Biology 489, Fall 2014

Population Ecology

Textbook: Vandermeer, J.H. and D. E. Goldberg. 2013. *Population Ecology: First Principals.* 2nd Edition. Princeton University Press, Princeton.

Course description: Areas to be covered will include traditional topics—population dynamics, demography competition, predator-prey interactions, life-history theory—as well as recent developments in the field—for example, spatial interactions and metapopulation dynamics. Analytical, theoretical, experimental, and modeling approaches to the study of populations will be considered. Readings will be assigned from the textbook and the primary literature.

Assigned work: There will be three exams—two midterms and a final. The final exam will be given during the 2-hour final exam period, with a strong bias towards material presented after the second midterm.

Homework assignments will be handed out at irregular intervals throughout the semester to reinforce the ideas presented in class. Homework will be due one week after assignment, unless indicated otherwise.

Critical information regarding the course will be delivered by the website, e.g., reading and homework assignments. Check early and often!

Evaluation .... Proportion of Grade

    Each midterm (TBA) 25% (x2)

    Final 25%
        • *Monday December 15 at 9:45 (in classroom)*

    Homework (TBA) 25%
        • *Due one week after assignment, unless otherwise indicated*

Other useful textbooks:

Silvertown, J. and D. Charlesworth. 2001. Introduction to plant population biology. 4th edition, Blackwell Science. (this could be the text if this course were plant population ecology)

Stevens, M. H. 2009. A primer of ecology with R. Springer.

Begon, M., M. Mortimer, and D. Thompson. 1996. Population ecology: a unified study of animals and plants. 3rd edition, Sinauer Associates.

Caswell, H. 2001. Matrix population models. 2nd edition, Sinauer Associates. (definitive book on matrix modeling and population projection, most complex mathematically among the books on this list but approachable—includes MATLAB code)

Hastings, A. 1997. Population biology, concepts and models. Springer. (this book could easily be a text for the course)

Morris, W. F., and D. F. Doak. 2002. Quantitative conservation biology: theory and practice of population viability analysis. Sinauer. (great practical book on population viability analyses, starts simple and gets very detailed, a companion to Caswell—includes MATLAB code to crunch the numbers)

Roughgarden, J. 1996. Theory of population genetics and evolutionary ecology, an introduction. Prentice Hall (good combination of population genetics, ecology and evolution, appendices with mathematics of matrix algebra and stability)

Roughgarden, J. 1998. Primer of ecological theory. Prentice Hall (book covering theory, you can learn to use MATLAB with this book)