

# **Stratford High School**

## **ADVANCED PLACEMENT BIOLOGY**

### **Summer Assignment 2021**

**Mr. Bates**



***Abbreviated Syllabus  
(Summer Assignment\*)***

***Google Classroom Join Codes:  
Period 2: 7jx2zt2  
Period 6: gfpvlkh***

## ADVANCED PLACEMENT BIOLOGY SYLLABUS 2021-2022

Balancing breadth of content with depth of understanding;  
focusing on enduring, conceptual ideas using supporting knowledge  
by developing advanced inquiry and reasoning skills through  
best science practices.

### PHILOSOPHY:

Darwin began the last paragraph of his book, *Origin of Species*, with the following thought.

"It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with many insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us."

Biology is the study of life and the complex and often hidden laws that make life possible. Through a disciplined and reflective study of biology we learn to appreciate, and are often astonished by, the amazing natural world in which we live.

### COURSE OVERVIEW:

AP Biology is a rigorous course only offered to hard working, high achieving students who meet the qualifications for enrollment. These standards are set by the School Administration and the Science Department. The course is open to students who meet the following **prerequisites**: Passing grades in Human Biology, Environmental Biology, Chemistry 1 and Chemistry 2H; and a recommendation by the previous science teacher and the Science Department Chairperson.

AP Biology differs from other high school courses in the range and detail of topics covered, the kind of laboratory work done by students, and the time and effort required of students. The course is a direct parallel to Freshman Biology courses being offered at many colleges, and therefore maintains quite stringent academic guidelines. The **class meets 4 days a week**, two of which will be double length lab periods for a total of 6 class periods a week. The average class period is 55 minutes long, so that means we will average approximately **330 minutes (5.5 hours)** of instruction and/or laboratory time a week. Students are also advised that, for every hour they spend in school, they should be setting aside one to two hours at home for course work (**an additional 5.5 to 11 hours per week working on class assignments and reading notes**). This is similar to, but not quite, the two to three hours recommended for every hour of class while in college.

# SUMMER ASSIGNMENT

## Chapters 1 – 5

**For all assigned chapters:** Read and outline (hand written) the major points of each chapter. Make sure you put in headings for each chapter and section, so you can follow along during the lecture.

At the end of each section there are concept check questions. Please number and answer these briefly in a **separate section** labeled "Concept Check Questions".

Attention to detail and getting an overall view of the material is sometimes hard to accomplish at the same time. So:

- try to look at the chapter summaries first,
- read the chapter,
- go back and outline the important concepts,
- answer the concept check questions as you go,
- and then look over what you have done when completed.

This will give you the best grasp of what you have covered.

**\*\* This summer assignment is due on the first day of class.**

## UNIT 1      MOLECULAR ASPECTS (Chapters 1-5)

### **Themes in the Study of Life (Chapter 1):**

Connections across areas of Biology (1.1)  
Evolution accounts for Unity & Diversity (1.2)  
Studying Nature: observations & hypotheses (1.3)  
Cooperative Approach & Diverse Viewpoints (1.4)

### **Chemical Context of Life (Chapter 2):**

Matter: elements & compounds (2.1)  
Properties depend on structure (2.2)  
Form & function depends on bonding (2.3)  
Chemical reactions make & break bonds (2.4)

### **Water & Life (Chapter 3):**

Hydrogen bonding & water polarity (3.1)  
4 Emergent properties of water for life (3.2)  
Acidic & Basic conditions affect life (3.3)

### **Carbon & Molecular Diversity (Chapter 4):**

Organic Chemistry: Study of Carbon (4.1)  
Carbon bonding & molecular diversity (4.2)

Key Chemical Groups & biological functioning (4.3)

**Structure & Function: Biological Molecules (Chapter 5):**

Polymers: built from monomers (5.1)

Carbohydrates: fuel & building materials (5.2)

Lipids: diverse hydrophobic molecules (5.3)

Proteins: diversity of structure & function (5.4)

Nucleic Acids: store, transmit & express heredity (5.5)

**Fall Semester 2021**

**Begins with...**

**COURSE INTRODUCTION**

1-2 weeks

**Summer Assignment (Chapters 1-5) collected  
Review of content**

**Classroom policies & procedures  
Laboratory safety & guidelines**

**TEST #1: Chapters 1-5  
ESSAY #1: Properties of Water**

*The sooner you get your summer assignment completed, the more time you will have for yourself. Do a thorough and thoughtful job. Put the assignment someplace where you will remember to bring it in on the **first day of school**. Even if you are not in school on that day, your assignment must be there. Remember, this is considered a college level course; responsibility and accountability are a requirement, not just a recommendation!*

**Mr. Bates**

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