

AP Biology Course Syllabus

Fall 2020 – Spring 2021

Agua Fria High School

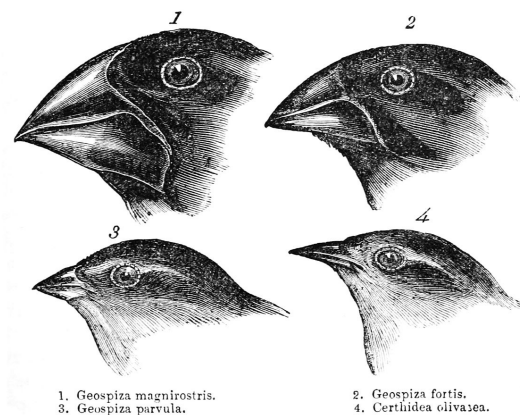
Mr. Carl McBee, Room K1

Google Voice: 602-888-4175

Email & iMessage: CMcBee@AguaFria.org

Required Text: *Biology for AP Courses* by OpenStax

Online Dashboard: classroom.google.com



Included in this packet: Syllabus, Lab Safety Agreement, Contract, Summer Assignments, Framework/Text

AP Exam & College Credit:

Colleges vary in what score they will accept for credit. Generally, a student needs to score at least a 4 for credit, but many schools will accept a 3 from AP Biology because of the increased difficulty on the exam. Generally, a 4 or 5 earns 10-15 credits—think about that value (15 credits X ~\$1,500 per credit). Check with the schools you are applying to for details.

The AP Exam: SAVE THE DATE ON YOUR PHONE'S CALENDAR APP!

Test Date: Friday, May 14, 2021 @ 8:00 AM (Report at 7:15)

Course Description:

AP Biology is a rigorous and demanding course, which is the equivalent of an introductory college biology course. Content will be covered in more depth and greater expectations will be placed on interpretation and analysis of information than any of your previous biology courses. In addition, statistical analysis of data and modeling of concepts will be expected. A significant amount of reading, processing, and studying must be completed at home to allow time for discussion, inquiry labs, and AP Exam preparation activities during class time. The College Board has redesigned the curriculum starting in the 2013 school year, and although the amount of material has been reduced, the emphasis on scientific thinking and analytical thinking (AKA PROCESSING) has increased. The course will be structured differently than previous years due to the changes and to allow for more class time for labs and discussions. The new AP Biology curriculum encompasses 4 'big ideas', with Essential Knowledge and Process Skills that support each one.

Big Idea 1: Evolution – the process of evolution drives the diversity and unity of life

Big Idea 2: Cellular Processes (Energy and Communication) – Biological systems utilize free energy and molecular building blocks to grow.

Big Idea 3: Genetics and Information Transfer – living systems store, retrieve, transmit, and respond to Information essential to life processes

Big Idea 4: Interactions – Biological systems interact and these systems and their interactions possess complex properties.

Class Expectations:

- Come to class prepared - in order to facilitate class discussions and reduce lecture time in favor of labs and knowledge enhancing activities, you must complete all required assignments. AP assignments are not 'busy work'; they are designed to help you learn difficult material.
- Come to class! The work we will be doing during class cannot be replicated at home, labs in particular. You have committed to an advanced class and that requires your presence in the classroom. Missed labs cannot be made up and will receive a score of zero.
- Study at home – the convention for college courses is 3 hours of independent study for each hour of class. In order to have productive class discussion you must review the material at home.
- No whining! This is a college level course. It will be challenging. It will require a significant amount of time outside of class. If you don't like biology, this is not the class for you!
- Yes, you have to write in complete sentences. Yes, you have to show your work. Yes, you have to write out procedures, data tables, and label graphs. Yes, you are expected to show a higher level of understanding on ALL of your assignments.
- Read and sign the contracts and lab safety agreement.

Class policies:

1. Food and drink are prohibited while doing lab work.
2. Missing work will prevent reassessment. Missing work will not be accepted after the week it was due.
3. Do not throw any classwork away. You will need it to review for tests and mistakes do happen occasionally with grade recording.
4. Cheating is unacceptable in any form. Cheating includes, but is not limited to: copying homework, copying lab analysis answers, plagiarizing written assignments, copying test answers, use of electronics to find test answers. If copying occurs all people involved will receive a zero on the assignment and a referral. You are in class to learn and succeed on the spring exam. Cheating DOES NOT help you learn—it trains you to play the points game instead of the most important game of life: the game of knowledge.

Grading:

We use rubric-driven Standards-Based Grading on a 4-point scale; this grading system is backed by [amazing research](#) and is much more equitable than traditional grading. Our grade book will automatically convert a proficiency-based (4-point scale) into a reported percentage.

Grades will not be rounded up (100-90 = A, 89-80 = B, 79-70 = C, 69-60 = D, 59 and below = F).

Fall 2020

74% - Standards (Assessments & Projects)
15% - Midterm Exam* (MTE)

11% - Science Practices

Spring 2021

70% - Standards (Assessments & Projects)
20% - End of Course Assessment* (EOCA Final Exam)

10% - Science Practices

*Subject to change if online distance learning continues and AFUHS D Governing Board policy updates.

Material Requirements:

1. Textbook – Biology for AP Courses by OpenStax (free, open-sourced)
 - a. Biology for AP Courses by OpenStax, is available online in web view and PDF formats. It will be posted to Google Classroom. Visit www.openstax.org/details/biology-ap-courses for more information.
2. 3-ring binder – sections for notes, reading guides, homework, test/quizzes
3. Internet access! We will be using several websites to support coursework.
4. AP Biology study books are highly recommended. Make sure you get one that is for the new curriculum. Anything published earlier than 2012 **will not** be helpful in preparation for the new curriculum.

Labs:

Labs will constitute at least 25% of time spent in class. The new curriculum includes more emphasis on inquiry-based labs, which means you will design your own experimental procedures for a significant number of labs. In order to have as authentic a lab experience as possible, you will keep a lab notebook to record procedures and observations during labs. Formal lab write-ups or group presentations will be completed for each lab. Lab notebooks will be collected at random and graded throughout the semester.

Homework:

Homework should be completed promptly when it is assigned. Usually it will consist of reading assignments, viewing lectures (Kahn Academy, Bozeman biology), taking notes, test corrections, practice essays, and finishing labs. AP Biology is a challenging class and can't be just 'picked up' during class time. You need to invest the time outside of class to be successful in class.

Reading Guides:

Students will have a reading assignment and will create a "Cheat Sheet" for EVERY CHAPTER. Cheat Sheet outlines for each unit will be due the day of the unit assessments.

Assessments:

We will have unit tests at the end of each unit (larger units may be split up into 2 smaller tests) which will consist of multiple choice and free response. Tests are a large part of your grade (similar to a college course) and it is important that you prepare for them. Reassessments are offered for credit back (full credit back semester 1, 80% credit back semester 2) when reassessment tasks are completed in a timely fashion.

Absences:

AP courses are fast paced and cover a significant amount of content each day, particularly on lab and test days. It is extremely important that you attend class every day. If you are ill, check the website, call a friend, or email Mr. McBee. You are still responsible for the content covered in class on the day of your absence.

Participation:

Always be prepared for class so you can fully participate. The goal this year is to promote more discussion and small group analysis of information, more lab time, and less lecture time. For this to work, you must be committed to completing the work required outside of class, and to actively participating during class time.

AP Biology Curriculum Outline:

The following is an overview of the main concepts that we will be covering this year. Each 'Big Idea' has Enduring Understandings (EU) and sub points for each EU. Although the outline does not go into detail on each sub point, it will help you to know what the important understandings are for each section. The chapters are included in parenthesis after each sub point. At the end are the science practices that will be emphasized this year through labs and class activities.

Big Idea 1 – Evolution: The process of evolution drives the diversity and unity of life

EU 1A – Change in the genetic makeup of a population over time is evolution

1. Natural selection is a major mechanism of evolution (CH 2, CH 18)
2. Natural selection acts on phenotypic variations in populations (CH 19, CH 36)
3. Evolutionary change is also driven by random processes (CH 19)
4. Biological evolution is supported by scientific evidence from many disciplines, including mathematics (CH 18, CH 20)

EU 1B – Organisms are linked by lines of descent from common ancestry

1. Organisms share many conserved core processes and features that evolved and are widely distributed among organisms today (CH 22)
2. Phylogenetic trees and cladograms are graphical representations of evolutionary history that can be tested (CH 20)

EU 1C – Life continues to evolve within a changing environment

1. Speciation and extinction have occurred through the Earth's history (CH 18, CH 20)
2. Speciation may occur when two populations become reproductively isolated from each other (CH 18)
3. Populations of organisms continue to evolve (CH 18)

EU 1D – the origin of living systems is explained by natural processes

1. There are several hypotheses about the natural origin of life on Earth, each with supporting scientific evidence (CH 1, CH2, CH 20, CH 28)
2. Scientific evidence from many different disciplines supports models of the origin of life (CH 28)

Big Idea 2 – Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis

EU 2A – Growth, reproduction, and maintenance of the organization of living systems require free energy and matter

1. All living system require constant input of free energy (CH 6, CH 7, CH 8, CH 24, CH 29, CH 30, CH31, CH 36, CH 37)
2. Organisms capture and store free energy for use in biological processes (CH 4, CH7, CH 8)
3. Organisms must exchange matter with the environment to grow, reproduce, and maintain organization (CH 25)

EU 2B – Growth, reproduction and dynamic homeostasis require that cells create and maintain internal environments that are different from their external environment

1. Cell membranes are selectively permeable due to their structure (CH 5)
2. Growth and dynamic homeostasis are maintained by the constant movement of molecules across membranes (CH 2, CH 5)
3. Eukaryotic cells maintain internal membranes that partition the cell into specialized regions (CH 4)

EU 2C – organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis

1. Organisms use feedback mechanisms to maintain their internal environments and respond to external environmental changes (CH 5, CH 24, CH 29, CH 30, CH 31)
2. Organisms respond to changes in their external environments (CH 24, CH 29, CH 30, CH 31)

EU 2D – Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment

1. All biological systems from cells and organisms to populations, communities and ecosystems are affected by complex biotic and abiotic interactions involving exchange of matter and free energy (CH 2, CH 35, CH 36, CH 37)
2. Homeostatic mechanisms reflect both common ancestry and divergence due to adaptation in different environments (CH 24, CH 25, CH 29, CH 30, CH 31, CH 32, CH 34)
3. Biological systems are affected by disruptions to their dynamic homeostasis (CH 24, CH 25, CH 29, CH 30, CH 31, CH 32, CH 34, CH 38)
4. Plants and animals have a variety of chemical defenses against infections that affect dynamic homeostasis (CH 23, CH 28, CH 33)

EU 2E – many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.

1. Timing and coordination of specific events are necessary for the normal development of an organism, and these events are regulated by a variety of mechanisms (CH 16, CH 23, CH 34)
2. Timing and coordination of physiological events are regulated by multiple mechanisms (CH 9, CH 18, CH 23, CH 27, CH 36)
3. Timing and coordination of behavior are regulated by various mechanisms and are important in natural selection (CH 23, CH 36)

Big Idea 3 – Living systems store, retrieve, transmit and respond to information essential to life processes

EU 3A – Heritable information provides for continuity of life

1. DNA and in some cases RNA, is the primary source of heritable information (CH 3, CH 13, CH 14, CH 15, CH 17, CH 20, CH 21, CH 22)
2. In eukaryotes, heritable information is passed to the next generation in processes that include the cell cycle and mitosis or meiosis plus fertilization (CH 10, CH 11)
3. The chromosomal basis of inheritance provides an understanding of the pattern of passage (transmission) of genes from parent to offspring (CH 12)
4. The inheritance pattern of many traits cannot be explained by simple Mendelian genetics (CH 4, CH 13)

EU 3B – Expression of genetic information involves cellular and molecular mechanisms

1. Gene regulation results in differential gene expression, leading to cell specialization (CH 16)
2. A variety of intercellular and intracellular signal transmissions mediate gene expression (CH 9, CH 15)

EU 3C – The processing of genetic information is imperfect and is a source of genetic variation

1. Changes in genotype can result in changes in phenotype (CH 13, CH 15, CH 19)
2. Biological systems have multiple processes that increase genetic variation (CH 11, CH 22)
3. Viral replication results in genetic variation, and viral infection can introduce genetic variation into the hosts (CH 21)

EU 3D – Cells communicate by generating, transmitting, and receiving chemical signals

1. Cell communication processes share common features that reflect a shared evolutionary history (CH 9)
2. Cells communicate with each other through direct contact with other cells or from a distance via chemical signaling (CH 9)
3. Signal transduction pathways link signal reception with cellular response (CH 9)
4. Changes in signal transduction pathways can alter cellular response (CH 9)

EU 3E – Transmission of information results in changes within and between biological systems

1. Individuals can act on information and communicate it to others (CH 9)
2. Animals have nervous systems that detect external and internal signals, transmit and integrate information, and produce responses (CH 26, CH 27, CH 35)

Big Idea 4 – Biological systems interact, and these systems and their interactions possess complex properties

EU 4A – Interactions with biological systems lead to complex properties

1. The subcomponents of biological molecules and their sequence determine the properties of that molecule (CH 3)
2. The structure and function of subcellular components and their interactions provide essential cellular processes (CH 4)
3. Interactions between external stimuli and regulated gene expression result in specialization of cell, tissues, and organs (CH 16)
4. Organisms exhibit complex properties due to interactions between their constituent parts (CH 26, CH 33, CH 34)
5. Communities are composed of populations of organisms that interact in complex ways (CH 36)
6. Interactions among living systems and with their environment result in the movement of matter and energy (CH 36, CH 37)

EU 4B – Competition and cooperation are important aspects of biological systems

1. Interactions between molecules affect their structure and function (CH 5, CH 6)
2. Cooperative interactions within organisms promote efficiency in the use of energy and matter (CH 24, CH 29, CH 30, CH 31)
3. Interactions between and within populations influence patterns of species distribution and abundance (CH 36)
4. Distribution of local and global ecosystems changes over time (CH 3, CH 18)

EU 4C – Naturally occurring diversity among and between components within biological systems affects interactions with the environment

1. Variation in molecular units provides cells with a wider range of functions (CH 3)
2. Environmental factors influence the expression of the genotype in an organism (CH 12)
3. The level of variation in a population affects population dynamics (CH 18, CH 19)
4. The diversity of species within an ecosystem may influence the stability of the ecosystem (CH 12, CH 19, CH 36)

Science Practices (skills that are required for scientific study)

1. Use representations and models to communicate scientific phenomena and solve scientific problems.
 - a. Create representations and models of natural or manmade phenomena and systems in the domain
 - b. Describe representations and models of natural or manmade phenomena and systems in the domain
 - c. Refine representations and models of natural or manmade phenomena and systems in the domain
 - d. Use representations and models of analyze situations or solve problems qualitatively and quantitatively
 - e. Re-express key elements of natural phenomena across multiple representations in the domain
2. Use mathematics properly
 - a. Justify selection of mathematical routine to solve problems
 - b. Apply mathematical routines to quantities
 - c. Estimate numerical quantities
3. Engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course
 - a. Pose scientific questions
 - b. Refine scientific questions
 - c. Evaluate scientific questions
4. Plan and implement data collection strategies appropriate to a particular scientific question
 - a. Justify the selection of the kind of data needed to answer a particular scientific question
 - b. Design a plan for collecting data to answer a particular scientific question
 - c. Collect data to answer a particular scientific question
 - d. Evaluate sources of data to answer a particular scientific question
5. Perform data analysis and evaluation of evidence
 - a. Analyze data to identify patterns or relationships
 - b. Refine observations and measurements based on data analysis
 - c. Evaluate the evidence provided by data sets in relation to a particular scientific question
6. Work with scientific explanations and theories
 - a. Justify claims with evidence
 - b. Construct explanations of phenomena based on evidence produced through scientific practices
 - c. Articulate the reasons that scientific explanations and theories are refined or replaced
 - d. Make claims and predictions about natural phenomena based on scientific theories and models
 - e. Evaluate alternative scientific explanations
7. Connect and relate knowledge across various scales, concepts and representations in and across domains
 - a. Connect phenomena and models across spatial and temporal scales
 - b. Connect concepts in and across domains to generalize or extrapolate in and/or across enduring understandings and/or big ideas

Biology for AP Courses by Open Stax and College Board Correlation

CHAPT	TITLE	SECTIONS	Essential Knowledge
1	Introduction How we study Life	1,2	1d1
2	Chemical context of life Water and the fitness of the environment Carbon and the molecular diversity of life	1,2,3	1a4, 2a3, 2d1 1d1, 2a3, 2b2,
3	Structure and function of large biological molecules	1,2,3,4,5	3a1, 4a1, 4b4
4	Tour of the cell	1,2,3,4,5,6	2a3, 2b3, 1b1, 2a2, 2b3, 3a4, 4a2, 4b2
5	Membrane structure and function	1,2, 3,4	2b1, 2b2, 2c1, 1a4, 4b1
6	Introduction to metabolism	1,2,3,4,5	2a1, 4b1
7	Cellular respiration	1,2,3,4,5,6,7	2a1, 2a2
8	Photosynthesis	1,2,3	2a1, 2a2
9	Cell communication	1,2,3	2e2, 3b2, 3d1, 3d2, 3d3, 3d4
10	Cell cycle	1,2,3,4,5	3a2
11	Meiosis and sexual life cycle	1,2	3a2, 3c2
12	Mendel and gene idea	1,2,3	3a3, 4c2, 4c4
13	Modern Understandings of Inheritance Molecular basis of inheritance	1,2	3a4, 3c3, 3c1 3a1, 3ac
14	DNA structure & Function Replication, Repair	1, 2,3,4,5,6	3a1, 3ac
15	From gene to protein	1,2,3,4,5	3a1, 3c1
16	Regulation of gene expression	1,2,3,4,5,6	2e1, 3b1, 3b2, 4a3
17	Biotechnology	1,2,3,4,5	3a1
18	Descent with modification Origin of species	1,2,3	1a1, 1a4 1c1, 1c2, 1c3, 2e2, 4b4, 4c3
19	Evolution of populations	1,2,3	1a2, 1a3, 3c1, 4c3, 4c4
20	Phylogeny & History of life on earth	1,2,3	1b2 1a4, 1b1, 1d1, 1c1
21	Viruses	1,2,3,4	3a1, 3c3
22	Prokaryotes: Bacteria & Archaea	1,2,3,4,5	3a1, 3c2
23	Angiosperm reproduction Plant responses to signals	1,2 3,4,5,6	2e1, 2e2 2d4, 2e2, 2e3
24	Basics of animal form and function	1,2,3	2a1, 2c1, 2c2, 2d2, 2d3, 4b2
25	Animal Nutrition & Digestive System	1,2,3,4	2a3, 2d2
26	Nervous system Neurons, synapses, signaling	1,2,3,4	3e2 3e2, 4a4
27	Sensory Systems	1,2,3,4,5	2e2, 3e2
28	Endocrine System	1,2,3,4,5	2d4, 1d2, 2c1
29	Musculoskeletal System	1,2,3,4	2a1, 2c1, 2c2, 2d2, 2d3, 4b2
30	Respiratory System	1,2,3,4	2a1, 2c1, 2c2, 2d2, 2d3, 4b2
31	The Circulatory System	1,2,3,4	2a1, 2c1, 2c2, 2d2, 2d3, 4b2
32	Osmotic Regulation & Excretion	1,2,3	2d2, 2e1
33	Immune System	1,2,3,4	2d4, 4a4
34	Animal Reproduction & Development	1,2,3,4,5,6,7	2d2, 2e1, 4a4
35	Intro to ecology & biosphere	2,3,4	2d1, 2e4, 3e2
36	Population ecology Community ecology	1,2,3 4,5,6,7	1a2, 2a1, 2e2, 3e 2d1, 2e3, 4a5, 4b3, 4c4
37	Ecosystems	1,2,3	2a1, 2d1, 3d1
38	Conservation biology	1,2,3,4	1c1, 2d3

Big Ideas

- 1: The process of evolution drives the diversity and unity of life
- 2: Biological systems utilize free energy and molecular building blocks to grow, reproduce, and maintain homeostasis
- 3: Living systems store, retrieve, transmit, and respond to information essential to life processes
- 4: Biology systems interact and these systems and their interactions possess complex properties

AP Biology Summer 2020 Assignments

Fall 2020 – Spring 2021

Mr. Carl McBee | Room: K1

Email: CMcBee@AguaFria.org

Welcome to AP Biology! You have *chosen* to take on a rigorous, college-level course in which you will learn a considerable amount about how life functions at all levels of organization— from a molecular perspective, up to global relationships between ecosystems. It is imperative that *you have chosen to take this course for yourself* and your future studies—not because somebody told you to take it or because I am the teacher. Due to the amount of material we need to cover in preparation for the AP exam in May, you will be required to do some independent study over the break; don't worry, there will be opportunities to collaborate with me and your fellow AP Biology classmates along the way. The assignment will cover an introduction to scientific processes (chapter 1), a review of chemistry (chapter 2) and an introduction biochemistry (water and carbon, chapter 3). We will have a few class periods of discussion over the content and the information will be on the first unit test.

The assignments will be due on the first day of classes, Tuesday, August 4, 2020. You will be able to collaborate with classmates and me, as well as submit them any time, through our online class dashboard (Google Classroom) throughout the summer break; your first task will be to get signed up for our class dashboard. **DO NOT PROCRASTINATE BECAUSE YOU CANNOT GET THESE ASSIGNMENTS DONE (well) IN TWO DAYS— PERIOD, END OF STORY.** Don't be alarmed: the assignments will take 10-20 hours in total, or approximately 1-3 hours of work per week (there are eight weeks off), depending on your focus and working speed. These assignments are not *necessarily* “do or die”, but if you choose not to do them on time, you will start off significantly behind and impact your chances of keeping up with our pacing-- you will have to overcome “C-” stress. Late Summer Assignments will be accepted for half credit through the first week of school or quarter credit through the first month of school. In order to keep up with the pace of the class and be prepared for labs, lectures, quizzes, and tests, you must stay up-to-date with all your assignments.

Assignment #0: Contracts – DUE NO LATER THAN FIRST DAY OF CLASS: TUESDAY, AUGUST 4, 2020

Review the syllabus, student contract, and safety contract. ***Get required signatures, upload to Classroom or submit in-person.*** If you do not have a printer, I will provide copies of the agreements on 8/4/20 and you will not be penalized.

COMPLETELY OPTIONAL ASSIGNMENT: Are you an ARTIST?! - DUE BY END OF FIRST WEEK OF

SCHOOL: Create a t-shirt/logo design for our class. Only one requirement: I would like all four of the AP Biology “Big Ideas” to be shown some (school appropriate) way, some how; see the previous pages for more on the Big Ideas. Other than that, the criteria are wide open and you may use any media (paper/pencil, computer graphics, etc.). The winning artist will get lunch of their choice (fastfood/fast sit down) with Mr. McBee.

Assignment #1: Sign up for Google Classroom — TO BE COMPLETED NO LATER THAN JUNE 1st, 2020

Our class will use Google Classroom pretty much daily! This is where our online materials will be posted and where we can have a dialogue about the class content. To sign up, go to www.classroom.google.com and make sure that you are signed in with your @aguafria.org gmail account. You can join the class by entering the

following code: **m4wkdcj**

Assignment #2: Letter of Intent – DUE NO LATER THAN FIRST DAY OF CLASS: TUESDAY, AUGUST 4th

Write a brief letter of intent (1-3 pages) to me. Letters are to be typed in a Word Document (or a Google Docs) and submitted electronically on Google Classroom—if you run into issues, as a last resort, you may email them to me at CMcBee@AguaFria.org, or use Google Docs to share edit privileges with me. If you do not have internet access, please neatly hand write the letter and turn in to me on the first day. Include the following information:

Address the following:

- Are you a junior or senior? What other science courses have you taken and what were your grades?
- What are current your plans for after high school? College, career, etc...
- Why you are taking AP Biology and what are your expectations regarding the course (amount of time study time, difficulty of content, lab experiences, etc...)?
- What activities you are involved in during the school year and which other AP courses are you taking this year?
- Do you have regular access to a computer and the internet at home?
- Anything interesting about yourself you would like to share with me (hobbies, family, jobs) ☺

Assignment #3: Getting Familiar with the Text – DUE NO LATER THAN FIRST DAY OF CLASS: TUESDAY, AUGUST 4th

We will be using an AMAZING, FREE open-sourced textbook (posted in Google Classroom) that evolves as science evolves... This means that the authors have the ability to update it as new discoveries are made without having to create and force the purchase of a newer edition! This truly is a 21st century textbook as it has tons of interactive websites and videos built right in to help you if reading isn't your favorite way of learning. **Your task:** Read the first THREE chapters of your textbook and create a 1 page (minimum 1 page front-and-back) “cheat sheet” for each of the three chapters—this will provide you with tremendous support and an amazing resource in your own pictures and words for our first month of school. A cheat sheet should **not** have full sentences on them—***they should be made exclusively of bullet pointed outlines, short definitions, diagrams, sketches, and thorough drawings.*** You may do this with regular ole' copy paper or you may use a computer or tablet if you'd like to go virtual. You may upload pictures of your paper cheat sheets or submit digital documents to Google Classroom. I will have some examples attached to the Google Classroom assignment!

1. Chapter 1 – How do we study life?
2. Chapter 2 – Chemical context of life: Water & Carbon
3. Chapter 3 – Biological Macromolecules

NOTE: Chapters 1-3 encompasses about 80 pages of reading, 30 pages of pictures/diagrams/videos; don't stress! This isn't a ton! As an idea, you cover about 50-100 pages a week in BIO 181 in college... I'm not expecting you to be able to get an “A” on quizzes or tests after reading these 80 pages, but they should invoke questions and critical thoughts to set you up for success in the first units of study.

Assignment #4: Scientific Inquiry (Data Analysis & Lab Reports)- DUE NO LATER THAN THE FIRST DAY OF CLASS: TUESDAY, AUGUST 4th!

This assignment will allow me to gauge where our graphing and lab analysis skills are coming in to the course. There will be short graphing worksheets attached as well as a full lab report written by an AP bio student last year that you will read, summarize, and answer a few basic questions about. You can print the graph worksheets, fill them out, and upload pictures—or you may edit them digitally. Part 2 of this assignment, the lab report questionnaire, will be a Google Doc that you can fill out directly and submit.

Appendix C

Agua Fria Union High School District #216

SCIENCE SAFETY RULES AND PROCEDURES AGREEMENT

In order to ensure that science experiments are safe and positive learning experiences, students and their parents should read, discuss, and sign the science safety rules and procedures agreement. No student will be permitted to participate in laboratory work until the agreement is signed by a parent and student and returned to the teacher.

1. Act in a responsible manner at all times. Misconduct that endangers any student will not be tolerated.
2. Never work without adult supervision. Do not handle any materials until instructed by the teacher to do so.
3. Perform the experiments as directed. Do not do anything that is not part of an approved experimental procedure. Follow all instructions given by the teacher. Read the written procedures. If you don't understand a procedure or piece of equipment, ask the teacher.
4. Eating, or drinking in the lab or experimental work area are forbidden.
5. Wear appropriate protective equipment. A lab coat or apron and ANSI approved eye protection should be worn when necessary. Keep hands away from face, eyes, and mouth while using chemicals or preserved specimens.
6. Learn the locations and operation of emergency equipment including eyewash fountains, safety showers, fire extinguishers, fire blankets, etc. Report all accidents, injuries, close calls, or unsafe conditions to your teacher.
7. Shoes must be worn at all times; never go barefoot in the lab. Special care should be taken with floppy clothing. Tie back long hair to keep it away from flames and chemicals.
8. Never taste a chemical. Never pipette by mouth – always use a pipette bulb.
9. Check odors only if instructed to do so by gently wafting some of the vapor toward your nose with your hand.
10. Carry sharp objects with tip or sharp edge pointing downwards. Do not try to catch falling sharp objects.
11. Use caution when heating materials in the lab. Keep hands and face away from the mouth of a test tube or beaker being heated. Turn off burner or hot plate when you are finished – never leave an active heat source unattended.
12. Do not enter science prep rooms or storage areas unless under teacher supervision.
13. Never take chemicals, supplies, or equipment out of the laboratory without the knowledge and consent of the science teacher.
14. Clean your lab area; put away all equipment and reagents; wash your hands at the end of each work session. Report any damaged glassware or equipment to your teacher.
15. All personal items, backpack, bags, etc... are to remain in a locked classroom. Personal items are not permitted in the lab.

I, _____, have read, understand, and agree to follow these science safety rules and procedures. I agree to abide by any additional instructions, written or verbal, provided by my science teacher or adult supervisor.

Student Signature

Date

Parent Signature

Date

List any allergies or medical problems of which your teacher should be aware, including contact lenses.

AP BIOLOGY PARENT/STUDENT CONTRACT
2020-2021

The purpose of the AP Biology Parent/Student Contract is to provide information to parents and students and to facilitate students' success in an academically challenging course. Please read carefully the syllabus, lab safety contract, and the list of expectations below, then sign the form at the bottom confirming your understanding and commitment to AP Biology.

Expectations of AP Biology students:

1. I recognize that participation in AP Biology requires me to:
 - a. Demonstrate increased student independence
 - b. Take on a high degree of responsibility
 - c. Meet higher standards than other high school classes
2. I understand that AP Biology is the equivalent of a college level biology course and therefore, requires the same amount of work as a college level biology course (approximately 3 hours of independent study for each hour of class).
3. I understand that late work will NOT be accepted. All assignments will be completed and ready to turn in BEFORE I get to class.
4. I understand that between labs, lectures and reviews, **there is really no way to make up a missed class lab**, therefore, it is essential that I attend every class and am prepared to participate.
 - a. Missed labs cannot be made up and will receive a zero
 - b. Missed tests will be made up the day of return to class
 - c. If I must be absent due to illness or family emergency, I am responsible for making up work within the accepted time frame (one day per day absent)
5. I understand that in order to cover everything that may appear on the AP Biology National Exam, this course must proceed at a rapid pace. Therefore, if I must attend review sessions and complete all class work to prepare
6. I recognize that the material covered in AP Biology is extremely challenging. I also recognize that while my grade in this course and the score I receive on the AP exam matter, the amount and quality of knowledge I take from this class to college is most important.
7. I recognize that I am responsible for my own learning and success in class, not my parents, teacher, advisor, or friends. I will advocate for myself if I have concerns about my grade or need help with content.
8. I understand that lab safety is of extreme importance and I will abide by all safety rules. I realize that if I am not following procedures I may be removed from the lab and receive a zero with no opportunity to make it up. I also understand that I will be held financially responsible for broken equipment and promise to work with caution.

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I have read, understand, and will abide by the student expectations and the lab safety contract. I have read the course syllabus and confirm my commitment to this class. I understand the winter assignment and will complete all work by the due dates.

Student Name _____ (printed)

Student Signature _____ Date: _____

Parent Name _____ (printed)

Parent Signature _____ Date: _____