 21, 22	6, 18, 27
Animal Overview	25	32-33
Math Unit	Varied	Varied
AP Exam Review		

Syllabus subject to change.

## AP Biology Summer Assignment

The summer assignment for AP Biology is composed of reviewing certain topics from Biology I and researching evolutionary concepts. If you have difficulty with these concepts, you can reference Khan Academy and Bozeman Science. If you are still having trouble, you may want to reconsider your course selection. Again, these concepts are review from Biology I and you are expected to know them so that we can build upon them in AP Biology

I have included guiding questions on the topics for the summer assignment. These will not be collected. They are just to give you a direction on which topics you should familiarize yourself with. There will be a quoin on these topics on the second day of class. While they are not the only topics from Biology I we will building upon, they are some of the ones we cover the first half of the course.

The second part of the summer assignment is to research evolutionary concepts and write an essay based upon these concepts.

This is a challenging and fast paced course. However, if you put the time into studying and reading you will be successful. At the end of the course, you will have completed the equivalent to college Biology for majors.

Please sign and return the bottom portion of this paper to acknowledge receipt of the AP Biology Summer Assignment.

Student Name \_\_\_\_\_ Student Signature \_\_\_\_\_

Parent Name: \_\_\_\_\_ Parent Signature \_\_\_\_\_

Due: 1<sup>st</sup> Day of class

## Evolution Essay

Using prior knowledge and research on the topics of evolution complete the following assignment.

You and your family are sitting down to Sunday dinner with your good friend Charles Darwin. All of a sudden the doorbell rings. Plato, Aristotle, Charles Lyell, Jean Baptiste Lamarck, Ernst Mayr, Theodosius Dobzhansky, George Cuvier, James Hutton, Thomas Malthus, Gregor Mendel, Godfrey Hardy, Wilhelm Weinberg, Carolus Linnaeus and Stephen Jay Gould are standing at your door. You have limited seating so you choose six guests to let in. The rest are invited back next week.

Amidst the fun and festivities, a heated debate about evolution ensues. Due to your recent research on the theory of evolution, you are able to interact and add to the conversation.

In your paper, introduce the cast of characters including you and any of your family members who were present. Briefly summarize the important theory or contribution each of your guests made to the development of the evolutionary theory. Write and account of the dinner in which you describe the conversation around the table. Be sure to include what each guest as well as your family members contribute to the conversation. Feel free to add humor. Be creative, but do not change the ideas and thoughts of the guests. This can be written in a play format or traditional essay.

Towards the end of dinner, there's a knock at the door. You answer and in barges in an uninvited guest. (This famous person can be from any time in history, including the present). Who is this guest? What thoughts, ideas etc....does he/she add to the dinner conversation?

Length: 3-6 pages

Format: 12 font, times new roman, 1 inch margin

# Quiz on these topics the 2<sup>nd</sup> day of class

## Guiding Questions for Reviewing Biology I

These questions cover the following topics from biology I- Evolution, Water, Cells, Photosynthesis, Respiration, Mitosis/Meiosis and Macromolecules. These are topics we will building upon during the first half of the course. You are expected to know this information so that we can build from there. You also need to be able to read data tables and graphs.

---

1. What is survival of the fittest?
2. How does genetic variation and mutation play a role in natural selection?
3. What factors must be met for Hardy Weinberg?
4. What is genetic drift?
5. What are different kinds of evidence we can use to support evolution?
6. What are homologous, vestigial and analogous structures?
7. What is the best way of comparing species?
8. Know how to read a phylogenetic tree.
9. How was primitive earth conducive to inorganic precursors synthesizing organic molecules?
10. What was the Miller Urey experiment?
11. What is the electron acceptor in photosynthesis? Respiration?
12. What enzyme is needed in the production of ATP?
13. What is the purpose of glycolysis? Where does it occur? What is its product?
14. What are the four macromolecules? What are their building blocks? What are examples of functions in the human body?
15. How do each of the following properties relate to water? Cohesion, adhesion, high specific heat, universal solvent, heat of vaporization, surface tension, bonding, polarity
16. How is surface area to volume related to the cell?
17. What does selectively permeable mean?
18. What is the fluid mosaic model?
19. What is the structure of the plasma membrane and properties of it?
20. Contrast active and passive transport
21. What is the difference between hypertonic, hypotonic, and isotonic?
22. What are facilitated diffusion, diffusion and osmosis?
23. Compare and contrast prokaryotes and eukaryotes. Compare and contrast plant and animal cells
24. What are the organelles found in eukaryotic cells and what are their functions?
25. What are the stages of mitosis and meiosis? What occurs during these stages? Be able to compare and contrast the two processes.

Sources to review these topics

BEEP- both the biology I and AP textbook ([beep.browardschools.com](http://beep.browardschools.com))

Khan academy

Bozeman science videos