**CHAPTER 5 STUDY OUTLINE**

**POPULATION ECOLOGY**

5.1 How Populations Grow

1. Describing Populations
   1. Geographic Range
   2. Density and Distribution
   3. Growth Rate
   4. Age Structure
2. Population Growth
   1. Birthrate and Death Rate
   2. Immigration and Emigration
3. Exponential Growth
   1. Organisms That Reproduce Rapidly
   2. Organisms That Reproduce Slowly
   3. Organisms in New Environments
4. Logistic Growth
   1. Phases of Growth
      1. Phase 1: Exponential Growth
      2. Phase 2: Growth Slows Down
      3. Phase 3: Growth Stops
   2. The Logistic Growth Curve
   3. Carrying Capacity

5.2 Limits to Growth

1. Limiting Factors
2. Density-Dependent Limiting Factors
   1. Competition
   2. Predation and Herbivory
      1. Predator-Prey Relationships
      2. Herbivore Effects
      3. Humans as Predators
   3. Parasitism and Disease
   4. Stress From Overcrowding
3. Density-Independent Limiting Factors
   1. True Density Independence?
   2. Controlling Introduced Species