Microbiology Learning Objectives C4
Functional Anatomy of Prokaryotic and Eukaryotic Cells

1. What is the main feature that distinguishes prokaryotes from eukaryotes?
2. Identify the three basic shapes of bacteria.
3. What is the structure and function of the glycocalyx?
4. What is a bacterial capsule and why are they medically important?
5. Differentiate flagella, axial filaments, fimbria, and pili.
6. How do bacteria move?
7. Compare and contrast the cell walls of gram-positive bacteria, gram-negative bacteria, acid-fast bacteria, archea, and mycoplasms.
8. Why are drugs that target cell wall synthesis useful?
9. How do protoplast differ from spheroplast? L forms?
10. Which agents can cause injury to the bacterial plasma membrane?
11. Define simple diffusion, facilitated diffusion, osmosis, active transport, and group translocation.
12. Where is the the DNA located in a prokaryotic cell ?
13. Identify the functions of the nucleoid and ribosomes.
14. Under what conditions do endospores form?
15. Compare and contrast prokaryotic and eukaryotic: a )Cell walls and glycocalyxes. b) Plasma membranes, c) Cytoplasms, d) Ribosomes, e) Genetic material.
16. Describe the functions of the nucleus, endoplasmic reticulum, Golgi complex, lysosomes, vacuoles, mitochondria, chloroplasts, peroxisomes, and centrosomes.
17. How do rough and smooth ER compare structurally and functionally?
18. What is the evidence that supports the endosymbiotic theory of eukaryotic evolution?