

BIOL-UA 63/ENVST-UA 325 Fundamentals of Ecology

Instructor:

Katie Schneider Paolantonio

Course Description:

Ecology is the study of the interaction between organisms and the environment. In this course we will investigate the relationship between abiotic (nonliving) and biotic (living) components of an ecosystem. Building upon an introduction to environmental factors, we will examine the interplay between these components at the organismal, population, community and ecosystem levels. Throughout the course, we will discuss current ecological applications and issues, such as habitat destruction, sustainability, disease, invasive species, and global climate change. This is a lecture course designed primarily for students majoring in biology (ecology track) and environmental studies. This course is not intended for college freshman. In addition to the prerequisites, it is strongly encouraged that you have also completed college level math prior to enrolling in this course. If you have not taken the course prerequisites, you are very likely to have a difficult time doing well in this course.

Pre-requisite:

Principles of Biology II (BIOL-UA 12).or
Environmental Systems Science (ENVST-UA 100) or
Foundations of Science 6 Physics (SCIEN-AD 114)

Textbook and Required Materials:

Ecology: Global Insights and Investigations. P. Stiling, 2nd Edition, 2014. Copies (new and used) available at the bookstore and on sites such as Amazon.com (also on reserve at the library).

SimBio for assignments (cost ~\$15). I will explain how to download this software later on in course.

Grading:

Exams	60%
Take home assignments	30%
In class assignments	10%

Topics:

Introduction to Ecology, Course Expectations
Brief Intro to Evolution
Natural Selection, Speciation Extinction
Behavioral Ecology
Functional Ecology temperature, water
Functional Ecology nutrients, soil
Populations and Metapopulations
Populations, Metapopulations and Life History
Life tables and demography
Population growth and dynamics, regulation
Sustainability and Harvesting
Competition
Facilitation
Predation
Herbivory

Parasitism, Disease
Species Diversity and Richness
Diversity Patterns
Community dynamics, diversity and restoration
Climate
Terrestrial Biomes
Aquatic Biomes
Food webs and chemical cycles I
Food webs and chemical cycles II
Global climate change