

Contact Information:

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Needed course materials: Spiral binders and/or folders (for storing handouts), notebook or looseleaf, Composition book/Spiral Notebook for labs, calculator, many writing utensils, and access to a word processor or typewriter.

Text: Biology – Life on Earth; Audesirk, Audesirk, & Byers, (8th edition); Student Lecture Notebook.

Philosophy:

The Advance Placement (AP) Biology course is designed to be the equivalent of a college introductory biology course usually taken by biology majors during their first year. Many Colleges and Universities in New York State as well as nationally accept results of the AP examination as evidence of competency in collegiate level introductory biology. The standards accepted for competency differ from school to school, however. Some other basic advantages of taking this course are listed as follows:

- (1) An opportunity to take a course which will help the transition from the high school to university level work in biology.
- (2) An increase in the probability of being accepted at most universities, since success in this course demonstrates the capacity to handle college work.
- (3) Possible avoidance of much of the pressure of taking a first level biology course when taking other demanding courses at the collegiate level.

I am aware that some students may not desire to take an AP exam; however, this course will be presented for the duration of the school year with these goals in mind by the instructor.

Instructor Expectations:

1. A record of excellent attendance. Since this will be a MUCH faster paced course than any high school course, missing class will be a huge disadvantage. If you should be absent due to illness, please contact me so we can deal with the situation as efficiently as possible. Do not expect me to be sympathetic to your plight if you chronically miss school or come in late to this class.
2. Make certain that all assignments, reports, and evaluations are completed on time. No late work will be accepted unless extenuating circumstances exist in the opinion of the instructor.
3. There is a laboratory/recitation requirement for this class. Lab will meet every other day for forty-two minutes.

4. Because of the nature of this course, any time you miss must be made up in an equivalent fashion. This includes missing school due to academic field trips, athletic trips, music trips, etc. You are responsible for any material missed.

Evaluation:

1. Tests/Quizzes 60%

Quizzes will usually be announced. Major tests will count as two quiz grades. Some test or quizzes may be “take home”. If a quiz or test is a take home quiz or test, late or missing papers in this category will not be allowed and will not be made up. If you are absent, the instructor reserves the right to give a different quiz or exam. There is no guarantee that its degree of difficulty will be same as the original examination. At the instructor discretion, test corrections may be offered.

2. Lab 20%

Successful completion of the laboratory is a requirement for this class. Laboratory based questions make up approximately $\frac{1}{4}$ of the questions on the AP examination. Additionally some Colleges or Universities require proof of labs before lab credit will be given. Based on the nature of this course and the AP examination, laboratory topics will be subject to evaluation on quizzes, examinations, and assignments from time to time. Late or missing lab reports or assignments will receive a grade of zero once they are one week past due. Labs submitted later than the due date will automatically lose 50 points in the interim. Recitation assignments may also be required during some lab periods.

3. Homework 20%

Due to the fast pace of this course you will have homework almost every night. Sometimes it may be just a reading assignment or reviewing your notes. Written homework will be collected or checked at random. Reading assignments may be evaluated on quizzes.

4. Projects

When assigned, these will have varying evaluation weights which will be discussed at the introduction of the project.

** Changes in this evaluation scheme may be made at any time at the instructor’s discretion.

Office Hours:

My “prep” periods are period 1 every day, and period 8 every other day. I am available most days 10th period and will stay later if prior arrangements have been made.

Topic Outline

The following is a listing of tentative course topics with the approximate coverage time for each topic.

I may present the topics in a different sequence than I have indicated below.

To get a rough idea on how much time I intend to spend in a particular topic area, multiply the percentage of course coverage listed after the following topics times 160 days.

- I. Molecules and Cells (25%)
 - A. Chemistry of Life (7%)
 - Water
 - Organic Molecules in Organisms
 - Free energy changes/Enzymes
 - AP Lab # 2 Enzyme Catalysis
 - B. Cells (10%)
 - Prokaryotic and Eukaryotic Cells
 - Membranes
 - Sub cellular organization
 - Cell cycle and its regulation
 - AP Lab # 1 Osmosis and Diffusion
 - AP Lab #3 Mitosis and Meiosis
 - C. Cellular Energetics (8%)
 - Coupled reactions
 - Fermentation and cellular respiration
 - Photosynthesis
 - AP Lab Plant Pigments and Photosynthesis
 - AP Cell Respiration
- II. Evolution and Heredity (25%)
 - A. Heredity (8%)
 - Meiosis and Gametogenesis
 - Eukaryotic chromosomes
 - Inheritance patterns
 - AP # 7 Genetics of Organisms
 - B. Molecular Genetics (9%)

- RNA and DNA structure and function
 - Gene regulation
 - Mutation
 - Viral structure and replication
 - Nucleic acid technology and applications
 - AP Lab #6 Molecular Biology
- C. Evolutionary Biology (8%)
- Early evolution of life/evidence for evolution
 - Mechanisms of evolution
 - AP Lab # 8 Population Genetics and Evolution
- III. Organisms and Populations (40%)
- 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 behavioral adaptations
 - Response to the environment
 - AP Lab # 9 Transpiration
 - AP Lab # 10 Physiology of the Circulatory System
- IV. Ecology (10%)
- Population dynamics
 - Communities and ecosystems
 - Global Issues
 - AP Lab # 11 Habitat Selection
 - AP Lab # 12 Dissolved Oxygen and Productivity