

# Gwynn Park High School

Science Department

2006-2007

Course Title: AP Biology and AP Lab

Teacher: Ms. Aranha

Contact Information: email – [India.Aranha@pgcps.org](mailto:India.Aranha@pgcps.org)  
work# - 301-372-0140

## Course Description

### Aim:

AP Biology is equivalent to an introductory college level biology course. Emphasis is on principles, methods of inquiry, and survey of the subdisciplines of modern biology, such as cell biology, genetics, and ecology. An understanding of scientific inquiry, biological concepts and processes are also an integral part of the course. AP lab is a laboratory course designed to coordinate laboratory activities with those topics/concepts discussed concurrently in the AP Biology course. AP Lab emphasizes practice in measurement, graphing, critical thinking, and analysis. Both courses provide real world application of biology.

### Topics Covered:

1. Understand the process of scientific investigation and how it differs from other ways of observing the world.
2. Connect and apply the terminology relating to the atom, chemical bonding, chemical reactions, and organic molecules.
3. Explain the correlation between the structure and function of biologically important molecules and their relationship to cell processes.
4. Understand, connect, and apply the biochemical processes by which cells obtain energy.
5. Explain the interacting components of ecological systems, the processes that tie them together, the different kinds of ecosystems, and how populations grow and regulate themselves in nature.
6. Understand the structure and function of DNA, the process of protein synthesis, and the newest research in the area of molecular biology.
7. Analyze the stages of the cell cycle in somatic and sex cells, describe Mendelian inheritance, variations in inheritance patterns, as well mutations.
8. Explain the mechanism of evolutionary change by Natural Selection and the evidence upon which this theory is based.

9. Recognize taxonomy and understand the systems of classification used in biology and the characteristics and kinds of organisms in these systems.
10. Compare processes and structures with which higher animals and plants carry on life functions.
11. Identify the structure and function of human body systems.

**Length:** This course is one year.

**Prerequisites:** 1 year of biology and 1 year of chemistry

### **Instructional Philosophy**

#### Course Objectives:

--**Writing:** Drill and practice essay writing which requires analysis, experimental design, and application of ideas/concepts learned that mimics the AP exam

--**Confidence, Competence and Practice:** Due to the wide variety of ability levels of students in the AP courses at my school, there is a great disparity in these areas. I want to build a program which will not only teach content, but will facilitate confidence, competence and provide lots of practice activities to refine skills in deficient students and fine tune these skills in more advanced students.

--**Tracking:** To have a more homogeneous class in terms of prior knowledge and skills

--**Pacing:** To cover vital content of the curriculum in an efficient and timely manner

- Each student is expected to attend class every day, arrive with required materials, participate in class activities, review materials introduced, and complete all application, mastery and challenge problems assigned for classwork or homework.
- Instruction will address various learning styles.
- Written and critical activities will be geared towards the AP Biology exam.
- Instruction will be connected to real world applications.

### **Major Course Projects**

The student will complete at least one reinforcement activity prior to the end of each quarter.

## Grading Factors

### Grading Factors (AP Biology)

Classwork/Homework	10%
Written Assignments/Projects	15%
Tests	30%
Quizzes	20%
Quarterly Exam	25%

### Grading Factors (AP Lab)

Laboratory Worksheets	35%
Laboratory Questions/Extensions	35%
Laboratory Reports	30%

*The pacing guide provided below serves as a guideline for the topics and timeline to be covered during the course. Some topics may be covered concurrently, based on level of difficulty, with students completing exercises independently outside of class. Assignments will be given during all periods when school is not in session (Thanksgiving, Winter Break, and Spring Break) due to the vast amount of material to be covered in the course.*

## AP Biology PACING GUIDE

First Semester		
Chapters	Unit/Topic	Weeks
1-5	Basic Chemistry/Biochemistry	1-2
8	Metabolism/Enzymes	3
6-7	Structure/Function of Cells and Cell Membranes	4-5
9-10	Cellular Energetics	6-8
12-15	Classical Inheritance	9-11
22-24	Evolutionary Biology	12-14
16-20	Molecular Inheritance	15-17
Second Semester		
26-34	Taxonomy and Biodiversity	1
40	Muscular System	2-3
42-43	Circulation and Respiration	4-5

41, 44	Nutrition and Digestion	6-7
48-49	Chemical and Nervous Control	8-9
46-47	Growth and Reproduction	10-11
35-39	Plant Anatomy and Physiology	12-13
50-54	Ecology	14
	Review for AP Exam	15

**\*\*allow 5-7 days for review for AP exam, scheduled for May 14, 2007\***  
**Laboratory List for 2006-2007**

### **AP Lab PACING GUIDE**

**\*\*Identification of Biological Molecules Lab**

**\*\*Enzyme Catalysis Lab**

**\*\*Diffusion and Osmosis Lab**

**\*\*Plant Pigment and Photosynthesis Lab**

**\*\*Cell Respiration Lab**

**\*\*Mitosis and Meiosis Lab**

Bacterial Transformation Lab

**\*\*Population Genetics and Evolution Lab**

**\*\*Physiology of the Circulatory System Lab**

Mammalian Dissection Lab

**\*\*Animal Behavior Lab**

**\*\*Dissolved Oxygen Lab**

I will attempt to complete/execute all of the laboratories with the asterisks during the school year. Teacher demonstrations as well as dry labs will also be incorporated into the course to enhance the understanding, application, and connection of the concepts taught.

### **Additional Information**

- Will be given out by the teacher on separate documents as needed.

### **Textbook**

***Biology, 7<sup>th</sup> Edition***, Neil A. Campbell and Jane B. Reece, Pearson Education, Inc., and Benjamin Cummings, San Francisco, CA (2005).

***AP Biology Lab Manual***, The College Board, New Jersey (1997).

### **Supplies/Materials:**

- Textbook is to be brought to class daily
- Class notes and student inquiry are required daily
- Three-ring binder to brought to class daily
- Pen/pencil/loose-leaf paper
- Your best effort and work quality

### **Rules and Procedures**

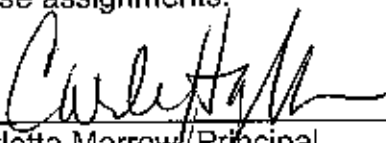
- ID badges should be worn around the neck always.
- Food, gum, and beverages are not allowed.
- Take care of all personal and grooming needs between classes.
- Be in your seat when the bell sounds.
- Students must obey all classroom and safety rules and procedures.
- Class is dismissed by the teacher only.
- Respect yourself and others.

Attendance is an important aspect of your education at Gwynn Park High School. In accordance with Prince George's County Public Schools' (PGCPS) Administrative Procedure 5113, *Pupil Attendance and Absence*, "five (5) days of unlawful absence per semester in a semester course, or ten (10) days of unlawful absence per year in a full year course shall result in no grade ("N") for course." Additionally, students will receive a zero (0) for all work done on the day of an unexcused absence and will not be given the opportunity to make up work missed because of an unlawful absence. Three (3) unexcused tardies equals an unexcused absence.

When absent, a student has two (2) days in which to bring in a note that excuses him/her for the absence. After that time, the absence becomes unexcused. The reason for the absence must be stated in the note. This note must be given to attendance specialist in the main office who will issue an attendance form (PA-1) to the student. This form will denote whether the absence is lawful (excused) or unlawful (unexcused). It is the student's responsibility to present this attendance form to each of his/her teachers.

According to the PGCPS' Administrative Procedure 5121.2, *Assessment and Grading for All Secondary School Programs*, "students who are considered lawfully absent from school will have the opportunity to make up missed work in a timely fashion (a maximum of three (3) days for each day's absence). Students who fail to complete missed work in a timely fashion will receive "zero" grades for those assignments."

Approved: \_\_\_\_\_

  
Carletta Marrow, Principal

Parent/Guardian signature: \_\_\_\_\_

Student Name & Signature: \_\_\_\_\_