Bio 210A
Lecture Test Study Guide

Biological Themes
- What properties or features distinguish living organisms from the non-living components of their ecosystems?
- What are the levels of structural organization of living the living world? (You should be able to order all in an ascending or descending fashion).
- How does energy flow in the ecosystem and how is matter recycled in the ecosystem? What are the roles of producers, consumers, and decomposers in relation to converting energy and matter (inorganic and organic)?
- The major differences between prokaryotic and eukaryotic cells.
- Define and understand the meaning of words such as: metabolism, emergent properties, taxonomy, natural selection, homeostasis, evolution, cell theory, and differential reproductive success. (Check out the video “How evolution really works” http://www.teachersdomain.org/resource/tdc02.sci.life.evo.howreally/)
- From an evolutionary perspective, what defines biological success in nature?
- What are the three domains of classification of living organisms? What is the major difference between Bacteria and Archaea? (Use your textbook for the answer)

Scientific Method
- How is scientific knowledge obtained? How does reductionism compare with Systems Biology as an approach to gaining scientific knowledge?
- What is the difference between discovery and hypothesis-driven scientific investigations?
- What are the specific steps of hypothesis-driven scientific investigations? Recognize statements that represent each step.
- Distinguish between hypothesis and theory.