BSCS Honor Portfolio – Quarter 1

As an honor student, you are expected to work more independently and to complete various additional assignments. The schedule of due dates is in the table below. If an assignment is late, you will lose point each school day. You may not turn in an assignment beyond a week after the due date. Each assignment will be graded and returned to your portfolio folder, kept in the classroom.

* All assignments should be typed, double-spaced (with the exception of the very neat handwritten notes from web activities).
* Pay attention to your depth and clarity of responses, organization, and neatness.

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| **Assignment** | **Due Date** |
| **Science as a Process**1. Lab protocol – Roly Poly Lab | Wed Sept 18 |
| **Honor Contract Signed** | Thurs Sept 19 |
| **Evolution by Natural Selection**2. Scientific American article questions (see below) – *Skin Deep* | Mon Sept 30 |
| 3. Genome chapters: do both -a. Introduction (Qs below)b. Chapter 9 “Disease” | Mon Oct 7 |
| 4.New Scientist article response (see below) – *Evolution in the Fast Lane* (posted on msjuo.weebly.com) | Tues Oct 15 |
| **Ecology – choose ONE**4a. Croak Mystery – internet activity OR4b. BSCS textbook extra activity *“Where Do We Go From Here?”*  | Mon Oct 21 |
| 5. Scientific American article response (see below) – *Abrupt Climate Change*  | Mon Oct 28 |
| 1-1.5 page reflection on the quarter1. how is the quarter going?
2. what do you need to work on?
3. what have you enjoyed most and why?
4. what have you enjoyed least and why?
5. do you think that the honor credit work is or is not challenging enough?
6. what did you think about the Genome book?
7. What did you learn that was new about natural selection? About ecology?
 | Mon Nov 4 |

**Q1 Honor Portfolio Details**

**Skin Deep** article:

Jablonski, Nina, and George Chaplin. "Skin Deep." *Scientific American* October 2002: 72-79.

Answer the following questions in complete sentences so that the question is understood in the answer.

1. High concentrations of melanin protect people from skin cancer. However, this observation does NOT explain the evolution of darker skin pigmentation. **Explain** why protection against skin cancer is not a sufficient explanation for evolution of darker skin.
2. In terms of human health, what is folate’s importance?
3. What is the relationship between folate and exposure to UV (ultraviolet) light?
4. From an evolutionary perspective, why did dark skin evolve in humans? Explain the evolutionary process that led to darker skin.
5. In terms of human health, what is vitamin D’s importance?
6. What are two different ways whereby a person can obtain vitamin D?
7. What is the relationship between vitamin D and exposure to UV light?
8. From an evolutionary perspective, why did light skin pigmentation evolve in some regions of the world? Explain the evolutionary process that led to lighter skin in some regions.

**Genome**, by Matt Ridley

Ridley, Matt. Genome: The Autobiography of a Species in 23 Chapters. New York: Harper

Collins Publishers. 1999. Pp 4-10.

*Introduction* (Engage Unit)

After carefully reading the introduction to the book Genome, type your answers to the questions below.

You must type out the questions as well as the answers.

1. How many genes are thought to be in the human genome and how many of them have been found?
2. Describe what is found in the nucleus of each cell.
3. Why is “blueprint” a bad term to use to describe the genome?
4. Describe DNA replication, generally.
5. Describe in 5 sentences or less the processes of transcription and translation.
6. Give at least 4 different functions of proteins.
7. In your own words, describe the important of DNA for living things in 2 or 3 sentences (without using the word blueprint!).

*Chromosome 9 – Disease* (After Engage Unit)

Read the chapter and write a 1-2 page, typed (double-spaced) thoughtful response. To earn full credit, you will include each of the following:

* Summarize the concepts presented here in no more than five sentences.
* Explain the advantages/disadvantages for having particular blood groups. Be specific.
* Describe one other specific example of a disease’s hidden benefit. Explain at least one connection
* between the ideas in the excerpt and what you have learned in this course so far.
* What question(s) do you still have?

**Article responses:**

*Evolution in the Fast Lane*and*Abrupt Climate Change* articles

Read the article and write a 1-1.5 page, typed (double-spaced) thoughtful response. To earn full credit, you will include each of the following:

* Summarize the concepts presented here in no more than five sentences. Be sure to use your own words!
* Copy down an interesting quote (use quotation marks) and explain why it resonated with you/ why you thought it was so interesting.
* How would you explain to a BSCS Standard Credit student how this article expands on ideas from the relevant Unit?
* Discuss the relevance of the subject matter to your life or to society as a whole.

**Ecology assignment**

**Choice a**: This web-based assignment allows you to go at your own pace and should not take more than an hour. Please note the Croak Mystery choice needs to be completed in one internet session.

*Croak Mystery*

* + Materials: internet, paper, pen
	+ Assignment: Go to the web address: <http://www.accessexcellence.org/AE/mspot/croak/>
* Read the introductory information and complete the activity as it directs. Go at your own pace.
	+ You should have a pen and notebook at your side, to take notes as you go through the story.
	+ You should organize and label your notes as you go, under broad categories such as "Possible Causes," "What the Graph Says," "Predators" and so on.
	+ These handwritten notes are to be included in your portfolio.
* When you think you know the answers to the mystery, complete the webpage that has the title “Solve the Mystery.” **BEFORE submitting your answers, print out the page you filled in.** This printout must be in your portfolio in order to receive credit for this activity. If your printer is NOT working, I suggest that you ‘select all’ and copy/ paste the page onto a MS Word blank document and save. Turn in the whole printout.
* **You will receive an email about a week after you send in your answer about the mystery’s resolution**. **Print this email and turn it in ASAP.**

**Choice b**: “Where Do We Go From Here?” Complete Parts A and B, as well as Analysis questions (typed, double-spaced).

Note: If you choose this activity you must request copy of the packet at least 2 days before you want to start on it.