

## AP Biology

**Objective:** *Students will be given the opportunity to expand their knowledge of biology, explore current and new topics in detail, and successfully pass the AP Biology Exam.*

AP Biology is both a hard and fun course. It provides students with an opportunity to develop a conceptual framework for modern biology, emphasizing applications of biological knowledge and critical thinking to environmental and social concerns. This is a college-level course, and students will be held to high expectations and mature responsibilities just like a college freshman taking Introduction to Biology.

1. Molecules and Cells 25%
  - A. Chemistry of Life 7%
    - Water
    - Organic molecules in organisms
    - Free energy changes
    - Enzymes
  - B. Cells 10%
    - Prokaryotic and eukaryotic cells
    - Membranes
    - Subcellular organization
    - Cell cycle
  - C. Cellular Energetics 8%
    - Coupled reactions
    - Fermentation and cellular respiration
    - Photosynthesis
2. Heredity and Evolution 25%
  - A. Heredity 8%
    - Meiosis and gametogenesis
    - Eukaryotic chromosomes
    - Inheritance patterns
  - B. Molecular Genetics 9%
    - RNA and DNA structure and function
    - Gene regulation
    - Mutation
    - Viral structure and replication
    - Nucleic acid technology and applications
  - C. Evolutionary Biology 8%
    - Early evolution of life
    - Evidence for evolution
    - Mechanisms of evolution
3. Organisms and Populations 50%
  - A. Diversity of organisms 8%
    - Evolutionary patterns
    - Survey of the diversity of life
    - Phylogenetic classification
    - Evolutionary relationships
  - B. Structure and Function of Plants and Animals 32%
    - Reproduction, growth, and development
    - Structural, physiological, and behavior adaptations
    - Response to the environment
  - C. Ecology 10%
    - Population dynamics
    - Communities and ecosystems
    - Global issues

## **Laboratory**

Lab work that supports the themes and concepts listed above will be done as often as is feasible and will include the 12 labs that will be covered on the AP Biology Examination. Just these labs alone add up to over 48 hours of laboratory time. There will be many activities and more supplemental labs to go along with The 12 labs (Dirty Dozen!), which are:

1. Diffusion and Osmosis
2. Enzyme Catalysis
3. Mitosis and Meiosis
4. Plant Pigments and Photosynthesis
5. Cell Respiration
6. Molecular Biology
7. Genetics of Organisms
8. Population Genetics and Evolution
9. Transpiration
10. Physiology of the Circulatory System
11. Animal Behavior
12. Dissolved Oxygen and Aquatic Primary Productivity

## **Exam & Grading**

The AP Biology class grade will be determined by assessments ranging from quizzes, lab reports, to tests, as well as individual assignments and projects. There will be two categories in the class to determine the overall grade: Assessments 90% and Homework 10%. There will also be practice AP Exams, which will count in the assessment category of the class. The AP Biology Exam occurs in April and will consist of multiple-choice questions and 4 free-response questions. Students will be tested similarly throughout the course with the same type of questions, including the free-response ones, and will be graded according to AP standards of assessment grading.

## **Importance:**

Students need to have the drive and commitment to constantly stay on top of the material. This is a first year college Biology course. It is my job as your teacher to take the information, no matter how complex, and make it easier to understand. It will be the student's job to do all the work that is asked, and to USE STUDY SKILLS (hope you have some-if not I'll help you figure some out) to learn the material. There might be times when we need to have an extended class period to finish labs, maybe before or after school, and there might be summer reading requirements (You will be notified way in advance.). One very positive aspect of this class is that your sophomore biology has prepared you well to take this course as well as your chemistry class. There will be a chunk of material that we can glaze over because you already learned it in sophomore biology.

I'm so excited to be teaching this class! The labs are AWESOME and this is a fantastic opportunity to earn some college credit! I can't wait to get started.

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Please take the information home and go over it with your parent. Please remember this is a general outline, and there will be more details about grading procedures, materials, and expectations to come. Please return this sheet when you turn in your course registration.

I understand the requirements that are presented with AP Biology.

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

I understand the expectations presented to my child that is taking AP Biology.

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Parent Signature