## Chapter Objectives - Chapter 50

1. Distinguish among physiology, ecology, community ecology, and ecosystem ecoloty
2. Describe the relationship between ecology and evolution
3. Explain the importance of temperature, water, light, soil, and wind to living organisms
4. Explain the principle of allocation
5. Describe how environmental changes may produce behavioral, physiological, morphological, or adaptive responses in organisms
6. Explain the concept of environmental grain and under what situation(s) a single environment may be both coarse-grained and fine=grained
7. Describe the characteristics of the majore biones
    a. tropical forest
    b. savanna
    c. desert
    d. chaparral
    e. temperate grassland
    f. temperate forest
    g. taiga
    h. tundra
8. Compare and contrast the types of freshwater communities

## Chapter Objectives - Chapter 51

9. Explain the difference between innate and learned behaviors
10. Describe the evolutionary basis for behavioral ecology
11. Explain the difference between ultimate and proximate causations of behavior
12. Explain the nature versus nurture controversy
13. Explain the effect of maturation on behavioral improvement
14. Define habituation
15. Discuss imprinting, imprinting stimulus, and critical period
16. Define associative learning
17. Distinguish between classical conditioning, operant conditioning, and observational learning
18. Describe and define kinesis, taxis, and migration
19. Describe optimal foraging strategies in terms of energetics and prey densities
20. Describe agonistic behavior
21. Explain what is meant by a ritual behavior and describe the evolutionary advantage of ritual behavior
22. Describe a dominance hierarchy and explain the advantages to individuals in the hierarchy
23. Explain how dominance hierarchies and territories may stabilize population densities
24. Describe the advantages of courtship
25. Explain how ritualized courtships may have evolved
26. Define parental investment
27. Discuss the untimate bases for mate selection
28. Relate an animal's mode of communication to its lifestyle
29. Discuss why altruistic behavior might evolve
30. Define reciprocal altruism

## Chapter Objectives - Chapter 52

1. Distinguish between population and density
2. Explain how ecologists measure species density

3. Describe conditions which may result in clumped dispersion, random dispersion, and uniform dispersion of populations
4. Explain how age structure, generation time, and sex structure of populations can affect population growth
5. Describe the characteristics of populations which exhibit Type I, Type II, and Type III suvivorship curves
6. Explain how carrying capacity of the environment affects the intrinsic rate of increase of a population
7. Explain how density dependent factors affect population growth
8. Describe how weather and climate can function as density-independent factors in controlling population growth
9. Explain how density-dependent and density-independent factors may work together to control a population's growth

## Chapter Objectives - Chapter 53

10. Explain how interspecific competition may affect community structure
11. Describe the competitive exclusion principle and explain how competitive exclusion may affect community structure
12. Distinguish between an organism's fundamental niche and realized niche
13. Explain how resource partitioning can affect species diversity
14. Describe the defense mechanisms evolved by plants to reduce predation by herbivores
15. Explain how cryptic coloration and aposematic coloration aid an animal in avoiding predators
16. Distinguish between Batesian mimicry and Mullerian mimicry
17. Describe how predators use mimicry to obtain prey
18. Explain the role of predators in community structure
19. Distinguish among parasitism, mutualism, and commensalism
20. Distinguish between primary succession and secondary succession
21. Explain how inhibition and facilitation may be involved in succession

## Chapter Objectives - Chapter 54

1. Explain the importance of autotrophic organisms with respect to energy flow and nutrient cycling in ecosystems
2. List and describe the importance of the 4 consumer levels found in ecosystems
3. Explain how gross primary productivity is allocated by the plants in an ecosystem
4. Explain why productivity declines at each trophic level
5. Distinguish between energy pyramids and biomass pyramids
6. Explain why the soil in tropical forests contains lower levels of nutrients than soil in temperate forests
7. Describe how agricultural practices can interfere with nitrogen cycling
8. Describe how deforestation can affect nutrient cycling within an ecosystem
9. Explain how "cultural eutrophication" can alter freshwater ecosystems
10. Explain why toxic compounds usually have the greatest effect on top-level carnivores
11. Describe how human interference might alter the biosphere