**Ecosystems**

**Read: Sections of chapters 50 and 54**

**Videos:** Bozeman – #47, #9 lab Transpiration, #12 Dissolved Oxygen, Biogeochemical Cycles

**Objectives:**

1. What are the major factors (characteristics) that determine the terrestrial ecosystem that exists in a particular location?
2. Describe how ecosystems provide organisms with their energy and matter requirements.
3. How does the first law of thermodynamics effect the movement of matter and energy through an ecosystem? Explain how energy flows through an ecosystem and is not recycled.
4. Explain what limiting factors are.
5. How do limiting factors influence an ecosystem?
6. Compare food chains and food webs.
7. What does it mean by “trophic structure” of a community? Give example
8. Be able to calculate the energy requirements of organisms at different trophic levels.
9. Explain the “10% rule”, how it affects the trophic structure of the ecosystem, and why it is a bit of an oversimplification.
10. Describe what the nutrient cycles are and explain what they all have in common.
11. What is primary productivity?
12. How are food chains/webs dependent on primary productivity?
13. How is the term dissolved oxygen (DO) related to primary productivity?
14. Provide examples of how biotic and abiotic factors affect organism behavior, community interactions, and ecosystem structure. Utilize the following examples in your responses:
    1. Sunlight
    2. Symbiosis (mutualism, commensalism, parasitism)
    3. Predator–prey relationships
    4. Water and nutrient availability, temperature, salinity, pH
    5. Availability of nesting materials and sites
    6. Food chains and food webs
    7. Species diversity
    8. Population density
    9. Algal blooms (eutrophication)
    10. Biological magnification
    11. Acid rain
15. Explain how changes in climate or environment can influence primary productivity in an ecosystem.
16. How can disruptions affect the dynamics of an ecosystem: Refer to all of the following:
    1. Natural disasters
    2. Droughts
    3. Salination
17. How has human activity impacted ecosystems on a local, regional and global scale?
18. Explain how geological and meteorological events can impact the distribution of ecosystems.
    1. El Niño
    2. Global warming
    3. Meteor impact on dinosaurs
    4. Ozone depletion