

Dear Anatomy & Physiology Student,

I am Dr. Wendy Bruffy and welcome to Anatomy and Physiology. I'm certain you are looking forward to a relaxing and exciting summer vacation; however, I'd like you to get a jump start on the journey through the human body. This summer assignment should take very little time, unless you wait until the last minute...and then it **WILL** seem like it is taking **forever!!**

This assignment will be posted on my classroom in case this paperwork gets lost. I update my classroom daily during the school year and **you** will be **required** to check it **regularly** for assignments and updates. Assignments and long term projects are also posted. **Note:** Students that meet the required criteria will be able to take 3 exams supplied by Rutgers University throughout this course for university credit. The fee for the testing is between \$70 per exam. The three exams that may be taken are: Anatomy I, Anatomy II, and Medical Terminology. If you pass ALL three exam you can obtain 11 university credits. Dynamics of Health Care is a requirement of Rutgers University and if you pass that exam you receive an additional 3 credits. All the information and forms that will be needed to obtain credit are found here:

http://shp.rutgers.edu/dept/health_careers/techprep/Index.html

***This packet is worth 80 summative points towards 1st MP**

20 pts per assignment!!

Class code: podh54l

Do Assignment #1 ASAP...Now, YES *right now* so you don't forget!

[Assignment #1: Part I-II](#)

PART I.

Here is my email: bruffyw@kinnelon.org

1. Your Name:
2. Your **most often checked** e-mail address:
3. Mom's name and email:
4. Dad's name and email

***If at any time these email addresses change, please notify me at my email please.**

5. Home Mailing Address (street, city and zip code):
6. Home phone #:
7. What prompted you to enroll in Anatomy & Physiology?
8. Which systems of the body do you already find the most interesting?
9. What other Honors or AP classes are you enrolled in for the 2018-19?
10. Tell me a little about you, your interests (academic, clubs, athletics and other), your study habits (How do you attack the issue of daily homework assignments, quizzes, exams, projects?) and your plans for the summer and future. ***don't write a book...just give me a paragraph.**

PART II: Safety is our #1 priority; therefore you and your parents will be required to read safety rules and protocols. Once you have read the material provide you and your parents must sign the bottom. Retain one copy for your records and return the other copy by the 2nd day of school. Failure to return the form will result in elimination from the hands-on portion of our Lab activities. **I take the safety of my student VERY SERIOUSLY. Please remember to turn in the required forms ON TIME.**

Assignment #2: This is a 3 part assignment, IT IS due the first day of school

Below is a list of topics you probably already know from biology or chemistry...I will be referring to this during the school year so review it over the summer.

* There will be a **quiz** sometime at the end of the second week of school **AFTER WE'VE REVIEWED** and discussed the key points that will be pertinent to your studies of anatomy and physiology the remainder of the year.

Part I. Chemistry Basics:

**** Please copy cut and paste the list of items A-B into a google document for part I.** Print the list & review questions. Put check marks by those items A-B you **ABSOLUTELY** know the answers to **AND YOU ARE DONE WITH THAT ITEM**. Any that you are **unsure** of you should write a few notes in the space provided after you've checked out the online resources I've provided below the list or possibly from another source you may find on the internet.

A. General chemistry terms you probably already know from your chemistry or biology class: (Drawing a picture might help you remember)

atom

proton

neutron

electron

ion

exergonic reactions

endergonic reactions

chemical bonds (ionic, covalent, hydrogen, peptide).

2. What is "molecule"? What "holds" atoms together in molecules?
3. How are electrons important in chemical bonds? What role do they play?
4. What is an ion? How are they formed? What is their use in the human body?

B. Acid/base terminology and the pH scale

1. What is an "acid", "base" and "buffer"?
2. What are neutral, acidic, alkaline pH levels on the pH scale? What is their significance to the function of the human body?
3. What is polarity? Why is water considered the universal solvent?
Define solute and solvent.

4. What is a “catalyst” and “equilibrium”?

Helpful Links:

website:

https://www.fkit.unizg.hr/_news/32312/1%20-%20Basic%20Chemistry%20Vocabulary%20List.pdf

Go to Chapter 2 and browse through this link as well for the information. [Chemistry Basics](#)

website: <http://www2.estrellamountain.edu/faculty/farabee/biobk/BioBookCHEM1.html>

Part II. Biochemistry Basics: You probably already know this information from your own biology class, but if not then check the links below the list and take a few notes: ** **Please copy cut and past the list of items A-C into a word document for part II.** Print the list & review questions. Put check marks by those items A-C you **ABSOLUTELY** know the answers to **AND YOU ARE DONE WITH THAT ITEM.** Any that you are unsure of you should write a few notes in the space provided after you've checked out the online resources I've provided below the Review Questions or possibly from another source you may find on the internet. **(Make flash cards if they help you & draw a picture of EACH molecule)**

A. Macromolecules (organic compounds)

1. Proteins – Are composed of (often called the "building blocks")? Basic functions?

2. Carbohydrates – Are composed of (often called the "building blocks")? Basic functions?

3. Lipids – Are composed of (often called the "building blocks")? Basic functions?

4. Nucleic acids - Are composed of (often called the "building blocks")? Basic functions?

B. Enzymes

1. What category of macromolecules (organic compounds) are enzymes?
2. What is the function of enzymes?
3. What is the effect of pH, and temperature on enzyme functions?
4. What is the "lock and key" or "induced fit" hypothesis as it applies to enzymes?

C. ATP

1. What category of macromolecules (organic compounds) is ATP?
2. What is the function of ATP?
3. Where is ATP formed in our cells?

(Links on following page to help you)

Helpful links: Click the link for the online video :

<https://www.youtube.com/watch?v=rbTQiP51PIA>

Take notes on:

[Proteins](#) [Lipids](#) [Carbohydrates](#) [Nucleic Acids](#) [Enzymes](#) [ATP](#)

Part III. Cell Biology

**** Please copy cut and past the list into a word document for part III.** Print the list. Put check marks by those you **ABSOLUTELY** know the answers to **AND YOU ARE DONE WITH THAT ITEM....** Any that you are unsure of you should write a few notes in the space provided after you've checked out the online resources I've provided below the list or possibly from another source you may find on the internet.

A. Identify the "basic unit of living organisms"

1. What are the 4 concepts of the cell theory?
2. Name the three major parts of any cell.

B. Plasma membranes

1. Diagram a typical plasma membrane and label the parts: phospholipid molecules, protein molecules, carbohydrate molecules, cholesterol molecules. Identify the non-polar region of the phospholipid and the polar region of the phospholipid. Identify an integral protein and a peripheral protein.

2. Plasma membranes are interactive with the cell's environment by allowing some substances to passively move into and out of cells. Simple diffusion allows molecules to move down their concentration gradients. Relative to this concept, Assume the cytoplasm of a hypothetical cell is composed of 10% solute particles and 90% water relative to the environment surrounding it which contains 20% solute particles and 80% water. Distinguish the hypotonic area versus the hypertonic area. If water is permeable to the membrane and solutes are not, what will happen to this cell: Will it shrink or swell?

3. Define each type of movement/transport of molecules across membrane

a. simple diffusion

b. facilitated diffusion

c. filtration

d. osmosis

e. active transport specifically the sodium potassium pump

B. Major organelles - Know major functions of each:

1. nucleolus

2. ribosomes

3. RER

4. SER

5. mitochondria

6. Golgi
7. Lysosomes
8. peroxisomes
9. cytoskeleton (microfilaments, microtubules)
- 10) Nucleus

Helpful Link: Click the link for the online tutorial www.cellsalive.com

Assignment #3 & #4 Due the 2nd Day of School.

An A&P coloring book will be used throughout the year to enhance your studies and will be assigned as homework as we move through the various body systems. It is more of a workbook and less of a coloring book. The pictures from this book will also occasionally be used on quizzes and exams for the purpose of assessing your knowledge of the location and function of human body parts. It is an excellent way to review. There are two options for obtaining this book:

Option 1: Title: Kaplan Medical Anatomy Coloring Workbook. You can purchase it at Amazon.com (best price) or Barnes and Noble Bookstore (more costly). Online you can find them used but in good condition.

Option 2: FREE You may also go online to <https://archive.org/details/KaplanAntomy>

***You'll need a fast internet connection to be happy with this site...but it is FREE! You may download and save it as a PDF.** If you elect to use the site instead of purchasing the book, print pages 1-5 on anatomical position and the hierarchy of the body (or buy the book) and bring to class on 1st day of school. Amazon has it very inexpensive. Anywhere else may be more costly.

Assignment #4 Book Reading: Please choose one of these two books

Summer Reading Mandatory:

Complications: A Surgeon's Notes on an Imperfect Science: by [Atul Gawande](#) ISBN-13: 978-0312421700 ISBN-10: 0312421702

Better: A Surgeon's Notes on Performance 1st Edition: by [Atul Gawande](#)
ISBN-13: 978-0312427658 /ISBN-10: 0312427654

*These books are reasonably priced on amazon.com

Assessment:

1. Write down 25 medical terms you have not heard and/or do not know the meaning of. Write down the term and find its meaning.
2. Choose one case within the book that intrigued you. Write a reflection on that case and briefly explain why. Your reflect should be 2 pages and include at least two quotes from the book.

Lastly:

***If you are NOT a member of the Health Professions Club I'd like you to join.**