

AP Biology

2024/2025



Instructor information

Instructor	Email	Remind Course Code
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General information

Description

The AP Biology course is designed to be the equivalent of a college introductory biology course usually taken by biology majors during their first year of college. This class is designed for students who have completed High School Biology and Chemistry with grades of “B” or better and who are contemplating a major in a science related field. Students can earn college credit by earning a 3 or higher on the AP Biology Exam given on **Monday May 5th, 2025**. This course mirrors the rigor of a college-level biology course and students are expected to work accordingly. Students will be expected to engage in rigorous coursework, including complex problem-solving, critical analysis of scientific literature, and extensive laboratory work. Students should be prepared for a challenging curriculum and have strong study and time management skills. AP Biology provides an in-depth exploration of biology, where you'll develop a sophisticated understanding of the living world and its processes. When this class is over, I hope you will have a greater appreciation for how truly amazing life is.

Expectations of Employability Skills

- **Communicate:** Effectively and respectfully communicate with teacher and peers.
- **Work Ethic:** Be productive while in class and complete required tasks.
- **Problem-Solve:** Utilize available resources to solve daily challenges.
- **Detail-oriented:** Submit work that has been reviewed and corrected for common mistakes.
- **Time Management:** Effectively budgets time with consideration of other obligations to ensure short- and long-term assignments are completed.

Classroom Rules

- No cell phones, earbuds, or electronic devices used during instructional time
- Be respectful to your classmates, your teacher, and your school
- Use the weekly outlines posted in Canvas to stay informed about assignments and assessments

Course materials

Required materials

- 3-ring biner (I recommend a 1 or 1½ inch)
- Graph paper
- Internet access for online assignments in Canvas, Mastering Biology, & AP Classroom

Required text

Title: "Campbell Biology in Focus" 3rd ED, Copyright 2020

Author: Urry, Cain, Wasserman, Minorsky

Grade Policy

Weighted Categories

In this course, we will be utilizing a “weighted categories” grading system. This means that the work you do is categorized by the type (see chart) and assigned a percentage of the total grade. As you monitor your grade in FOCUS, pay attention to the grade you have in each category. This will allow you to see in which areas you are performing well and in which areas you may need to improve.

Quarter grade = (overall lab grade x .10) + (overall assignment grade x .20) + (overall FRQ grade x .30) + (overall test grade x .40)

Semester grade = (quarter 1 x .35) + (quarter 2 x .35) + (semester exam x .3)

Category	Percent of Grade	Average number per quarter
Labs	10	5
Assignments	20	17
FRQs	30	3
Tests	40	3

Make Up Work

Completion Deadline

In accordance with our school policy, students are expected to submit assignments by the designated due dates. However, we understand that unforeseen circumstances may arise that could hinder the timely completion of work. It is the STUDENT’s responsibility to collect any missed work. Per county policy, a student will have two days to make up work from one absence. Students with an excused absence will not incur a deduction in points within this timeframe but unexcused students may have up to 30% deducted. **Late submissions will not be accepted past three weeks from the original due date at the discretion of the teacher and with possible point deductions.** Students need to communicate any difficulties they encounter in meeting deadlines with their teachers as soon as possible. This policy aims to foster responsibility and accountability while still providing students with the opportunity to demonstrate their learning and mastery of course material.

Test Repair - In AP Biology, think of doing test repair as finishing your test!

Unit tests are very challenging and require in-depth knowledge and analysis of the material; rote memorization can only go so far. Since our goal is mastery, students will always have the opportunity for **test repair** on unit multiple-choice tests. This allows students to reflect on their performance, identify areas for improvement, and work to correct their misconceptions or gaps in knowledge. Test repair for AP Biology needs to be done in Mrs. Mora’s classroom, either before or after school. Students use their notes to fix (with rationale) every incorrect answer on their test. For every question fixed, you will gain 1/3rd of a point toward your score. You have one week after the test date to make repairs.

Attendance

Attendance is vital for student success and engagement in our learning community. As per our school policy, students are expected to attend all classes regularly and punctually. In the event of unavoidable absences, it is the responsibility of the student and their guardians to notify the school promptly. **Students who miss more than 20% of instruction will be prohibited from participating in school events such as extracurricular activities i.e., homecoming, prom, athletics, band, ROTC, theatre, and chorus.** Research has shown that 10% or more of instructional time missed by students (Pre-K to grade 12) is an early warning indicator for possible academic struggles; this measure is used to define chronic absenteeism nationwide. Florida Statute 1003.24 and School Board Policy 5200.

After the first seven days of absences, a letter will be issued to the student and their parent/guardian as a reminder of the importance of consistent attendance. This communication serves to encourage students to prioritize their education and take proactive steps to address any barriers to attendance they may be facing.

Should a student accumulate ten or more days of absences, a second letter will be issued, emphasizing the need for immediate action to improve attendance, the need for documentation, and the potential consequences of continued absenteeism.

***Please note that for AICE and AP courses, a student who misses more than 20% of period attendance will be responsible for the cost of the assessment and possible removal from the class.**

Furthermore, it is crucial to note that excessive unexcused absences will result in a significant impact on academic performance. Any assignments or assessments missed during unexcused absences will incur a penalty of up to 30% off their grade. This policy underscores the importance of regular attendance and emphasizes the correlation between consistent attendance and academic success. It is our collective responsibility to support students in maintaining attendance habits that foster their learning and development.

Saturday Labs

With eight high level, inquiry-based labs to get through, there are 7 Saturdays that we will be coming in to do the really time-consuming labs. Plan on being here from 9:00 to 12:00.

If you cannot attend a Saturday lab, you must notify me ahead of time with a letter from a parent explaining why. You will then be given “fake data” to use for the lab analysis.

Dates for Saturday Labs (start time: 9am):

09-21-24

10-12-24

11-16-24

01-18-25

02-22-25

03-08-25 *Conflicts with SAT

03-29-25

****REQUIRED Mock Exam: Saturday April 26th from 9:00 - 12:30****

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. You will write formal lab reports following the guidelines in the attached “**Lab Report Instructions.**”

The following is a list of our lab topics:

Hydrogen Bonding and Surface Tension	Cell Communication Taste Lab
Diffusion with Dialysis Bags	Molecular Biology (bacterial transformation)
Diffusion and Osmosis in Living Tissue	Molecular Biology (gel electrophoresis)
Enzyme Catalysis	Genetics of <i>Drosophila</i>
Plant Pigments and Photosynthesis	Population Genetics and Evolution
Factors that affect the rate of Cell Respiration	Factors that affect the rate of Transpiration
Mitosis and Meiosis with pop beads	Animal Behavior

AP Exam Format

The exam is three hours long and divided into two sections.

Section I: 60 Multiple Choice; 90 minutes = 50% of exam

Section II: Free Response; 90 minutes = 50% of exam

- a) 2 long FRQ questions: 8-10 points each (total of 18 points)
- b) 4 short FRQ questions: 4 points each (total of 16 points)

Course Outline

<i>Unit</i>	<i>Sub-Topics</i>	<i>Biology in Focus Chapters</i>
Intro to AP Biology	<ul style="list-style-type: none"> • Summer “Assignment” Chemistry Review • Scientific Method: steps and controlled experiments 	1.3
1 - Chemistry of Life	<ul style="list-style-type: none"> • Atomic Structure and bonding • Properties of water • Acids and Bases • Functional Groups • Macromolecules • In depth analysis of chemistry behind structure and function of macromolecules 	2 3
Labs:	Drops on a Penny Statistics Lab - Hydrogen Bonding POGIL - Protein Structure	
2 - Cell Structure and Function	<ul style="list-style-type: none"> • Prokaryotic vs Eukaryotic Cells • Organelle Structure and Function • Surface area to volume ratio • Membrane Structure and Function • Water Potential • Endosymbiosis 	4 5.1 - 5.5 32.4 25.1
Labs:	Diffusion and Osmosis in Living Tissue Diffusion using Dialysis Bags	
3 - Cellular Energetics	<ul style="list-style-type: none"> • Metabolism and Energy • Enzymes, Regulators and Inhibitors • Photosynthesis • Cellular Respiration • Fermentation 	6 - 8
Labs:	POGIL - Cellular Respiration Enzyme Catalysis Plant Pigments and Photosynthesis Cellular Respiration	
4 - Cell Communication and Cell Cycle	<ul style="list-style-type: none"> • Signal Transduction Pathways • Feedback Mechanisms • Cell Cycle • Cancer 	5.6 32.3 9 16.3
Labs:	POGIL - Signal Transduction Pathways Cell Communication Taste Lab Counting mitosis with onion root tips	

Unit	Sub-Topics	Biology in Focus Chapters
5 - Heredity	<ul style="list-style-type: none"> • Meiosis • Inheritance Patterns (Mendelian Genetics) • Non-Mendelian Genetics • Genetic Disorders 	10 - 12
Labs:	Mitosis and Meiosis Modeling with beads Genetics of <i>Drosophila</i>	
6 - Gene Expression and Regulation	<ul style="list-style-type: none"> • DNA and RNA structure and function • DNA replication • Protein Synthesis • Mutation • Gene Regulation and Expression • DNA Technology 	13 - 15 24.3
Labs:	POGIL - Gene Expression Bacterial Transformation Gel Electrophoresis	
7 - Evolutionary Biology	<ul style="list-style-type: none"> • History of evolutionary theories (Lamarck & Darwin) • Natural Selection • Evidence of Evolution • Population Genetics • Hardy-Weinberg Equilibrium • Mechanisms of evolution • Speciation (geographic and reproductive barriers) • Origin of Life • Phylogenetic Trees 	19 - 23 24.1
Labs:	POGIL - Phylogenetic Trees Population Genetics (Hardy-Weinberg Lab)	
8 - Ecology	<ul style="list-style-type: none"> • Response to the environment • Ecosystems and Energy Flow • Nutrient cycles • Population Ecology • Community Ecology • Human Impact and environmental disruptions 	31.2 31.4 32.3 40.3 - 40.6 41 - 43
Labs:	Animal Behavior - taxis vs kinesis Transpiration Lab	