

Advanced Placement Biology

Summer Assignments 2017-2018

A.P. Biology is an in depth study of organisms on macroscopic, microscopic, and molecular levels. The main purpose of the course is to help prepare the student for the A.P. Biology Exam in May, and it is expected that students enrolled in A.P. Biology will take the exam. Your summer assignment is to review Regents chemistry and review some biology by using the provided websites and links to notes. You can expect a test on biochemistry in your first week back at school; I am hoping you take the summer to prepare yourself.

Your summer assignments are listed below,

RULE #1: all assignments must be **handwritten** on paper that can be turned in on the first day of school. No typed assignments please!

Assignment 1. “Coming from Chemistry” (parts A and B)

Goals of this assignment:

To truly comprehend the biological concepts presented in A.P. Biology, one needs a solid foundation in chemistry. Thus, the completion and understanding of high school chemistry is a prerequisite for A.P. Biology.

Part A of this assignment: Study the Notes! You can review using the link below.

[Course Notes for AP Biology](#)

These are based on Campbell Biology (7th ed/8th ed). These the chapter outlines from our textbook you will be issued in September. We will start reviewing Chapter 2-4 on the first day of class. You may want to make flash cards for the tough stuff, and use these notes for the next few assignments.

Part B of the assignment: Mathematics Review: For this assignment you will need to show your setup, all your work, and place a box around your final answers.

Here are the **two links you will need:**

[Link to AP Biology Formulas Sheet](#) (for your reference)

[Link to 10 Math Problems\(#3-13\) to be completed](#) (only #3 through #13) .

Assignment 2. “Elaborate on the Elements”

Goals of this assignment: To review and summarize properties of the leading elements in AP Biology. We will talk about a variety of compounds but you may as well know the basic properties of the following elements: **C, H, O, N, P, S.**

For this portion: Write a paragraph (4-5 sentences) about each element listed above, tell what you already know about this element and indicate where/how you think you will be learning about it in an advanced biology course, do some research on each if needed. Fun facts?

Assignment 3: “What’s up with Water?”

Goals of this assignment: To review and summarize properties of water as you will see them in a biology course. For this portion: You are making an outline for a small poster project you will be completing during your first week of school. For this portion, I only need an **outline** of what will go on your small poster: focus questions: what are all the properties of water? Can you define each and explain what that means for life on earth?

(you can see chapter 3 outlines on course notes for this!)

Assignment 4: Living Environment Review and Essay

I *recommend highly* you find a way to review **all** Regents Living Environment material. For some of you this was 3 years ago and you may be a little foggy. Some of our first topics include biochemistry and the organelles, but please be advised this is a much more advanced class than living environment.

Goals of this assignment: **1 page Essay (single spaced):** Choose one body system and discuss its chemistry and operation. Some chemistry must be involved in your analysis/overview of the body system (review Chapters 41-48 in the course notes). Focus questions: what is there? (anatomy) and how does it all work? (physiology) To conclude your essay (final paragraph), discuss how your body system interacts with another body system.

Examples of possible final paragraph topics include, but are not limited to:

- Hormonal Transport from Adenohypophysis and Neurohypophysis into the circulatory system. (Endocrine system and Circulatory system)
- Bicarbonate buffer system involving carbon dioxide transport. (Respiratory and Circulatory system)
- Transport of a specific nutrient or ion across the intestinal mucosa. (Digestive system and Circulatory system)
- Specific Nervous system control of breathing rate/CO₂ levels (Nervous system and Respiratory system)
- A specific hormone, its transport and effect on specific target cell. (Endocrine system and Circulatory system)

This is not an assignment just advice: More “Chemistry Stuff to Know” for AP Biology

1. Go to the public library and check out/use some chemistry review books if you must.
2. The things in this course you will be responsible for understanding when you come into AP Biology are as follows:

Law of Conservation of Mass, Matter, Chromatography
Isotopes, Molecular and Ionic Substances, Organic Compounds
Acid-Base Reactions, Buffers, Oxidation-Reduction, Molar Concentrations
The Wave Nature of Light, Ionic Bonds, Covalent Bonds, Electronegativity,
Hydrogen bonding, Liquids, Thermodynamics and Equilibrium (ΔG especially),
Radioactive Decay. (You may want to define these to further your biological knowledge and help prepare you for the first couple of units of study).

Checklist for Summer Assignment Completion?

- ✓ My entire summer assignment is neatly handwritten _____
- ✓ I have reviewed Chapter 2-4 Course Notes _____
- ✓ I answered math practice problems #3-13 (set up, work, and boxed answer)

- ✓ I have a paragraph written for 6 elements _____
- ✓ I have outlined the properties of water for a poster project _____
- ✓ I wrote an organized 1 page essay on a body system, detailed its chemistry

- ✓ I made a connection to another body system in the conclusion of my essay _____