

AP Biology Syllabus 2011-2012

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Textbook: "Biology: AP 7th Edition " by Neil A. Campbell and Jane B. Reece

Course description:

The two main goals of this AP Biology course are to help students develop a conceptual framework for modern biology and an appreciation of science as a process. The primary emphasis in an AP Biology course should be on developing an understanding of concepts rather than on memorizing terms and technical details. Essential to this conceptual understanding are a grasp of science as a process rather than as an accumulation of facts; 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.

Themes, Topics, and Concepts:

Themes, topics and concepts all give structure to this course. Themes are defined as overarching features of biology that apply throughout the curriculum. Topics are the subject areas in biology, and concepts are the most important ideas that form our current understanding of a particular topic. Placing emphasis on concepts over facts makes the content of biology more meaningful and less overwhelming for you. This course has more structure and meaning when the key concepts for each topic are placed in the broader context of unifying themes. Concepts are the key ideas, restricted in scope to a certain topic. Themes cut across the topics. Increasingly, the AP Biology Exam will emphasize the themes and concepts of biology and place less weight on specific facts.

Major Themes:

- I. Science as a Process
- II. Evolution
- III. Energy Transfer
- IV. Continuity and Change
- V. Relationship of Structure to Function
- VI. Regulation
- VII. Interdependence in Nature
- VIII. Science, Technology, and Society

Topic Outline:

	<i>Topic</i>	<i>Percentage of Course</i>
I.	Molecules and Cells	25%
	a. Chemistry of Life	7%
	i. Water	
	ii. Organic molecules in organisms	
	iii. Free energy changes	
	iv. Enzymes	
	b. Cells	10%
	i. Prokaryotic and eukaryotic cells	
	ii. Membranes	
	iii. Subcellular organization	
	iv. Cell cycle and its regulation	
	c. Cellular Energetics	8%
	i. Coupled reactions	
	ii. Fermentation and cellular respiration	
	iii. Photosynthesis	
II.	Heredity and Evolution	25%
	a. Heredity	8%
	i. Meiosis and gametogenesis	
	ii. Eukaryotic chromosomes	
	iii. Inheritance patterns	
	b. Molecular Genetics	9%
	i. RNA and DNA structure and function	
	ii. Gene regulation	
	iii. Mutation	
	iv. Viral structure and replication	
	v. Nucleic acid technology and applications	
	c. Evolutionary Biology	8%
	i. Early evolution of life	
	ii. Evidence for evolution	
	iii. Mechanisms of evolution	