Population Growth

Part 1: Geometric Growth
Introduction to population growth and the geometric growth equation. Calculating growth rates and predicting future population size.

- The Growth of a Weed
- Modeling Population Growth
- Describing Population Growth
- Geometric Population Growth
- Examples of Geometric Population Growth
- Summary of Part 1
- Quiz Questions
- Questions About Concepts?

Part 2: Exponential Growth
Comparison of exponential vs. geometric growth. Calculating intrinsic rate of growth and using the exponential growth equation to predict population growth. Doubling times. Intrinsic growth rates versus body size. Human population growth.

- Aphids Wreaking Havoc
- Geometric vs. Exponential Growth
- Exploring Exponential Growth
- Intrinsic Rate of Growth
- Doubling Time
- Examples of Exponential Population Growth
- Human Population Growth
- Summary of Part 2
- Quiz Questions
- Questions About Concepts?

Part 3: Logistic Growth
Introduction to resource limitation, carrying capacity, and the logistic growth equation. Realized versus intrinsic growth rate. Density dependent and independent factors.

- The Reality of Limited Resources
- Carrying Capacity
- Examples of Logistic Growth
- Logistic Growth Equation
- The Shape of the Logistic Growth Curve
- Density-Dependent and Density-Independent Factors
- Examples of Density Dependent Factors
- Summary of Part 3
- Quiz Questions

- Questions About Concepts?

Part 4: Dispersal and Metapopulations
In addition to birth and death rates within a population, population dynamics are also shaped by the movement of individuals between popuplations. Under certain circumstances, these connected populations are known as metapopulations.

- Beyond a Single Population
- Extinction
- Immigration and Emigration
- Source-Sink Populations
- Examples of Dispersal
- Metapopulations
- Metapopulation Examples
- Summary of Part 4
- Quiz Questions
- Questions About Concepts?

Part 5: Variability in Populations
Variability and stochasticity in population growth. Allee effects. Delayed density dependence, and deterministic chaos in the logistic equation.

- Real Populations Are Noisy
- Environmental Stochasticity
- Demographic Stochasticity
- Allee Effects
- Delayed Density Dependence and Chaos
- Applying Population Models
- Summary of Part 5
- Quiz Questions
- Questions About Concepts?