ELEMENTAL ECOLOGY
BIOLOGY 59996/60066 – FALL 2017

Primary Instructor
Dr. Seth Newsome
Assistant Professor, Biology Department
Associate Director, Center for Stable Isotopes
Office: Castetter Hall 190
Email: newsome@unm.edu

Teaching Assistant
Laura Pages Barcelo
Biology M.Sc. Student (Newsome Lab)
Office: Marron Hall 216

Course Website: http://sethnewsome.org/sethnewsome/EE.html

Guest Instructors
Dr. John Whiteman (Animal Eco-Physiology)
Laura Pages Barcelo (Animal Ecology
Emma Elliott Smith (Animal Ecology)

Course Meeting Time and Location
Lecture: Tuesday & Thursday 9:00–10:45AM, Castetter Hall 107
Lab: Wednesday 2:00–4:00PM (Location Varies)
Office Hours:
Newsome: Tuesday 11:00–12:00 (Castetter Hall 190)
Pages Barcelo: Monday 9:00–10:00 (Marron Hall 216)

Overview
Application of stable isotope analysis in the fields of ecology and environmental science. Lectures will address the theory underlying the application of stable isotopes at natural abundance levels as tracers and integrators of important ecological and environmental processes.

Learning Objectives
Quantitative Skills: Become competent with quantitative evaluation of isotopic data, including procedures for correction and expression of stable isotope values, associated fractionation/discrimination effects, and statistical tools (mixing models and spatial metrics) used to interpret isotope data.
Oral and Written Communication: Establish fundamental knowledge of concepts and vocabulary needed to properly and accurately communicate understanding of stable isotope data.
Critical Evaluation of the Scientific Literature: Gain necessary background and knowledge of theories and concepts in isotope ecology to properly evaluate the published literature in the field.
Laboratory and Field Techniques: Become acquainted with basic laboratory skills and field sampling techniques and become familiar with state-of-the-art instrumentation used in isotope ecology.

Complementary Textbooks
Lajtha, K. and Michener, R.H. 1994. *Stable Isotopes in Ecology and Environmental Science.* Blackwell.
Clark, I. and Fritz, P. 1997. *Environmental Isotopes in Hydrogeology*. CRC Press.
Sterner, R.W. and Elser, J.J. 2002. *Ecological Stoichiometry.* Princeton University Press.
Fry, B. 2008. *Stable Isotope Ecology.* Springer Verlag.
Sharp, Z. 2006. *Principles of Stable Isotope Geochemistry.* Pearson Prentice Hall.
Hoefs, J. 2010. *Stable Isotope Geochemistry.* Springer Verlag.

Grading
Attendance & Participation in Paper Discussions = **50 Points**
Problem Sets = **100 points**
Class Project = **350 Points**

- 2-Page Project Description and Reference List (75 points)
- 2-Page Experimental Plan and Methods (75 Points)
- 4-Page Pre-Proposal (100 Points)
- Project Presentation (100 Points)

GRAND TOTAL: 500 Points

Attendance
You are not required to attend lecture (attendance will not be recorded) but since a large majority of your grade is dependent on in-class discussion it is best to show up and interact with your fellow students and instructors. Note that it is your responsibility to request accommodation for individual learning needs. We will make any reasonable attempt to accommodate qualified students with disabilities, provided that such requests are made in a timely manner. For further information, make an appointment with your instructor or contact the Accessibility Resource Center at (505) 277-3506.

Academic Dishonesty
I will not tolerate any act of academic dishonesty. An act is academically dishonest when it is an act attempted or performed which misrepresents one's involvement in an academic task in any way, or permits another student to misrepresent the latter's involvement in an academic task by assisting in the misrepresentation.