

Text reading assignments and study questions

Chapter 16 Species Abundance and Diversity

pp. 373-380 (stop at "Complexity in Plant Environments")

pp. 383-385 (start at "Case Histories"; stop at "Disturbance and Diversity in Temperate...")

pp. 389-390 (read "Summary Concepts")

- Be able to use the Shannon-Wiener index (also called the Shannon-Weaver index) and rank abundance curves to compare and describe species richness and species evenness.
- Explain how environmental heterogeneity can affect species diversity.
- Explain how disturbance can affect species diversity.
- Be able to answer review questions 2, 3, 4, 5, 7 on page 390.

Chapter 11 Population Growth

pp. 263-268 (start at "Exponential Growth")

pp. 272-276 (start at "Applications and Tools")

- Be able to use the exponential growth equation to find population size after a period of time.
- Explain the biological conditions under which populations may experience exponential growth. Use an example.
- Explain the biological conditions that can limit exponential growth. Use an example.
- Contrast density-dependent and density-independent regulatory factors. Include at least three differences.
- Explain how incorporating K changes the exponential growth equation to the logistic growth equation.
- Be able to use the logistic growth equation to find population size after a period of time.
- Be able to answer review questions 2, 3, 4, 6, 7, 10 on pages 276-277.

Chapter 10 Population Dynamics

pp. 239-249 (stop at "Case Histories")

p. 257 (read "Summary Concepts")

- Be able to interpret survivorship curves and age distributions.
- Be able to construct a life table, including x , n_x , l_x , and m_x .
- Be able to calculate R_0 from a life table.
- Predict how an organism with a type III survivorship curve solves the number of offspring versus size of offspring tradeoff. Explain your answer.
- Be able to answer review questions 1, 2, 3, 4, 6, 7 on page 258.

Chapter 14 Exploitation: Predation, Herbivory, Parasitism, and Disease

p. 325 (stop at "Case Histories")

pp. 329-331 (start at "Case Histories"; stop at "An Introduced Cactus...")

pp. 333-337 (start at "A Pathogenic Parasite...", stop at "Laboratory Models")

pp. 340-344 (start at "Exploited Organisms...")

- Compare and contrast herbivores, predators, parasites, parasitoids, and pathogens.
- Design an experiment to test the effect of a predator on the abundance of its prey.
- Describe how refuges affect biodiversity. Compare and contrast this with the importance of environmental heterogeneity for the coexistence of would-be competitors (as described in chapter 16).
- Explain how masting may be an adaptation to seed predation.
- Be able to answer review questions 1, 4, 5, 6, 9 (both parts) on page 347-348.