

Advanced Placement (AP) Biology

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Course Description:

This year-long study of biology is an introductory biology course usually taken by biology majors during their first year of college. The course is structured around the enduring understandings within four big ideas in biology, and will provide a basis for students to develop a deep conceptual understanding as well as opportunities to integrate biological knowledge and science practices through inquiry-based activities and laboratory investigations.

After the successful completion of this course, students with a qualifying score on the AP exam may receive college credit from a college of choice. (Note: Not all colleges accept the same exam scores; please check with your future college choices to ensure credit).

AP Biology is historically a challenging and difficult class, but with effort and dedication, many students do well. There are many resources available to help you, and students using them often succeed. I am committed to helping you be as successful as you choose to be, so please do not hesitate to come in or contact me for any questions, concerns or assistance.

Course Goals & Objectives

- Develop an understanding of the major ideas, theories, and concepts in biology.
- Develop an understanding of Evolution as the central theme of biology.
- Develop the skills to design and carry out scientific experiments and present scientific research.
- Develop the ability to read and analyze primary scientific literature, critique the experimental design and researchers conclusions.
- Prepare for excellent performance on the AP Biology Exam.

Course Content

AP Biology is structured around four big ideas, the enduring understandings within the big ideas and the essential knowledge within the enduring understandings.

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

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

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

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

Laboratory Component

Students will be given the opportunity to engage in student-directed laboratory investigations throughout the course for a minimum of 25% of instructional time. Students will conduct a minimum of eight inquiry-based investigations (two per big idea throughout the course). Additional labs and activities will be conducted to deepen students' conceptual understanding and to reinforce the application of science practices within a hands-on, discovery-based environment. Students will be given the opportunity to develop, record, and communicate the results of their laboratory investigations.

Science Practices in AP Biology:

1. The student can use representations and models to communicate scientific phenomena and solve scientific problems.
2. The student can use mathematics appropriately.
3. The student can engage in scientific questioning to extend thinking or to guide investigations within

the context of the AP course.

4. The student can plan and implement data collection strategies appropriate to a particular scientific question.
5. The student can perform data analysis and evaluation of evidence.
6. The student can work with scientific explanations and theories.
7. The student is able to connect and relate knowledge across various scales, concepts and representations in and across domains.

Required Texts: (loaned by the school and must be returned in unmarked, good condition)

- Urry, Lisa A., et al. *Campbell Biology in Focus AP Edition (3rd Edition)*. Hoboken: Pearson Education, 2020. Print.
- Holtzclaw, Fred W., and Theresa Knapp Holtzclaw. *AP Test Prep Series: AP Biology*. San Francisco: Pearson Education, 2014. Print.

Additional Materials and Equipment:

- Binder
- Pen (blue/black ink)

Assignments:

Students will be regularly assigned homework, in-class activities, lab exercises and reports, quizzes, and exams (take-home and in-class). Student expectations are high for this course. You should plan to study 1-2 hours outside of class for every hour in class. We will cover 2-3 chapters per week and will have multiple choice and essay exams on a regular basis.

Grades:

Calculation and issuing of marking period, semester, and final grades will be based upon the current school grading policy. Below is the current grading policy of the school.

100-91 = A 90-81 = B 80- 70 = C 69-60 = D 59-0 = F

Every effort will be made to ensure that graded assignments will be returned within two weeks from when they were collected.

Exam Re-Grades:

If, after consulting the key for your exam, you lost credit due to (1) a correct answer that was marked wrong, or (2) the answer you chose can be justified by content explicitly detailed in your Campbell Biology textbook, then please discuss this issue with me within one week of the date of the exam being returned to you to receive additional credit.

Course Policies:

- **Homework will be accepted only on the date it is due, no later.** Late lab reports or projects will receive a 10% penalty for each day it is late. No work for a chapter will be accepted after that chapter's test. Please speak with me to resolve problems you encounter (*before* the due date!).
- Class attendance and participation is essential for success. It is your responsibility to clarify missed assignments with classmates or with me prior to the next class.
- For excused absence work, including labs, you will receive as many days as you missed to make up your work. Any work due on the day you were first absent, is due the day you return. You should always check the missed work bin to see if there is any work that you need to make up.
- Assignments must be turned in at the beginning of class on the due date. If you are late to school on the day an assignment is due, you must still turn it in on that day or it is considered late.
- Requests for exceptions to these policies must be discussed with me in advance.
- Students are to submit only their own work for evaluation, to acknowledge the work and conclusions of others, and to do nothing that would provide an unfair advantage in their academic efforts.
- Plagiarism and cheating will not be tolerated and may lead to failure on an assignment, in the class, or loss of credit for the class.

Student Success:

- Doing the reading assigned for each class **before** coming to class is necessary to benefit from what we do in class.
- I may need to contact you between classes through RemindApp (we will all sign up on the first day of class). You are responsible for any messages, including assignments and schedule changes, I send. You also may contact me via email, in addition to seeing me during or after school.

Classroom Rules:

- Turn off cell phones during class. No electronic devices are to be used in class unless explicitly directed by the teacher for educational use.
- All policies set forth in the Student Handbook must be adhered to.
- Safety is a primary concern and all students must comply with the Laboratory Safety Contract.

The AP Biology Exam

The AP Biology Exam will evaluate the student's level of mastery of content. It is a rigorous 3 hour exam that consists of multiple choice, grid-in, and free response questions. Below is a description of the exam outline.

| Section | Question Type | Number of Questions | Timing |
|---------|---------------------|---------------------|---------------------------------------|
| I | Multiple Choice | 60 | 90 minutes |
| II | Long Free Response | 2 | 80 minutes + 10 minute reading period |
| | Short Free Response | 4 | |

In order to do well on the exam the students are expected to study throughout the course of the entire year. Upon completion of the exam students will receive a **score between 0-5**, 5 being the highest possible score. Acceptance of college credit for the course is at the discretion of the specified university. Interested students should contact the universities they're planning on attending for specified requirements and acceptance of college credit.

AP Biology will be a challenging and powerful learning experience for each of us and I am excited to be a part of this class. I am committed in helping you be as successful as you choose to be, so please do not hesitate to come in to talk to me personally or to contact me via email.

When you have read the course syllabus, please fill out the online google form for the AP Biology syllabus posted on schoology.

STUDENT LAB SAFETY CONTRACT

The National Science Teachers Association urges that students be required to review and sign a “contract” that defines acceptable behavior in a school science setting. This contract will be covered with the students, and it makes students aware of the basic rules and their purpose. The student will review these basic rules and have an opportunity to ask questions. The student will then be asked to sign this contract, thereby agreeing to abide by these rules and any additional safety directions given by the science instructor or school administration.

THE PURPOSE OF THE CONTRACT IS TO MAKE THE STUDENT AWARE OF HIS OR HER RESPONSIBILITY FOR LABORATORY SAFETY.

Students should also realize the implications of improper behavior. For example, courts have ruled that students can be just as guilty of negligence as teachers in laboratory accidents.

STUDENTS MUST:

- 1) Read the entire lab prior to class or at least prior to starting. Students will also listen to and follow all instructions given by the teacher.
- 2) Protect eyes (wear goggles), face, hands, and body when involved in science experiments.
- 3) Carry out good housekeeping practices. Dispose of items properly and clean workstation when finished.
- 4) Know the location of safety equipment (first aid, eye wash, fire blanket, fire exits, fire alarm pull, fire extinguisher, safety shower, lab aprons, and goggles).
- 5) Take the responsibility to conduct themselves in a responsible manner at all times. They will use the lab equipment and computers in a responsible manner.
- 6) Wash their hands after lab activities and before they leave the classroom.
- 7) Use lab activities as an instructional and integral part of their learning activity.
- 8) Stay aware that some of the materials that they will be working with can damage their clothes and body tissues.
- 9) Notify the teacher immediately in the case of any laboratory accident or injury, no matter how minor.
- 10) Respect that this room is a SAFE ZONE. They will not harass, degrade, spread rumors, or humiliate others for any reason; these may include ethnic background, religion, gender, age, disability, orientation, choice of apparel, thoughts, and friends or associates.

When you have read and agree to comply with the lab safety rules set forth in this contract, please fill out the online google form for the AP Biology safety contract posted on schoology. Students who sign the contract agree to closely follow the oral and written instructions provided by the teacher and/or the school administration.

Please note: For the safety of the other students and the instructor, no labs will be performed or credited without this completed contract of awareness and responsibility. Violations of the safety contract may result in disciplinary referral.