

AP BIOLOGY

Independent Summer Reading Assignment- 2023

Survival of the Sickest by Dr. Sharon Moalem

Welcome to AP Biology, a comprehensive walk through the science of life!

This is not an easy course; the curriculum is demanding and the pace is swift. To help improve your scientific reading comprehension abilities you will be expected to complete a significant amount of independent work including reading the textbook, scientific articles and book excerpts. Before the course begins, you will read the book **Survival of the Sickest by Dr. Sharon Moalem**. (*New and used copies can be found on [Amazon](#) for under \$10*). The ideas presented will be revisited myriad times throughout the year; it is **imperative** that you read the book in its entirety and write this essay **independently**.

- Your assignment should be written in complete sentences, typed: *1.5 spacing, 12-point font, 1" margins*
You will be submitting your assignment via **Google Classroom (code:ct4kqww)**

☐ This assignment will be due the week before school begins (Friday, August 11, 2023). If it is not completed by that time, you will be removed from AP Biology.

Reading Analysis

Please answer each of the following questions separately supported with well-developed arguments, evidence and internal citations.

1. Many of us regard disease as entirely destructive, but we are now learning that reality is more nuanced. According to Dr. Moalem: “*Life is such a compromise.*” For each of the diseases listed, discuss the following *in detail*:
 - ☐ **Hemochromatosis**—*Chapter 1*
 - ☐ **Diabetes** (*there are three types*)—*Chapter 2*
 - ☐ **High cholesterol**—*Chapter 3*
 - ☐ **G6PD deficiency/favism**—*Chapter 4*
 - a detailed description of the disease
 - specific symptoms and physiological effects
 - the historical perspective of the disease
 - the evolutionary advantage of the disease (*depending on time and place*)

2. As long as there have been organisms on Earth, there have been symbioses, close relationships between species. Whereas there are many mutualisms that we will explore throughout the year, *Chapter 5* focuses on parasitic relationships.
- ◊ Using at least *two* examples from the book, explain the concept of **host manipulation** by describing the intricate relationship between the success of the parasite's life cycle and the behavior of its host.
 - Research and describe one parasite-host relationship that you find interesting and is not included in this book.
3. The structure of DNA was elucidated in *1953* by the famous scientific pair, Watson & Crick (*although others deserve credit too!*). Nearly a half century later, the human genome was sequenced, yet the results of the Human Genome Project stimulated more questions than provided answers.
- ◊ Using at least *two* examples from *Chapter 7* in the book, describe **epigenetics** and explain how it contradicts our former model of gene expression. Include a brief description of the process of **DNA methylation**. *Feel free to use outside research to bolster your answer.*
4. What were a few things in this book that you personally found interesting and/or that changed your mind about something you thought you knew already? Please explain in detail using specific references or examples from the book or your outside research.
5. create a list of **5 questions** that the book elicited that you are hoping we address in the course.

RUBRIC

This assignment is worth 120 points

You will be graded on the following:

- ☐ Adhering to the specified format: *1.5 spacing, 12-point font, 1" margins.*
- ☐ Composing fully developed answers that you wrote independently.
 - You will be submitting through *Google Classroom* so the expectation is that the work is your own.
- ☐ Writing with proper spelling, grammar, punctuation, etc.
 - **Proofread** before submitting your final version.
 - ☐ **Hint:** when writing a scientific name, you should *italicize*; capitalize the first word, the genus, but not the second, the species.
Ex. *Homo sapiens* or *Canis lupus*
- ☐ Inclusion of appropriate outside scientific resources (*articles from scientific journals, newspapers or magazines; websites that end in .gov, .edu*).
- ☐ Include a Works Cited page

Due: August 11, 2023