



## Flagstaff High School Advanced Placement Biology

Emily Musta 2018-2019 Syllabus

[emusta@fUSD1.org](mailto:emusta@fUSD1.org) • Room 803 • [tinyurl.com/musta-site](http://tinyurl.com/musta-site)

### Course Description

AP Biology is an introductory college-level biology course. Students cultivate their understanding of biology through inquiry-based investigations as they explore the following topics: evolution, cellular processes, energy and communication, genetics, information transfer, ecology, and interactions. The AP Biology course is equivalent to a two-semester college introductory biology course for science majors. Students should have successfully completed high school courses in biology and chemistry as prerequisites to this class. This is a rigorous course that will require your commitment in order for you to be successful. Biology is both complex and elegant. If you are ready to think about both the big picture and the small machinery that runs biological systems, let's begin and welcome to our class.

The AP Biology framework is designed around these four Big Ideas:

#### Big Idea 1: Evolution

The process of evolution drives the diversity and unity of life.

#### Big Idea 2: Energetics

Biological systems use energy and molecular building blocks to grow, reproduce and maintain dynamic homeostasis.

#### Big Idea 3: Information Storage & Transmission

Living systems store, retrieve, transmit and respond to information essential to life processes.

#### Big Idea 4: Systems Interactions

Biological systems interact, and these systems and their interactions exhibit complex properties.

### Laboratory Emphasis

Inquiry-style labs allow you to define and explore a testable question, design a plan for collecting data, analyze and represent data, and make conclusions. This course has a goal of providing investigation-related exercises at least 25 percent of class time. Each day you will be involved in applying one or more of these AP Biology science practices:

- 1: **Concept Explanation:** explain biological concepts, processes, and models presented in written format
- 2: **Visual Representation:** analyze visual representations of data biological concepts and processes
- 3: **Questions & Methods:** determine scientific questions and methods
- 4: **Representing and Describing Data:** represent and describe data
- 5: **Statistical Tests & Data Analysis:** perform statistical tests and mathematical calculations to analyze and interpret data
- 6: **Argumentation:** develop and justify scientific arguments using evidence

### Alpine Institute

This course is an Alpine Institute designated science class, and as such, will have a place-based emphasis that promotes the development of the following five core values:

- ▶ Inquiry
- ▶ Community
- ▶ Stewardship & Advocacy
- ▶ Critical thinking
- ▶ Reflection

This year we will be working with the community partners: TerraBIRDS, Northern Arizona University, and Grand Canyon Trust. As a part of this course, you will have opportunities to participate in both day-long or multi-day service learning expeditions. There will be additional excursions throughout the year, such as walking trips to Francis Short Pond. We will host occasional guest speakers who will introduce you to their scientific and professional work. And during the last two weeks of this course, you will be engaged in hands-on projects in our courtyard experimental gardens or with community partners.

### Necessary Materials

Please bring a **1”-2” binder** designated for this course only. This will contain a record of your work, notes, and important documents for the year. Returned assignments should be stored in chronological order. This binder may be stored in the room when it is not needed for studying. Other materials include a scientific or graphing **calculator** (now permitted on the AP test), and **pencils & pens** of your choice. If you prefer lined paper for notes, please bring your own.

### Textbook

This class uses the 2014 Campbell textbook Biology In Focus by Urry, Cain, Wasserman, Minorsky, Jackson, & Reese, 1<sup>st</sup> edition. You will check this book out from the FHS library and be expected to turn it in at the end of the year in similar condition. An e-book edition is also available.

### Overview of Topics

#### Semester 1

Unit	Title	Days of Class	% AP Exam Weighting
1	Chemistry of Life	7	8 – 11%
2	Cell Structure & Function	13	10 – 13%
3	Cellular Energetics	17	12 – 16%
4	Cell Communication & Cell Cycle	11	10 – 15%
5	Heredity	11	8 – 11%

Semester 1 final will be a scientific paper

#### Semester 2

Unit	Title	Days of Class	% AP Exam Weighting
6	Gene Expression & Regulation	21	12 – 16%
7	Natural Selection	23	13 – 20%
8	Ecology	21	10 – 15%

Semester 2 final will be a full mock AP exam (whether or not you are taking the AP test)

### Types of Work

#### Homework

You will need to spend about 30 minutes per night to stay on track with our reading schedule and to review vocabulary. This work also represents your commitment to your class community in being prepared to work together every day.

#### In-class Work

In-class work may be an activity like a virtual lab, a model that you make with a group, a stop-motion film to illustrate a concept, or a written response to a discussion.

#### Labwork

Labs will be graded based upon notes and data collected during the lab and lab reports. In some cases, pre-lab work will also be part of the grade. For some labs, formal written reports will be submitted. For smaller labs and activities, informal question sets or presentations to the class will serve as the report.

#### Exams

Exams will model the structure of the AP exam with multiple choice and free response sections. There will be one exam per quarter. The final exam for semester 1 will be a scientific paper. The final exam for semester 2 will be a full AP exam.

## **Intervention Work**

FHS has determined that every 2<sup>nd</sup> and 4<sup>th</sup> Wednesday of the month is to be used as an intervention day. During this time, you may study, review, read, and you can also make use of the new resources in AP Classroom (will sign up next week). These days are not intended for the presentation of new material, and should be seen as valuable time for studying.

## **Evaluation Methods**

The approach to grading in this class aims to follow this guideline: Measure what's valuable, don't value what's measurable. This means that your grade will depend on your ability to synthesize information, add new knowledge to what you know, and apply your knowledge in novel scenarios. Although many other tasks will lead up to this point, they may not comprise a part of your final grade.

### **FHS Standard Grade Percentages** (*mandated by the administration of Flagstaff Unified School District*):

Semester Work: 85% of your final grade

- Measurement/Performance: 100%  
(includes laboratory work, quizzes, exams, in class discussions, presentations, projects, certain homework problems, or anything that allows you to "Show what you know")
- Practice: 0% (includes some homework, reading guides, formative response questions, and completion of activities)

Final Exam: 15% of your final grade

## **AP Biology-specific grading practices**

You are expected to complete all assignments, both measurement and practice, with purpose. This is also a course for busy, multi-talented students with many responsibilities. Here are the guidelines that will be followed for feedback about your progress in the course:

- Graded assignments will be entered in Synergy within at least one week of when they are turned in
- The date posted in synergy will be the due date
- If you have an excused absence, you have one week from the due date to submit your work (after that week, when work has been returned, there is no option to submit).
- Corrections on unit tests will be allowed and will count for half-points. These will be done through a guided process, due within one week from the return of the test.
- You may only submit corrections if you are not missing any measurement assignments from the period of time since the last test.

## **Absences**

Please follow our course calendar posted on my FHS website. If absent, it may be possible for you to stay caught up with us using this resource. If hard-copy materials are needed, they will be accessible in the file cabinet drawer in the classroom. If it is possible to reserve lab materials, you can make up a lab upon your return. If materials are perishable or impossible to recreate, an alternative lab will be assigned. Makeup work is due within one week of the original due date. If you are absent or think you might be absent on the day of a service-learning expedition, it is imperative that you let me know as soon as possible. Any associated fees will still be your responsibility in the case of cancellation.

## **Safety Expectations**

In our class, safety should always be at the front of your mind. Safety for yourself and others in terms of how you use materials, how you speak to others, how you use technology, and how you interact in the classroom space. Violations of safety will not be tolerated and will result in removal from the classroom.

You will be expected to adhere to the safety contract signed at the start of the year. Please take care to follow lab and field work-specific procedures for your safety and the safety of your community. You are expected to collaborate to care for the places where we will work and study. Refrain from eating in the science classroom to avoid contamination and also out of respect for fellow students with food allergies (and to keep our rodent friends from visiting).

**Hall Pass**

Your time in class is important. Please limit your hall pass use to two times per week or less. You must sign in and out and back in using the google form (access through the QR code) and leave your phone in the basket while you are gone. Hall pass time is 5 minutes or less. Please leave class at an appropriate time.

**Technology Use Guidelines**

The technology available to you through the use of phones, ipads, and computers can help you further your study of biology and access valuable tools. Use of these technologies can also be a distraction from important work and impact your focus. If these technologies are to be used during class, they must be strictly for educational purposes and will not ever be used to play games or take photos/videos of people without their permission. Managing your technology use is an important social and educational skill that you must practice in this class. Inappropriate use of technology will follow FHS guidelines and can lead to RTC referral.

**Academic Integrity Pledge:**

As a student enrolled in this class, I affirm the principle of academic integrity and commit to upholding integrity by completing all academic assignments in the manner expected, informing the instructor of suspected instances of academic misconduct by myself and my peers, and fully engage in the class and its related assignments for the purpose of learning.

Examples of academic misconduct include: cheating on tests and quizzes, asking for information about a test or quiz from a student who has taken it previously, providing information about a test or quiz to another student, copying another student's assignment or project, allowing a person to copy your work and submit it for grading, copying another student's lab report (even if you are in the same group), etc.

**Teacher Availability:**

As an AP student, it is your responsibility to be in charge of your learning. While I am glad to talk with your parents, please ensure that you talk to me first about questions and requests. I am available most days after school unless I have a student meeting to attend. I'll try to always leave a note on the door to let you know. I am also available before school for brief questions. Email is the easiest way to contact me outside of school and I will respond within 24 hours. Please know that our classroom is a safe space and I am available if you ever need to talk. I am honored to be teaching this course at FHS and I am proud to work with you. Thank you for reading through the entirety of this syllabus and I look forward to a productive year.

Emily Julien Musta\*

## Syllabus Scavenger Hunt

How many “big ideas” are there in AP Biology? \_\_\_\_\_

What percentage of the time should you expect to be doing lab type work in this class? \_\_\_\_\_

What is the AP Bio science practice #5?

\_\_\_\_\_

What is one of the core values of the Alpine Institute? \_\_\_\_\_

What do you think this value refers to? \_\_\_\_\_

\_\_\_\_\_

List at least 2 community partners you will work with this year:

\_\_\_\_\_

Are calculators allowed on the AP Biology test? \_\_\_\_\_

The final exam each semester is worth \_\_\_\_\_% of your grade

What is the topic of Unit 6? \_\_\_\_\_

I certify with my signature that I have read the AP Biology syllabus for school year 2019/2020 and that I have asked any clarifying questions I may have.

I agree to the class policies, the statement of academic integrity and the technology use guidelines.  
I understand that if any issues arise I can reference this document.

\_\_\_\_\_  
Printed name

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

## FHS AP BIOLOGY 2019-2020 Student Safety Contract

In order to participate in this class, you MUST agree to be a responsible biologist, following safety precautions for your own safety and the safety of others around you. Violations of safety rules will not be tolerated and will result in total loss of credit for a lab or activity.

I agree to abide by the following laboratory safety regulations whenever performing a biology investigation.

- I will not engage in horseplay or other acts of carelessness.
- In the case of live organisms, I will treat specimens with respect and study them without causing undue harm or stress.
- I will tie back long hair, remove dangling jewelry, and roll up loose sleeves during labs.
- I will know how to use the safety equipment provided and the location of the fire extinguisher, eyewash, shower, and exits.
- In the case of broken glassware, I will notify the instructor.
- I will never eat or drink during labs.
- I will never drink from laboratory glassware or other equipment.
- I will notify the teacher when I observe hazardous conditions in the classroom.
- I will report all accidents, no matter how minor, to my teacher immediately.
- I will keep flammable materials such as alcohol away from open flames.
- I will perform only authorized and approved experiments.
- I will set up equipment away from table edges to avoid dropping it on the floor.
- I will never mix chemicals together unless the teacher or experiment directions instruct me to do so.
- I will handle chemicals carefully and check the label of every bottle before moving the contents. I will not return used chemicals to their original storage containers.
- I will never taste chemicals.
- I will use caution and proper equipment to handle hot glassware. I understand that hot glassware looks the same as cool glassware.
- I will never pour unauthorized substances down the sink.
- I will flush substances cleared for disposal in the sink with excess water.
- I will keep solids and waste out of lab sinks.
- I will wear goggles on my eyes throughout designated labs (*without complaining!*).
- At the end of each lab, I will clean my work area, wash and store all materials and equipment, turn off all water, gas, and electrical appliances, and wash my hands before leaving the lab.

I, \_\_\_\_\_, have read and understand the general safety rules for the Biology laboratory. I will follow these rules on a daily basis and take extra care to remind my fellow classmates to do the same. I understand that there will be consequences for not following these safety guidelines. I understand that by signing this contract I am taking personal responsibility for my actions during this class.

Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## FHS AP STUDENT/PARENT CONTRACT 2019-2020 for AP Biology

Student Last Name \_\_\_\_\_ Middle Initial: \_\_\_\_\_ First Name \_\_\_\_\_

Student ID : \_\_\_\_\_ Counselor: \_\_\_\_\_ Grade Level: \_\_\_\_\_

Email: \_\_\_\_\_ Phone: \_\_\_\_\_

Parent Information: Last Name \_\_\_\_\_ First Name \_\_\_\_\_

This contract shall be applied to all Advanced Placement (AP) courses, but must be signed for each individual class.

By signing this contract, I affirm that I have read this contract and understand that the following conditions and requirements apply:

- I thoroughly understand the course description and the expectations are that of a rigorous college-level course.
- I agree to remain enrolled in each of my AP class(es) for the remainder of the year once the school drop deadline has passed. (First 10 days of semester)
- I understand that I am highly encouraged to take the end of course AP Exam.
- I understand that I must enroll through the official College Board website in order to access free course materials.
- I understand that registration for AP Exams will take place in the fall of the 2019-2020 school year and I must register for each exam through my College Board AP registration portal.
- I understand that registration for AP Exams will take place in each of my AP courses during the final week of August.
- I understand that AP Exam fees must be paid for through the FHS Bookstore by September 30<sup>th</sup>, 2019. (\$94 per exam + \$9 admin fee)
- I understand that AP Exam fees are recognized as tax credits and cannot be refunded.
- No late exams will be offered this year.
- I understand the expectations of AP Biology according to the syllabus presented in class.

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

I support my student's decision and I understand the ramifications of this selection.

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Date

Week 1	Morning 8 a.m. Local Time	Afternoon 12 noon Local Time	Afternoon 2 p.m. Local Time
Monday, May 4, 2020	United States Government and Politics	Physics C: Mechanics	Physics C: Electricity and Magnetism
Tuesday, May 5, 2020	Calculus AB Calculus BC	German Language and Culture Human Geography	
Wednesday, May 6, 2020	English Literature and Composition	European History Physics 2: Algebra-Based	
Thursday, May 7, 2020	Chemistry Spanish Literature and Culture	Japanese Language and Culture Physics 1: Algebra-Based	
Friday, May 8, 2020	United States History	Art History Computer Science A	
	AP 2-D Art and Design, 3-D Art and Design, and Drawing – last day for coordinators to submit digital portfolios (by 8 p.m. ET) and to gather 2-D Art and Design and Drawing students for physical portfolio assembly. Teachers should have forwarded students' completed digital portfolios to coordinators before this date.		
Week 2	Morning 8 a.m. Local Time	Afternoon 12 noon Local Time	
Monday, May 11, 2020	<b>*BIOLOGY*</b>	Chinese Language and Culture Environmental Science	
Tuesday, May 12, 2020	Seminar Spanish Language and Culture	Latin Psychology	
Wednesday, May 13, 2020	English Language and Composition	Microeconomics Music Theory	
Thursday, May 14, 2020	Comparative Government and Politics World History: Modern	Italian Language and Culture Macroeconomics	
Friday, May 15, 2020	Computer Science Principles French Language and Culture	Statistics	





**AP Biology  
Walking Trip  
Permission & Consent Form**

*Due by Friday, Aug 16*

**Field Trip Destination:** Walking distance to the FHS Campus

**Class:** AP Biology

**Purpose of Field Trip:** Occasional outside work time as related to the curriculum in the FHS  
Research Garden or at the Francis Short Pond

**Date of Trip:** 2019-2020 School year

**Time:** Only within our class period (8:00-9:00am)

**Transportation:** Walking only

**Questions:** Please contact Emily Musta at [emusta@fUSD1.org](mailto:emusta@fUSD1.org) OR 773-8100 ex 6721

Hello families of AP Biology students,

In our advanced course, sometimes we will need to leave the walls of the classroom behind in order to learn more about our ecosystem. This form asks you to give your student permission to work outside with our class on days when we have the opportunity to work in the FHS research garden or walk to the Francis Short Pond or complete surveys on our campus.

By filling out the information on the back of this form, you give permission for these in-class excursions. The front office at FHS will always be notified if we are going to be out of our classroom. Other permission packets will be sent home for any other type of expedition.

Thank you,

Emily Musta\*

My AP Biology student, \_\_\_\_\_, has permission to attend in-class walking field trips with their class and the instructor, Emily Musta, during the 2019-2020 school year.

I understand that these trips will take place only during class and may involve short walks, work in the garden, and outdoor data collection.

Are there any medical or physical (or other) conditions that I should be aware of that may be relevant to our outside work? If so, please describe here. This paper is confidential and will only be read by the teacher and administration.

---

---

---

---

In case of any emergency, the front office will contact you using the information on file.

Parent/Guardian printed name: \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for helping your student have a dynamic experience in our class this year and do not hesitate to contact me with questions,

Emily Musta\*