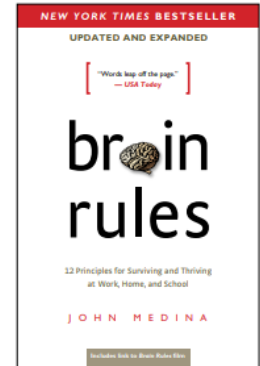


AP Biology 2019-2020 Summer Assignment

Welcome to AP Biology!

As part of our summer assignment, you will need to read the book ***Brain Rules*** by **John Medina** and complete the assignment below. The book is available in printed and electronic formats.

In *Brain Rules*, Dr. Medina shares what scientists know about how the human brain works and how that influences the way we learn. In each chapter, he describes a brain rule and offers ideas for applying it. The intention in reading this book is to demystify the learning process and develop effective study strategies for this class.



The Brain Rules



survival
The human brain evolved, too.



memory
Repeat to remember.



exercise
Exercise boosts brain power.



sensory integration
Stimulate more of the senses.



sleep
Sleep well, think well.



vision
Vision trumps all other senses.



stress
Stressed brains don't learn the same way.



music
Study or listen to boost cognition.



wiring
Every brain is wired differently.



gender
Male and female brains are different.



attention
We don't pay attention to boring things.



exploration
We are powerful and natural explorers.

The book has a total of 13 chapters: one chapter for each of the 12 brain rules and an introduction. After you **read each chapter**, **answer the relevant *Brain Rules* Question** below. If you start now, you can complete the assignment doing just one per week. When you are finished with all 12 brain rules create your study plan.

You may want to reinforce the main points of each rule by watching the videos provided on the author's website: <http://brainrules.net/about-brain-rules> (note that this is a supplement, not a replacement for reading the chapter).

Please submit your work in PDF form to the shared Google drive "AP Bio Summer Assignment 2019-2020" no later than **Friday, August 9, 2019**. This assignment will count as the first test grade of the year, with a total value of 100 points.

***Brain Rules* Questions**

Rule 1 – Survival

1. According to the author, what are some of the unique abilities of the human brain?

Rule 2 – Exercise

2. How does physical activity influence our mental capabilities and/or mental states? How does the body "feed" the brain?

Rule 3 – Sleep

3. a) Are you a "lark," "owl," or "hummingbird?" Based on that, and what you learned about the circadian rhythm, how would you structure your study schedule?

b) How does sleep loss impact our ability to learn and perform?

Rule 4 – Stress

4. a) What are some negative effects of long term stress?

b) What are some ways that we can manage stress?

Rule 5 – Wiring

5. a) How does learning physically change the brain?

- b) Knowing that every brain is literally different, how can we use that knowledge to improve learning?

Rule 6 – Attention

- 6. a) What does the author have to say about multi-tasking?
- b) How can you use the “10-minute” attention rule?

Rule 7 – Memory

- 7. a) The author talks about “elaborative rehearsal,” and how thinking or talking about an event right after it happens is important for memory. How can this relate to how you study?
- b) The author states that memory works better in the same environment in which it was created. Since it is unlikely that you will be able to take the AP exam in your bedroom, what advantages might there be to studying the same material in many different locations?

Rule 8 – Sensory Integration

- 8. a) If we learn best when we stimulate several senses at once, what does that mean for how you learn, take notes, and study?
- b) The author describes smell as unusually powerful in bringing back memories. Why is this? Do you have any personal examples?

Rule 9 – Vision

- 9. a) The author asserts that “vision is king.” What does he mean by this?
- b) Watch the video <https://www.youtube.com/watch?v=U6PoUg7jXsA>. Memory champions take advantage of the power of visual imagery when they create a memory palace. How can you apply the information from this video and the chapter you read as you study?

Rule 10 – Music

- 10. According to the book, what are the benefits of listening to music (and playing it) and how can it be useful to you?

Rule 11 – Gender

- 11. a) What is the difference between sex and gender?

- b) The author describes a number of ways in which male and female brains are different. Is there anything you disagree with or find particularly surprising?

Rule 12 – Exploration

12. We're all curious about something...what drives your curiosity?

Study Plan

Now that you are familiar with the 12 brain rules, think about how you can use this information to help you study for AP Biology. Write a few sentences to describe a plan for structuring your studies over the next year. Remember that this is just a starting point – it doesn't have to be perfect – we will discuss and revise these plans the first week of class and throughout the year.

I hope you have a wonderful summer, and I look forward to a fantastic year!

Cheers,

Dr. Wooley