

# Environmental Science 445

## Summer Assignment Objectives

If you are reading this, you have enrolled in Environmental Science for 2020/21. Because the topics described in parts of your textbook are a review of material previously covered in earth science, biology and chemistry, you will be tested on chapters 3, 4 and 5 within the first full week of school. The test will be in 2 parts in 2 days.

Together, the “review tests” will represent 50% of your 1<sup>st</sup> quarter grade.

It will be necessary to take a textbook home with you and complete the readings over the summer.

On the following page are the objectives for your summer readings. If there are terms you do not recognize, use your textbook or the internet to refresh your memory. It is expected that you will be able to use scientific vocabulary from the textbook during all quizzes, tests and homework assignments.

### Ch.3 Objectives

Describe the biomes on Earth, and how they're created through biotic and abiotic factors.

Explain how stress and tolerance cause small changes in some populations, while populations of other organisms may vary widely, sometimes to the point of extinction.

Explain how Earth's “spheres” interact to produce organic compounds and Life.

Apply the laws of thermodynamics to the movement of energy in a food web.

Draw, label and describe the cycles of carbon, nitrogen and phosphorus.

Explain the anthropogenic imbalances in the biogeochemical cycles and consequences for ecosystems resulting from those imbalances.

#### Ch.4 Objectives

Explain the dynamics of natural population growth in the context of limiting factors.

Draw/label/describe a graph representing typical population growth curve, including discussions of carrying capacity and dynamic population balance.

Explain how populations are held in dynamic balance by environmental resistance.

Describe 2 basic reproductive strategies used by organisms to perpetuate their species.

Explain by example, the types of competition for resources within and between species.

Explain by example, the types of non-feeding relationships between species.

Distinguish between native, exotic and invasive species.

Explain by example, common characteristics of invasive species and their economic and ecological impacts.

#### Ch.5 Objectives

Explain the role of producers, consumers and decomposers in sustaining ecosystems.

List and describe the abiotic and biotic characteristics of Earth's major terrestrial biomes.

Explain by example, the principle of ecological succession.

Explain the role of fire in those ecosystems which are adapted to fires.

## Environmental Science 445 Summer Vocabulary

1. abiotic-

2. biotic-

3. stress-

4. tolerance-

5. potential energy-

6. kinetic energy-

7. thermodynamics-

8. entropy-

9. trophic level-

10. respiration-

11. photosynthesis-

12. carbon cycle

13. nitrogen cycle-

14. phosphorus cycle-

15. nitrogen fixation-

16. denitrification-

17. producers-

18. consumers-

19. decomposers-

20. j-curve-

21. carrying capacity-

22. environmental resistance-

23. r-reproductive strategy-

24. k-reproductive strategy-

25. symbiosis-

26. commensalism-

27. parasitism-

28. critical number-

29. keystone species-

30. threatened species-

31. endangered species-

32. natural selection-

33. selective pressures-

34. invasive species-

35. climate-

36. biome-

37. productivity-

38. ecological succession-

39. pioneer species-

40. climax species-

41. ecotone-

42. terrestrial-

43. aquatic-

44. pH-

45. salinity-

46. dissolved oxygen-

47. macronutrients-

48. micronutrients-

49. nitrites-

50. nitrates-