# EPHS Honors Biology II/AP© Biology Syllabus 2020-2021

**Instructor**: Mr. Matt Curtis (mcurtis@paulding.k12.ga.us)

**Room:** 1407

**Office Hours/Tutoring**: Tuesdays: 8:00 – 8:30; Wednesdays: 3:30-4:00; other days/times by appointment only. No morning tutoring on days when labs are scheduled.

**Phone**: Main Office: 770 445-5100

**Class Canvas Page:** https://paulding.instructure.com/login/ldap

**Textbook**: *Campbell - Biology in Focus*– Urry, Cain, Wasserman, Minorsky, & Reese; 2nd edition
**- Cost if damaged/destroyed/lost**: $140.97

## I. Course Description (excerpted in part from AP Course Description, The College Board)

- **Introduction:** The Honors Biology II/AP Biology course sequence is a year-long course sequence designed to be the equivalent of a college-level two semester introductory biology course sequence usually taken by biology majors during their first year of post-secondary studies. The course material is broken up into two semesters. Non-science majors often use these courses to fulfill a basic requirement for a laboratory-science course. Primary emphasis in this sequence will be on developing an understanding of concepts rather than on memorizing terms and technical details. Biological statistics, cell structure/function, in-depth cellular chemistry and physiology, as well as cellular energetics and communication, are taught in the first semester. Second semester encompasses advanced genetics, genetic regulation, ecological concepts, as well as AP test preparation. Evolutionary relationships are taught in both semesters, as they are vital to a proper understanding of biology.

- **Objectives:**
  - To help students develop a conceptual framework for modern biology.
  - To help students gain an appreciation of science as process.
  - To help students prepare in such a manner that they will feel comfortable in taking and passing the AP Exam.

- **Skills:** Students will:
  - grasp science as a process rather than as an accumulation of facts.
  - recognize unifying themes that integrate the major topics of biology.
  - apply biological knowledge and critical thinking to environmental and social concerns.

## II. Basic Required Materials (See separate Required Materials sheet for a detailed list)

- 2" or 3" 3-ring binder to be used only for AP Biology
- Loose leaf paper
- Dividers for notebook sections
- Pencil & Pen (blue or black ink only)
- 1 subject spiral notebook for lab (with holes for inserting into 3-ring binder)

## III. Logistics:

This class is taught in room **1407** and meets every day for the entire school year. Class periods will be composed of lecture, collaborative work, labs, focused practice, quizzes, Free Response Question (FRQ) constructive response using the CER method, and exams. A premium will be put on collaborative work, labs and essay/FRQ composition. Each exam will have at least one detailed essay/FRQ, and many quizzes will be in-class or take-home essays. This class will move at a very fast pace between labs, lectures and reviews. It is, therefore, essential you attend every class and lab and **be prepared to participate**.

*Modified from Sharp & Turner*

I expect all of those who enroll in AP Biology to prepare for and take the AP exam. This class has a very special dynamic when we are all working towards the same goal. The AP Exam scores are not received until early July. These scores are, therefore, not used as a part of a student's average in the course. The exam will be held on May 14, 2021. More information about the test will be provided throughout the year.

## IV. Some Major Themes in the Course Sequence:

The AP Biology Development Committee has identified eight major themes that recur throughout the course:

I. **Science as a Process** – Science is a way of knowing. It can involve a discovery process using inductive reasoning or it can be a process of hypothesis testing.

*Example: The theory of evolution was developed based on observation and experimentation.*

II. **Evolution** – Evolution is the biological change of organisms that occurs over time and is driven by the process of natural selection. Evolution accounts for the diversity of life on Earth.

*Example: Widespread use of antibiotics has selected for antibiotic resistance in disease-causing bacteria.*

III. **Energy Transfer –** Energy is the capacity to do work. All living organisms are active (living) because of their abilities to link energy reactions to the biochemical reactions that take place within their cells.

*Example: The energy of sunlight, along with carbon dioxide and water, allows plant cells to make organic materials, synthesize chemical energy molecules, and ultimately release oxygen to the environment.*

IV. **Continuity and Change –** All species tend to maintain themselves from generation to generation using the same genetic code. However, there are genetic mechanisms that lead to change over time, or evolution.

*Example: Mitosis consistently replicates cells in an organism; meiosis (and hence sexual reproduction: results in genetic variability.*

V. **Relationship of Structure to Function** – The structural levels from molecules to organisms ensure successful functioning in all living organisms and living systems.

*Example: Aerodynamics of a bird's wing permits flight.*

VI. **Regulation –** Everything from cells to organisms to ecosystems is in a state of dynamic balance that must be controlled by positive or negative feedback mechanisms.

*Example: Body temperature is regulated by the brain via feedback mechanisms.*

VII. **Interdependence in Nature** – Living organisms rarely exist alone in nature.

*Example: Microscopic organisms can live in a symbiotic relationship in the intestinal tract of another organism; the host provides shelter and nutrients, and the microorganisms digest the food.*

VIII. **Science, Technology, and Society –** Scientific research often leads to technological advances that can have positive and/or negative impacts upon society as a whole.

*Example: Biotechnology has allowed the development of genetically modified plants.*

*Modified from Sharp & Turner*

These major themes have in the past been collectively placed by The College Board into 4 "Big Ideas":

**BIG IDEA #1** – Evolution
**BIG IDEA #2** – Cellular Processes: Energy and Communication
**BIG IDEA #3** – Genetics and Information Transfer
**BIG IDEA #4** – Interactions

## V. Grading

- Breakdown**:**

  A standard 10 pt grading scale is utilized: (100-90 =A; 89-80 = B; 79-70 = C; 69-0 = F)

- Types of Assessments & weights:

  - Formative (daily quizzes/homework/classwork/some activities) = **29%**
  - Summative (weekly quizzes/tests/projects/labs/some activities) = **71%**
  - Final Exam = **20% (of the summative grade)**

## VI. Class Procedures:

- **Late Work (without prior instructor approval)**
  - **Late work will be handled as follows:**
    - 20% deduction per day late
    - After 5 days late, the grade will be a zero.
    - The instructor will remind you the first day that the assignment is late to turn it in; after that, it is the student's responsibility to remember to turn in the assignment.
    - Assignments turned in after the instructor has gone over the answers in class will be evaluated and receive feedback but will not earn credit.

- **Make-up Work:**
  - **Make up class & homework assignments will be handled as follows:**
    - It is the student's responsibility to determine what assignments were missed. It's easy, just ask Mr. Curtis directly or check the Canvas page.
    - Make up work has a time limit: # of days missed +1
    - For long-term absences (more than 5 consecutive days), the EPHS Administration will determine the time to be given for make-up work.
    - All make up work will be analyzed by the instructor, corrected and given back. However, only grades for excused absences will be recorded in the grade book. All assignments missed for unexcused absences receive a score of "0". So make sure you get your excuse turned in to the Front Office.
    - The instructor will be available for scheduling make up assignments/labs/activities, with the expectation that the student will schedule the make up work promptly.

  - **If you are absent the day before a test (review day) but present on test day:**
    - You will take the test as scheduled.

  - **If you are absent the day of a test:**
    - You will take the test the day on which you return. Exceptions will be made solely at the discretion of the instructor.

- **Recovery/Mastery:**
  - Rules for recovery/mastery are as follows:
    - Only summative assignments can be recovered.
    - Only summative assignments that were turned in on time (on the date due) and fully attempted can be recovered.
    - The student has one week from the date the instructor returns the original assignment to complete recovery.
    - The percentage of the original grade available to be recovered will be determined as follows:
      - Passed 1st attempt & chose recovery = grades are averaged
      - Failed 1st attempt and passed 2nd attempt = grades are averaged, but if average of the two grades is still not passing, grade will be "70."
      - Failed 1st attempt and failed 2nd attempt = higher score kept and remediation work will be assigned in order to raise grade.
    - The recovery assignment may or may not be the same as the original assignment. This determination will be made by the instructor. Recovery assignments may be individualized at the instructor's discretion to target a student's specific areas of need.
    - Some summative assignments, due to availability of materials, simply cannot be recovered. These include some labs.

- **General Rules (include but are not limited to):**
  - Eating in class is not permitted, as it promotes the accumulation of vermin.
  - Drinks are ok, so long as they have a lid/top. **You spill it, you clean it up.**
  - No drinks or candy of any kind on lab days due to lab safety regulations.
  - **The sinks are not trash cans.**
  - Being tardy will not be permitted and will be handled per EPHS guidelines.
  - You are expected to come to class prepared; you will not be permitted to go to another location to retrieve forgotten materials.
  - No one is allowed to leave the room while tests/quizzes are out.

**VII. Academic Honesty:**

Dishonest work will neither be accepted nor tolerated. Dishonest work includes, but is not limited to:

i. Copying information from an Internet or printed source without proper referencing/citations.

ii. Using notes or any other source of aid during a quiz or exam unless specifically indicated by the instructor.

iii. Copying or using someone else's homework/lab report/project/assignment to complete your own, or allowing your work to knowingly be copied by others. .

iv. The use of any electronic device, to include cell phones, during a quiz or exam unless specifically instructed to use it, e.g., a calculator.

Consequences for dishonest work will include:

1.) A grade of zero on the assignment for all parties involved.
2.) Parent contact regarding the incident.
3.) Possible administrative referral.

## VIII. The Laboratory

Laboratory assignments offer the opportunity for students to learn about problem solving, the scientific method, the techniques of research, and the use of scientific literature. As a standard, the AP Biology Development Committee has produced a set of 13 laboratory exercises. In addition to completing the 13 required labs, students will be performing other lab exercises. **Participation in the labs is non-negotiable.** The "Big Ideas" that relate to the specific labs are listed beside the lab title below.

*Laboratory Topics (**Recommended Labs per College Board**):*

1.) Evolution (#1)
2.) Mathematical Modeling: Hardy Weinberg (#1)
3.) DNA Sequencing with BLAST (#1)
4.) Diffusion and Osmosis (#2)
5.) Photosynthesis (#2)
6.) Cell Respiration (#2)
7.) Cell Division (#3)
8.) Biotechnology – Transformation (#3)
9.) Biotechnology – Restriction Enzymes (#3)
10.) Energy Dynamics (#4)
11.) Transpiration (#4)
12) Animal Behavior (#4)
13.) Enzyme Activity (#4)

## IX. The AP Exam

My expectation is that all students who are enrolled in AP Biology will take the AP exam on May 14, 2021. Students who perform well on the exam may be eligible for college credit at the college or university they attend. The exam is scored on a scale of 1 (not recommended to receive credit) to 5 (highly recommended). Most colleges give credit for a 3, 4, or 5 on the test. However, this varies from college to college. You should inquire from the colleges/universities to which you are applying for their specific requirements regarding AP credit for courses. As the scores on the AP test do not return to EPHS until July, the test is not used as part of the student's grade in the class. So why take it? Well, the short answer is that you could get college credit and not have to pay to take freshman Biology in college. How many college science credits do you have right now? EXACTLY! So, it doesn't hurt you to take it. Plus, the test provides a measure of the student's true understanding of biology, which is beneficial to both the instructor and the student.

***The Instructor reserves the right to amend this syllabus as he deems necessary. If amended, a new syllabus will be issued ***

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After reading the attached AP Biology syllabus, please detach, sign below and have your student put the syllabus in his/her notebook and return this information sheet to Mr. Curtis. By your signing this document, you and your student are agreeing to the policies and procedures outlined in this syllabus.

Student Signature:_____ Student Name (printed) _____

Parent Signature: _____ Parent Name (printed) _____

Home Phone #: _____ Parent Work # or email _____
(whichever is best)

*Modified from Sharp & Turner*