

The University of Texas at El Paso  
College of Science  
Department of Biological Sciences

**Course #:** BIOL-4395, CRN 26411

**Course title:** Quantitative Methods in Ecology

**Credit hours:** 3.0

**Prerequisite course:** BIOL 3316-3116 (Ecology); or permission of instructor.

**Instructor:** Dr. Vanessa Lougheed

**E-mail:** vlougheed@utep.edu

**Office:** B316

**Phone:** 747-6887

**Lectures:** 1:20 h per week - MONDAYS in Worrel Hall 205.

**Computer Labs:** 1:20 h per week - WEDNESDAYS in LART 405A.

Lecture notes, assignments, data sets and other class materials will be posted on Blackboard

**Required textbook:** Whitlock, M.C. and D. Schluter. 2008. The Analysis of Biological Data. Roberts and Company.

Other readings will be assigned from the literature

**Required software:** R & R-Studio; Download from <http://www.rstudio.com/>

**Other suggested textbooks in the field (NOT required):**

van Emden, H. 2008. Statistics for Terrified Biologists. Wiley-Blackwell.

Gotelli, N.J. 2004. A Primer of Ecological Statistics. Sinauer Associates.

Adler, J. 2012. R in a nutshell. O'Reilley Media.

Quinn, G.P. and M.J. Keough. 2002. Experimental Design and Data Analysis for Biologists. Cambridge University Press.

**Grading Scheme:**

Assignments (10)	40%
Quizzes (3)	30%
Final	30%

**Course objective:**

This course includes a combination of lectures, assignments, and tests on biostatistics and other quantitative methods in ecology. The primary objective of this class is to learn how to explore and analyze ecological data using both descriptive and inferential statistics. This course will provide you with a set of analytical tools and techniques to enable you to undertake a substantial proportion of your own experimental design and data analysis, as well as understand current ecological literature.

The tools include both tools in statistical analysis and modern graphical approaches to data analysis and display.

**Assignments** (10 assignments worth 4% each).

Assignments will test your ability to analyze and interpret biological datasets. For statistics, you will be expected to analyze the data as instructed using the program "R-studio". Assignments are due before the start of class on the due date. Late assignments will not be accepted. ***Most assignments should be completed and graded in class. If necessary, please send any assignments electronically as a SINGLE MS WORD document to vlougheed@utep.edu.***

**Quizzes** (3 quizzes worth 10% each)

3 quizzes will occur during the lab period. Questions will be extracted from Whitlock and Schluter (2008), with occasional added material, and will cover all material taught up to the Quiz date.

**Final Exam** (30%).

The final exam will be a take-home exam and will cover all lecture material and lab assignments.