AP Biology Course Syllabus 2014-2015

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Materials

Text:

Biology AP Edition, Campbell 10th edition (2014) with access to MasteringBiology. Please see MasteringBiology_Student Registration Handout.pdf for student registration instructions.

Class Materials:

- Notebook/paper
- Folder/binder
- Pens/pencils
- Scantrons
- Graph paper notebook for lab write-ups
- Markers/crayons/colored pencils

Course Description

Welcome to Advanced Placement biology. AP Biology is the equivalent of a two-semester college introductory biology course normally taken by science majors during their first year of college. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. Primary emphasis will be on developing an understanding of biological concepts such as science as a process, personal experience in scientific inquiry, recognition of unifying themes that integrate the major topics of biology, and application of biological knowledge and critical thinking to environmental and social concerns.

My AP Biology course conforms to the standards instituted by the College Board for all AP courses and covers all of the topics in the AP Biology Course Description. These include biochemistry, cell structure and function, metabolism, genetics, molecular basis of inheritance, DNA technology, evolution, microbiology, classification, plants, animals, animal physiology, and ecology.

Course Objectives

- Demonstrate skills in using various types of biological instrumentation and scientific methodologies.
- Learn how to read and critique papers written by scientists in the field of biology.
- Practice finding and using patterns in collected data to solve scientific problems.
- Apply biological knowledge and critical thinking to environmental and social concerns.
- Exhibit mastery of the major principles in biology

Labs

Laboratory investigations are an integral component of this course therefore we will be doing each of the required AP Biology Labs. These investigations are equivalent to those in a college level laboratory course. The lab work in this course supports, enhances and extends the concepts and principles presented in the classroom. They also provide students with the opportunity to learn and apply new laboratory skills, foster collaborative relationships with others, and improve problem-solving skills.

The laboratory investigations are inquiry based, student-centered and are a primary vehicle for learning the fundamental concepts and principles of biology. This includes active use of the well-designed investigation in which students: 1) form testable questions and hypotheses, 2) design and conduct appropriate investigative procedures, including the identification and control of appropriate variables, 3) organize, display and critically analyze results, and conduct error analysis, 4) draw inferences, summarize results and develop conclusions, and 5) communicate their results for critique by others. Laboratory investigations reflect a balance of structured, guided and open-ended inquiry.

Grading Policy

Homework……15%

Labs and Projects……..20%

Tests and Quizzes……50%

Final Exam ……15%

Course Policies

- Students are expected to read the required chapters in the text prior to class discussion.
- No late work will be accepted. Please pay close attention to due dates.
- Weekly quizzes will be given – some will be unannounced
- This class requires a great deal of time and covers a large amount of information. For that reason, we will be moving fairly quickly and it is important that you stay caught up and do your reading, studying and homework.

Topic Outline	
Fall Semester	**Spring Semester**
1. Chemistry of Life Water Carbon Organic molecules in organisms	5. Evolutionary History of Biological Diversity Phylogeny Bacteria and Archaea
2. Cells Membranes Structure and Function Metabolism, Energy, and Enzymes Respiration and Fermentation Photosynthesis Cell Communication Cell cycle and its regulation	6. Plant Form and Function Plant structure, Growth, and Development Resource Acquisition and Transport in Vascular Plants Plant Responses to Internal and External Signals
3. Genetics Meiosis and gametogenesis Mendel Chromosomal Inheritance Molecular Genetics Gene Expression Regulation of Gene Expression Viruses Biotechnology Genomes and Evolution	7. Animal Form and Function Immune System Osmoregulation and Excretion Hormones and Endocrine System Nervous System Animal Behavior

4. Mechanisms of Evolution Darwin Population Genetics Origin of Species History of Life on Earth	8. Ecology Population Ecology Community Ecology Ecosystems Conservation Biology and Global Change

Projects

You will have a variety of projects throughout the year that requires you to complete some degree of independent work. Majority of projects will span several weeks so you will have ample time to finish them.

Practice Free Response Questions

Periodically, I will assign free response questions like you might see on the AP Biology Exam. You will be required to answer the question and turn in your response for a grade. We will use self-assessment and student/teacher assessment methods for these essay questions.

Homework

This will include a variety of assignments such as MasteringBiology homework modules, practice AP Exam questions, or any other assignments to help with student understanding of the material.

Academic Dishonesty

Academic dishonesty on a test or any assignment will result in no credit for the test/quiz or assignment involved. All persons that knowingly participate in dishonest behavior are equally guilty and may be dealt with in the same manner. Discipline for academic dishonesty will be dealt with according to the schools discipline policies.