**Study Guide Unit 2 Exam AP Biology**

**POL Chapters 4, 5 & 7**

* Be able to distinguish prokaryotic (bacteria) and eukaryotic (plant and animal) cells
* Be able to distinguish plant and animal cells
* Know the function and general structure of each of the structures discussed
  + Cell membrane, vacuoles, vesicles, lysosomes, mitochondria, chloroplasts, cytoplasm, cell wall, nucleus, nucleolus, nuclear membrane, ribosomes, endoplasmic reticulum (rough and smooth), golgi apparatus, centrioles, perioxisomes
* Be able to describe the pathway which a protein destined for export would take through the endomembrane system
* Be able to describe the structure of the plasma membrane in detail (lipid bilayer, cholesterol, various proteins carbohydrates, etc.)
* Be able to describe and predict which way materials will flow during each type of cellular transport
  + Passive transport, diffusion, osmosis, facilitated diffusion, active transport, cotransport, exocytosis, pinocytosis, endocytosis, phagocytosis, receptor-mediated endocytosis, etc.
* Be able to relate tonicity to both plant and animal cells (lysed, shrived, normal, turgid, flaccid, plasmolyzed)
* Understand the relationship between cell size, cell volume and surface area
* Know the phases of the cell cycle {G1, S, G2 (collectively Interphase) and M} and what happens in each.
* Know what mitosis is, including each phase/ order of events and what happens generally in each.  Also know what is produced at the end of the process.
* Know the differences between the vocabulary associated with mitotic DNA (centromere, sister chromatids, chromatin, homologous chromosomes, etc.)
* Understand the differences in cytokinesis in plant and animals cells
* Know the 3 stages of cell signaling and what generally happens in each
* Understand what a ion channel receptor is and what role it plays in chemical signaling
* Know what role phosphorylation plays in chemical signaling
* Understand concept 11.1 “external signals are converted into responses within the cell”
* Understand the difference between intracellular receptors and receptors in the plasma membrane
* Know the benefits of signal transduction pathways

***Test Format:***

* 24 Multiple Choice Questions
* 1 SRQ (Short Response Question)
* 1 FRQ (Free-Response Question)