**Lecture Learning Outcomes and Objectives**

**Week 1: Classification of Living Organisms**

*Given 2 hours of discussion and assigned reading on the subject, upon an examination and within 70% accuracy, the student should be able to:*

1. Explain the binomial naming system, and name the eight main classification categories.
2. Explain why the Linnaean classification system forms a hierarchy.
3. Give an example that shows how Linnaean classification reflects phylogeny
4. Define taxonomy, phylogeny, classification, primitive and derived characters
5. Explain a cladogram and a clade. Show how to construct a cladogram when given the necessary data.
6. Define parsimony
7. Explain how systematists use the fossil record, vestigial structures, homologies and molecular data to trace phylogeny.
8. Explain the theory of evolution and the process of natural selection
9. Define and explain convergent and divergent evolution
10. Define and identify homologies and analogies
11. Use the three-domain system to classify organisms
12. Be able to use and define the following terminology: binomial nomenclature, systematics, taxonomy, taxon, phylogeny, vestigial structure, primitive character, derived character, homology, clade, cladistics, parsimony, analogy, evolution, natural selection, adaptation, convergent evolution

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