

The quiz will cover all of the material we have covered in class since the last quiz. This includes Population Ecology, Competition, and Predation, Communities, and Island Biogeography.

You should bring a calculator to class on the day of the quiz

RELEVANT READINGS

Text:

Chapter 9 p. 119-125 (understand how you would estimate the density of a population using the mark and recapture technique)

Chapter 10. All. Understand how to create and use cohort and static life-tables

Chapter 11. p 160-172;

Chapter 28 (p.583-590). Understand what a demographic transition is, and how one calculates the ecological footprint

Ch 12 (all). Understand all in this chapter...particularly those covered in Zackary Johnson's Lecture

Ch 13 (all – pay particular attention to Fig 13.1, 13.13, 13.14, 13.23, 13.24)

Ch 20, pp. 386-394 (Dynamic relations between populations and community boundaries), Fig. 20.6

Ch 21, pp. 406-409 (Succession), 412-422 (Case studies of succession)

Ch 22 (pp 447-448, and pp. 434-438 in particular, as well as the rest of the chapter that was covered by Matt Sullivan)

Ch 23, pp. 471-476 (Keystone and Dominant Species), 477-480 (Community stability)

Ch 24, pp. 495-501 (Models of community organization)

Ch 24. pp. 501-510

As usual, focus on the parts that are directly relevant to the lecture material, but be sure to read all of the boxes and understand all of the figures in the assigned sections, and the particular figures that are assigned specifically above.

Articles:

Smil, Vaclav (1999). How Many Billions To Go? *Nature* 401:429. (L)

Palumbi (2001). Humans as the World's Greatest Evolutionary Force. *Science* 293:1786-1790.(L)

Cohen, J. (1995) Population growth and Earth's human carrying capacity. *Science* 269:341 (L – JSTOR)

Losos, J. and D. Schluter. 2000 Analysis of an evolutionary species-area relationship. *Nature*, 408:847-850 (L)

Read all of these articles carefully . Be sure that you understand how the study/analysis was done, what the take home message is, and how to interpret all of the figures

CONCEPTS TO BE COVERED

Exponential Growth
Logistic Growth

Life Tables and Demography

Chemostat Theory

Human Population Growth

Density Dependence and Intraspecific competition

Examples of interspecific competition

The Lotka-Volterra equations for two competing species; Competition coefficients

Theory of the Niche

Character Displacement and The Competitive Exclusion Principle

Lotka-Volterra equations applied to Predation

Rosenzweig and MacArthur's Isocline analysis

Functional Response Curves - Holling

Island Communities

Species area curves

Island biogeography

Incidence functions

The quiz will have problems to solve much like your homework assignment, some short answer and perhaps a few simple discussion questions. You do not have to have memorized all of the equations, but should be able to recognize them in a list of correct equations that will be supplied to you at the end of the test. It would be to your benefit to understand the ins and outs of exponential growth, and the logistic equation, so it might be useful to have these memorized.

Among other things, you should be familiar with isocline analysis, for the analysis of competition and predation