BIOL 318

Term: FALL 2016

Course No. & Section: BIOL 318-01

Course Title: PRINCIPLES OF ECOLOGY & LAB

Professor: DR. VICTOR CARMONA

Course Description:

Objectives:

- **Lecture:**
  - To study how organisms interact with their biotic and abiotic environment, in addition to the dynamics of these interactions across temporal and spatial scales

- **Lab:**
  - To broaden the understanding of ecological theory through the application of field techniques, experimental design and hypothesis testing

Content:

- **Lecture:**
  - Topics include natural history of terrestrial and aquatic systems, population biology and complex species interactions, community theory and ecosystem dynamics, landscape structure and biodiversity, as well as global system networks.
  - Current issues in ecology will be emphasized and in class assignments will review case studies, such as invasive species and habitat loss, anthropogenic impacts to the environment and conservation, biodiversity loss and ecosystem function.

- **Lab:**
  - Field techniques include microclimate measurement, transect and quadrat methodologies, richness estimates, diversity calculation and rarefaction, allometric and biomechanical contrasts, spatial distribution assessment, and natural history surveys.
  - Experimental design and data analyses include correlations, linear regressions, chi-squares, t-tests, ANOVAs and non-parametric comparisons.
  - Hypothesis testing will be stressed throughout; students design and implement an independent research project which ultimately results in a manuscript that will be submitted for publication in BIOS – a quarterly journal of Biology.

Prerequisites/Recommended Background:

- BIOL 101/111 (required)
- BIOL 102/112 (required)
- MATH 122 -OR- 131 (required)
- PHYS 253 & 254 (recommended)

Required Texts/References:


Course Work/Expectations:

- Three (1 hr) lectures & one (4 hr) lab session per week
- Lecture: three exams, term paper, in-class assignments & presentations
- Lab: laboratory & field experiments with written reports, independent project (IP), and IP manuscript submission

Comments: