

**AP Biology
Study Guide Exam #2**

1. What is the first law of thermodynamics?

2. What is the second law of thermodynamics?

3. Explain the difference between exergonic and endergonic reactions. Which reactions will have a positive ΔG ? Which will have a negative ΔG ?

4. Explain how enzymes function as biological catalysts.

5. Be familiar with the following methods of enzyme regulation.
 - Competitive inhibitors

 - Noncompetitive inhibitors

 - Allosteric regulation

 - Feedback inhibition

 - Cooperativity

6. How does ATP power cellular work?

13. Explain the adaptations of C₄ plants and CAM plants to hot, dry conditions.

14. Compare and contrast paracrine and endocrine signaling.

15. List the three stages of cell signaling.

16. Describe each of the following methods of cell signaling.

- Receptor tyrosine kinases

- G-protein-linked receptors

- Intracellular Receptors

- Ligand-gated ion channel

17. Know the following terms and their relationships to each other.

- Chromatin

- Chromosome

- Centromere

- Chromatid

- Centrosome

- Centriole

18. Diagram the cell cycle and explain the key events of each phase in the cell cycle.

19. In relation to cell cycle regulation explain the role of cyclin-dependent kinases.