

**Miramar College, Biology 205 Microbiology
Diversity Quiz Study Guide**

These learning objectives are intended as a study guide. This is not necessarily a complete guide and as such is not intended to be the sole source of your studies. You should use your notes, text, lab manuals, and other resources in order to make sure that you are fully prepared for your exam. Remember to purchase a scantron and study the quiz questions made available to you by your classmates- these will make up approximately ½ of the information on your exam.

1. Define and differentiate taxonomy and phylogeny; identification and classification.
2. Categorize each of the following in terms of the classification and identification of bacteria: lactose fermentation, citrate utilization, Western blot, ELISA, flow cytometry, DNA fingerprinting, %GC analysis, rDNA (rRNA) sequencing, DNA-DNA hybridization.
3. Construct a phylogenetic tree (cladogram), based on information similar to that found in figure 10.19.
4. Know the characteristics of the prokaryotic domains.
5. What has *in situ* PCR told us about microbial diversity?
6. Be familiar with the information presented in table 12.1.
7. What are the characteristics common to all viruses? Which characteristics are found in only some viruses?
8. What is so unique about viral genomes?
9. How are viruses classified taxonomically?
10. What is a bacteriophage? Compare and contrast the lytic and lysogenic life cycles of bacteriophages.
11. Why must viruses be grown in living cells?
12. Under what circumstances would a virus need to code for/contain unique enzymes for replicating itself (e.g., an RNA-dependent RNA polymerase)?
13. Where does the viral envelope usually come from?
14. Compare latent to persistent viral infections.
15. Discuss prions in terms of the general types of diseases they cause and how they are transmitted.
16. Who fixes nitrogen, and why are there so few types of organisms that do?
17. Discuss the roles of bacteria in nitrogen, carbon and sulfur cycling. What are the basic steps in these processes?
18. Discuss the role of the chemoautotroph in extreme environments.
19. Define and discuss bioremediation and bioaugmentation.
20. List the types of foods that microbes help to produce.
21. How are microbes used in industry?
22. Discuss primary and secondary metabolites and how the terms bioreactors, trophophase and idiophase relate to the production of these metabolites.