

Knowledge-based Learning Outcomes

Upon completion of *Understanding Population Growth Models*, students should be able to:

1. Explain what a population growth model is and why such models are useful.
2. Give an example of how population models can be used to describe the growth of a population over time.
3. Describe how resource limitation can determine if a population is growing exponentially or logistically.
4. Explain why, in an exponentially growing population, an increase in r will lead to more individuals over time than an equivalent increase in N_0 would.
5. Distinguish between the instantaneous rate of change (dN/dt) and the intrinsic growth rate, r .
6. Describe the relationship among growth rate (r), birth rate (b), and death rate (d) for a population.
7. Explain the role of resource limitation in population growth, and how it impacts carrying capacity, K .
8. Explain how the carrying capacity for a population (K) could change, and how such a change would affect the graph of population size versus time.

Skills-based Learning Outcomes

Upon completion of *Understanding Population Growth Models*, students should be able to:

1. Draw a graph of population size versus time for a population undergoing exponential growth, and indicate how the growth curve will change if r or N_0 change.
2. Draw a graph of population size versus time for a population undergoing logistic growth, indicating the population's carrying capacity, K .
3. Draw a graph of population size versus time for a population undergoing logistic growth, and indicate how the growth curve will change if r or K change.