PHYS 122: Life in the Universe
Class Session 9, February 8, 2011

LEARNING OBJECTIVES

1) List 5 of the 6 key properties scientists say appear to be shared by most or all living organisms in Earth.

2) Describe the mechanism central to Darwin's original theory of how evolution occurs. Compare that to the mechanism central to Lamarck's theory to explain evolution. Provide examples of both.

3) Draw a simple `Tree of Life', labeling the three domains. Provide at least one example species in each of the three domains.

Required Textbook readings for class 9: p. 149-160, 165-167 (5.1, end of 5.2)

1. What is the difference between 'Reproduction' and 'Growth & Development'? Give examples of each.
2. What is the difference between 'Response to Environment' and 'Evolutionary Adaptation'? Give examples of each.
3. Evidence for evolution was abundantly obvious even 150 years but no one knew WHY. What was Lamarck's theory for what drove evolution to occur? What was wrong with this theory?
4. What two facts drove Darwin to his inescapable conclusion? What does natural selection mean in this context?
5. Is Darwin's theory to explain evolution a `scientific theory'? Does it demonstrate the 'hallmarks of science' we studied previously?
6. What is the basic difference between Prokaryotes and Eukaryotes? Humans are which type?
7. Name the three domains of life. Which are Prokaryotes and which are Eukaryotes? What species lies at the root of the tree of life?