

Textbook – The primary textbook will be **Biology In Focus** by Urry, Cain, Wasserman, Minorsky, Jackson, Reece. Students will be given two chapter textbook handouts (2 – The Chemical Basis of Life and 3 – The Molecules of Cells) to help answer the questions on chemistry and biochemistry.

There is a copy of the assignment in the Google Classroom “AP Biology” and the class code is gps3535

All work is due in THS Office by **August 18, 2017** If you submit the assignment late there will be a 20 % deduction in your grade for every day late.

### **Part 1 – Essay Questions for Introductory Chapters**

Those questions marked with an asterisk should be considered major essay questions. Text must be typed, 12 point font, double spaced, 1 inch margins on all sides.

#### Chapter 1

1. Describe the phrase ‘emergent properties’ and cite two examples in biology.
- 2 Explain the phrase ‘form fits function’ and cite two examples in biology.
- 3 \*\*Describe Charles Darwin’s contribution to the theory of evolution. The essay should discuss Darwin’s ideas with respect to a) descent with modification, b) natural selection, c) adaptations, and d) competition. How do Darwin’s ideas on evolution relate to the tree of life ?

#### Chapter 2

1. What four elements make up the vast majority of organic molecules? Describe what trace elements are and their role in nutrition.
2. Describe the structure of an atom with regards to its subatomic particles. What are isotopes?
3. \*\*Describe the structure of the water molecule. Include a discussion of its bonding, and what makes water a polar molecule. Describe hydrogen bonds and why they are so important in biology. Describe cohesion, specific heat, and the hydrophilic and hydrophobic nature of water.
4. Describe pH, acids, and bases and explain how a buffer works.

#### Chapter 3

1. Describe the chemical basis of the carbon atoms versatility and the carbon skeleton.
2. \*\* For each of the four major classes of biological molecules (carbohydrates, proteins, lipids, and nucleic acids) describe their structure (monomers and polymers), and function in living organisms.
3. \*\*Describe the four levels of organization for protein structure and conformation.

## Part 2 - Ecology Paper on Biomes

Objective - Students will learn about ecology and biomes in general by reading the appropriate textbook chapters. Students will then research their specific biome in the library and on the internet. Based on their readings, students will write a paper on their specific biome.

The biome paper should include:

- 1) An introduction to the biome
- 2) Identification of important biotic and abiotic characteristics of your biome (be specific in describing these characteristics) and how do the abiotic and biotic factors affect one another?
- 3) Compare and contrast the characteristics of your biome and other biomes. Each student must choose one biome which they consider to be similar to their biome for comparison and one biome which they consider to be significantly different for contrast. For example, comparing a tropical rain forest to an estuary or contrasting a tropical rain forest to a desert.
- 4) Obtain some pictures or illustrations of several representative organisms, both animal and plant, that live in the biome. All pictures must be labeled. Color is not necessary.
- 5) In addition to text, you may use graphs, tables, and charts to illustrate and/or support your statements. All photos, diagrams, graphs, and maps must be labeled and have a caption.
- 6) References – You may use both print and online references. Follow MLA format for print references. For online references provide the URL so that the reader may go directly to the source. I have attached an addendum on references to further clarify the use of references when writing a science paper.

The paper should be 2-3 pages in length and any pictures, figures, etc should be placed in an addendum in order.

Text must be typed, 12 point font, double spaced, 1 inch margins on all sides.

The heading for your paper should be one line and use the following format:

Student Name

Title

Date

### Plagiarism

All work submitted must be your own. Incorporating other peoples words or ideas into your submissions without proper acknowledgement is dishonest. For your benefit, the Honor Code is as follows: Students are responsible for earning grades honestly and honorably. Failure to meet this responsibility may have extensive academic and disciplinary ramifications.

### Definition of Plagiarism

Plagiarism includes the literal repetition without acknowledgement of the writings of another author. All significant phrases, clauses, or passages taken directly from source material must be enclosed in quotation marks and acknowledged.

Plagiarism includes borrowing without acknowledgement another writer's general plan in the creation of one's own plan.

Plagiarism includes borrowing another's ideas and representing them as one's own. To paraphrase the thought of another writer without acknowledgement is to plagiarize.

Plagiarism includes allowing any other person or organization to prepare work which one then submits as his or her own.

### Ecology Biome Paper Score Sheet

Biome Project	Above Standard	Achieves Standard	Nearly Meets Standard	Fails to Meet Standard
<p>Scientific Content</p> <p>Introduction</p> <p>Biotic / Abiotic Factors</p> <p>Compare / Contrast Biomes</p> <p>Visual Component (Pics, Graphs, Tables, Labels)</p>				
<p>Format and Writing - Language</p> <p>Grammar</p> <p>Sentence structure</p> <p>Spelling</p> <p>Format</p> <p>References</p>				

## **Addendum - References**

The references should be numbered and the references listed in alphabetical order.

### **Format - Magazine**

Author's Last Name, First Initials. (publication year). Article Title. Periodical Name, Volume #, Date.

Berndt, T. J. (2002). Friendship Quality and Social Development. *Current Directions in Psychological Science*, 11, 7-10.

### **Format – Book**

Authors Last Name, First Initials, (publication year), Book Title, Location, Publisher

Fredericks, D. C., (1961), *Criminals are Bad People*, New York, Little Brown Book Publishing.

### **Format – Website, Electronic Media**

Title of article. Author. (date retrieved). [http://web\\_address.com](http://web_address.com)

Fighting Bad Guys. James Author. (February 2014). <http://en.wikipedia.org/wiki/Wiki>

### **Format – Movie – Documentary**

Title of Film (Year Released)

*An Inconvenient Truth* (2006)

## Citing References in Your Work

In the body of your paper, when referencing specific facts from an author it should look like:

Magazine example:XXXXXXXXXXXX. Criminals tend to be people who like the color purple (Berndt, 2002). XXXXXXXXXXXX.

Book Example: XXXXXXXXXXXX. They also hate dogs and prefer cats (Fredericks 1961).XXXXXXXXXX.

Website Example: XXXXXXXXXXXX. John, the criminal I am investigating, was arrested in 1997 when his car was stopped in a routine traffic stop (Fighting Bad Guys, 2014). XXXXXXXXXXXX.

Movie Example: XXXXXXXXXXXX. Grasshoppers are often portrayed as evil (A Bug's Life, 1998). XXXXXXXXXXXX.

**A simpler version that I would recommend would be to create your reference page and then use the number of the reference for each citation within the work.**

Example:. XXXXXXXXXXXX. John, the criminal I am investigating, was arrested in 1997 when his car was stopped in a routine traffic stop (4). XXXXXXXXXXXX

The XXXXXXXXXXXX represents text before and after the sentence.

**Finally**, its almost never necessary to use quotes in a scientific paper. You should read the information from the reference and write it in your own words.