Level of Students: College Sophomores Biology and Education Majors		Length of Class: 50 minutes
Lesson Objectives: 1) Students interpret a Lotka-Volterra competition graph.		
Materials needed: Laptop or ipad and projector Black or green cards, one for each student Dice, one for each student		
Potential problems: Solutions:		
Stage Aim	Interaction pattern & timing	Procedures
Housekeeping	Monologue 5 minutes	I will remind students about the lab report. I will go over the most-missed questions on the quiz.
Lotka-Volterra competition modeling	Whole class 30 minutes	I will pull up the first LV graph on the screen. I will pass out dice and cards so that each student has one die and a black or green card. I will explain that students with black cards are black bears and students with green cards are grizzly bears. For the first graph, students will roll the dice to determine whether they have enough food. Grizzlies will survive and have a baby if they roll a 3 or above and starve if they don't. Black bears will survive to reproduce if they roll a 5 or above. I will poll the students to see how many bears there are after the first roll and put a dot on the graph. Students who "die" will not participate in the next round. I will continue this until there are only grizzlies and no black bears.

		I will then switch the screen to the second graph and reverse the rules. Black bears reproduce over 3 and die below; grizzlies do the reverse. For the third graph, each black bear will pair with a grizzly bear. They will only roll once; at a four or above, the black bear will win; at a 3 or below, the grizzly will win. I will mark the population in the graph. They will repeat until one or the other species goes extinct. I will repeat this several times so that students will see that grizzlies win sometimes, and black bears win sometimes. For the fourth graph, each black bear will pair with another black bear and each grizzly will pair with a grizzly. The same rules will apply – one will be 1-3 and one will be 4-6. We will roll repeatedly. Students will see that they can coexist because intraspecific competition is higher than interspecific competition.