Instructor: Claudia Tyler  email: tyler@lifesci.ucsb.edu
Office Hours: Mondays 10-11am & Thurs 11am-noon in Bren 4008; available other times by appt

Teaching Assistants:

Tu 8am, 2pm, Th 8am  Tu 4pm, 5pm, Th 4pm  Wed noon, 1pm, 3pm  Th 2pm, 3pm, 4pm
Taylor Briglio  Shelley Bennett  Stephanie Ma  Randy Long
Office hr T 12:30-1:30p  Office hr Wed 11am-noon  Office hr M 12:30-1:30p  Office hr Th 1-2pm

Course Description:
We will study the principles of ecology and their implications for analyzing environmental problems. The focus of this course is on understanding the processes controlling the dynamics of populations, communities and ecosystems. Concepts will be applied to the management and restoration of natural resources. Case studies and local examples will be used when possible.

At the completion of this course you should be able to:
• define and describe central concepts and processes in ecology
• describe how they can be useful in addressing environmental problems and discuss examples
• explain how ecology is done (experiments, observations, models, hypothesis testing)
• use the language of ecology
• read, comprehend, and use the primary literature in ecology
• explain and critique articles related to ecology published in information sources for the general public

Reading:
(2) Additional reading assignments will be made available on Gauchospace (GS).
Each week you will have readings from the textbook or other sources. Readings will parallel and supplement the lecture material. You will have additional articles to read for section on some weeks.

Course website: http://gauchospace.ucsb.edu  Log in with your UCSBnetID and password. It is your responsibility to check the course website on a regular basis for new assignments.

Course structure:

Lectures – attendance at lectures is strongly encouraged. This is not an online course. I will post my slides on the course website following each lecture to assist you when reviewing your notes, but not all material covered in lecture will be written out on the slides. Some lectures will elaborate on and present novel examples of general topics presented in the textbook, and others will present material not covered in the book. That is, there is no substitute for attending class and taking thorough notes.
Section – attendance and participation in section will be a component of your grade. Sections will present new material and offer you the opportunity to gain an understanding of ecological research methods and tools. Material covered in sections may appear on exams. Homework assignments, based on section material, account for a significant portion of your grade. You must attend your assigned section – nearly all discussion sections are full and the rooms have limited seating. Exceptions granted only with prior approval from TAs.

Course assessments:

Exams:
1st midterm – Friday, October 20th during regular class time. This exam will cover material and assigned readings from both lecture and section for the 1st three weeks of the course.

2nd midterm – Monday, Nov 13th during regular class time. This exam will cover material and assigned readings from both lecture and section for the 2nd three weeks of the course (i.e., since the 1st midterm).

Final – Wednesday, Dec 13th 9 – 11 am (**please note time**). This exam will be synthetic but focused on the material from lecture, section, and readings from the last third of the course.

Exams will be primarily short-answer. You will NOT need blue books or scantron forms.

Homework: Assignments will be available on Gauchospace (GS) and will include required readings, worksheets, write-ups of section activities, oral reports, etc. Homework is generally due at the beginning of your section unless otherwise indicated.

Evaluation and Workload:
Exams: 60 %
Midterms (2 @ 20% each) .............. 40%
Final ........................................ 20%

Section attendance and participation: 5%
Homework assignments: 35%

Academic Integrity: Please review the descriptions of cheating, plagiarism and disciplinary procedures. It is your responsibility to uphold the values of academic integrity and to know the campus rules and potential consequences if these values are compromised.

UCSB’s Student Guide: http://judicialaffairs.sa.ucsb.edu/PDF/academicintegflyer.pdf

If you have special test needs or other concerns, please see or email me, and, if appropriate to your situation, make sure you contact the UCSB Disabled Student’s Program at the start of the quarter: http://dsp.sa.ucsb.edu
Course Schedule (chapters are from textbook – Krebs 2008):

I. Overview and basic concepts central to the study of ecology

Week 0 (Sept 29)
  F  Course mechanics, and Introduction to Ecology

Week 1 (Oct 2 - 6)
  M  Ecology’s evolutionary backdrop: natural selection, adaptation  (reading on GS)
  W  Methods in ecology, and the concepts of scale and hierarchy  (Chapter 1)
  F  Patterns of distribution: large and small scale (Chapters 2.1, 3.1-3.3)

  Section: Investigating adaptations: ecological study design (in-class group project)

II. Individuals and Populations

Week 2 (Oct 9 - 13)
  M  Autecology (ecology at level of individuals): physiological ecology (reading on GS)
  W  Autecology (ecology at level of individuals): behavioral ecology (Chapter 4)
  F  Population ecology: abundance and dispersion patterns (Chapter 5.1, 5.3)

  Section: Observations of campus flora (walking field trip) (in-class worksheet)

Week 3 (Oct 16 - 20)
  M  Population structure: life tables (reading on GS)
  W  Population growth and dynamics (Ch 6.1-6.2; Ch 10 pp 189-196)
  F  1st MIDTERM EXAM

  Section: Life tables and population viability (worksheet due week 5 in section)

III. Interspecific interactions and Communities

Week 4 (Oct 23 - 27)
  M  Interspecific interactions: predation, biocontrol (Ch 7.1-7.3; 8.1, pp 164-168, Ch 19.6-19.7)
  W  Interspecific interactions: competition (Chapter 7.4)
  F  Applied ecology 1: Invasive species: what makes a good invader, impacts & control methods
     Guest lecturer – Randy Long, UCSB (reading and online questionnaire on GS)

  Section: Humans as predators: sustainable harvests (in class worksheet/discussion)

Week 5 (Oct 30 – Nov 3)
  M  Interspecific interactions: mutualism, commensalism (Chapter 9)
  W  Community ecology: biodiversity (Chapter 12.1-12.3, 14.4-14.5)
  F  Community ecology: biodiversity II

  Section: Sandy beach communities (Field) (write-up due before week 9 section)
Week 6 (Nov 6 - 10)
M  Communities: trophic structure, foodwebs, (Chapter 13.1-13.3; article on GS)
F  Veteran’s day – no class

Section: computer lab to work on sandy beach data (locations TBA)

IV. Ecosystems and Landscapes

Week 7 (Nov 13 - 17)
M  2nd MIDTERM EXAM
W  Ecosystem ecology: nutrient cycling and anthropogenic effects (Ch 15.1-15.3; 16.1-16.2, 16.5)
F  Ecosystems: nutrient cycling and anthropogenic effects II

Section: Ecology scientific journal article and discussion
Article on Gauchospace; complete and upload worksheet before section
Also in class, pick presentation topics for week 10 section

Week 8 (Nov 20 - 24)
M  Ecosystems to Landscapes: fire!
W  no class – online exercise (see assignment on GS)
F  no class – Happy Thanksgiving!

Section: no meeting this week. Enjoy your Thanksgiving holiday break!

Week 9 (Nov 27 – Dec 1)
M  Landscape ecology: roads; reserve design
W  Ecosystem services and resource management
F  Conservation Ecology (Chapter 20.1-20.4) (articles on GS – human pop growth)

Section: Ecology in the News (in class activity and discussion).
Sandy Beach write-up due, submitted via Gauchospace; due before section

Week 10 (Dec 4 - 8)
M  Restoration Ecology
W  Ecological responses to climate change (reading on GS)
F  Application of ecology to other challenges (Chapter 13.5)

Section: Conservation ecology, group presentations and discussion.

FINAL EXAM: Wednesday, December 13th, 9 - 11am