AP Bio Summer Assignment 2023-2024

Welcome to AP Bio! I am so excited you have decided to come along for this journey. For your summer assignment, we are going to spend some time learning before the school year to help us "fit in" all that is needed for you to be successful on the exam and be able to have some great learning experiences along the way. This summer assignment has the following purposes:

- To get you to think during those summer months to keep your mind sharp, because we will expect a lot out of it come September!
- To introduce you to major concepts from AP Biology, and specifically Ecology, through traditional and nontraditional methods of learning.

Task # 1: Ecology Scavenger Hunt (due 1st day of class/school)

1. We are going to do a majority of our ecology unit in the first weeks of school. To get you prepared, you will be responsible for defining and applying these terms. Please use chapters 41-45 in your textbook to help you define these terms. If you use any other sources be sure to cite them.
2. With each of the terms, create a Slides presentation, poster, or any medium of your choice. Find and take a "selfie" with each item. Write a brief description to go with the selfie. **You need to be in the shot! No taking images off the internet!** Each object can only count for one item on the list, and each term should have its own Slide/section. You will turn this into OnCourse on the first day of class. Here is an example of what one may look like.

Abiotic	Cellular Respiration	Exoskeleton	Mutualism	Producer
Adaptation (Plant)	Chemosynthesis	Fitness (Biological)	Niche	Productivity
Adaptation (Animal)	Community (Biological)	Herbivore	Parasitism	Secondary consumer
Altruism	Decomposer	Heterotroph	Photosynthesis	Sessile
Biome	Density dependent factor	Interspecific competition	Population	Tertiary Consumer
Biotic	Density independent factor	Intraspecific competition	Predation	Vertebrate
Carnivore	Ecosystem	Invertebrate	Primary consumer	

Task # 2: Ecology in the World Today (due 2nd day of class/school)

1. Find a current event article (within the past 12 months) that addresses one of the following topics:
    a. Invasive Species
    b. Keystone Species
    c. Ecological Niche
    d. Primary Succession
    e. Secondary Succession
    f. Food Web
    g. Water Quality
    h. Plant-Insect Interaction
    i. Climate Change
    j. Eutrophication
    k. Biomagnification
    l. Another topic of your choice (email Mrs. Ribecca for approval).

When looking for sources, please keep in mind the quality of your sources using this checklist (You don't need to fill it in, just use it as a reference). In addition, here is a list of science reference sources you can use.

2. After you select the article, read through it and edit this template that highlights the key points from the article. Be sure to include pictures and references in your slide. Be prepared to present it on the second day of class and make sure it is completed on the template by the beginning of class on the second day of school.

Task #3: Introduction to Statistics (due 3rd day of class/school)

Statistics is a critical part of creating new knowledge in biological sciences. We will be working through a lot of the concepts in our Ecology unit, and will continue to use them throughout the year. To get you started, please complete the following:

1. Read “Appendix B: Making Sense of Data: A Statistics Primer” in your textbook on pages 943-952 and take notes.
    a. Focus on the “Why we do statistics”, a general overview of Steps 1-5, and the following bolded terms:
        i. **Data**
        ii. **Sample**
        iii. **Population**
        iv. **Quantitative variables**
        v. **Discrete variables**
        vi. **Continuous variables**
        vii. **Categorical variables**
        viii. **Histogram**
        ix. **Pie chart**
        x. **Scatter plot**
        xi. **Positive relationship**
        xii. **Negative relationship**
        xiii. **Descriptive statistics**
        xiv. **Mean**
        xv. **Median**
        xvi. **Mode**
        xvii. **Range**
        xviii. **Standard deviation (s)**
        xix. **correlation coefficient (r)**
        xx. **linear regression**
        xxi. **null hypothesis**
        xxii. **alternative hypothesis**
        xxiii. **Probability**
        xxiv. **standard error of the mean (SEM)**
        xxv. **chi-square goodness of fit (X^2)**
        xxvi. **95% confidence interval.**
    b. Answer questions 1, 4, 5, 10, 12a, 14. Hand in your notes & questions on the third day of class. If it is typed, there must be a full revision history to indicate you did it on your own.

Rubrics and Grading Guidelines

Task #1: Ecology Scavenger Hunt (due 1st day of school), Labs & Projects, 34 points

__/ 34 points notes each term included with definition & picture

Task #2: Ecology in the World Today (due 2nd day of school), Labs & Projects, 12 points

	3	2	1	0
Key Points	At least three key points are identified that capture the article's main idea.	At least two key points are identified that capture the article's main idea.	At least one key point is identified that captures the article's main idea. AND/OR The article is loosely related to a topic on the list or is an ecology topic.	Missing/not included
Pictures	At least one picture/data/figure to support the article is included. The figure clearly relates to the topic.		At least one picture/data/figure to support the article is included. The figure somewhat relates to the topic.	
References	Link to article is included. Article is from the last twelve months. AND The article is directly related to a topic on the list or is an ecology topic.	Link to article is included. Article is from the last twelve months. AND The article is somewhat related to a topic on the list or is an ecology topic.	Link to article is included. Article may or may not be from the last twelve months. AND/OR The article is loosely related to a topic on the list or is an ecology topic.	
Presentation	Presentation is appealing to the audience.	Presentation is clear and easy to understand.	Presentation is somewhat clear and easy to understand.	

Task #3: Introduction to Statistics (due 3rd day of school), Individual Practice, 40 points

__/ 13 points notes (0.5 each term highlighted)
__/ 27 points practice problems (1 point for each bolded task word/item)

Please follow Academic Integrity guidelines. Cheating includes sharing documents and/or information with others on individual assignments and improper use of citations on work. **All summer assignments are to be done individually. Please see the student handbook for more information. For verification that your content was written by a human, you must use Google Docs and your “Version History” must show development over time. In other words, the version history can’t show all the text was copy-pasted in at once. An AI checker may or may not be used to verify that written content is human generated.