

Lecture 16 – Competition

READINGS:

- Krebs Chapter 12: Species Interactions: Competition
- Krebs Chapter 22 pages 447-448.

Outline for today:

- I. Life tables (from last class)
- II. Competition
 - a. Resource vs interference competition
 - b. Lotka-Volterra equations
 - c. Tilman's approach
 - d. Niches

Study questions

- Explain the difference between resource and interference competition. Give an example of each.
- What do α and β in the Lotka-Volterra equations represent?
- For the 4 general cases of the Lotka-Volterra equations, will $>$ or $<$ in the following inequalities, and describe whether inter- or intra- specific competition is more important for species 1 and 2

$$K_1 \text{ ___ } K_2/\beta$$

$$K_2 \text{ ___ } K_1/\alpha$$

- What were Tilman's criticisms of the Lotka-Volterra approach? Describe Tilman's approach to determining the outcome of competition between two species.
- Suppose the densities of two species A and B are 60 and 30 organisms per acre. Their carrying capacities are 65 and 80 organisms per acre, respectively. Can you say whether or not these species could be in stable coexistence as described by the Lotka-Volterra Equations? Why or why not? What if the densities of the two species are 20 and 20 organisms per acre, respectively. What can you say now?