ES/EEMB 128. Spring 2007. **Lecture Schedule**:

Week 1: (April 3, 5)

Lecture 1: Course overview. Ecological restoration and restoration ecology: Definitions, history. Restoration versus conservation.

Lecture 2: Restoring what? Composition versus structure versus process and function. Stability, resilience, stable states and targets.

Week 2: (April 10,12)

Lecture 3. Setting realistic targets and choosing reference ecosystems.

Lecture 4: Succession as a framework and intro to successional processes. Primary versus secondary succession. Directing succession.

Week 3: (April 17,19)

Lecture 5. More on mechanisms of succession. Role of initial colonists.

Lecture 6. Facilitation, mycorrhizae and other facilitative processes.

Week 4. (April 24, 26)

Lecture 7: Manipulating growth conditions to alter competitive relationships

Lecture 8: GUEST LECTURE. Incorporating facilitation into tropical forest restoration. (Dr. K. Holl, UCSC).

Week 5: (May 1, 3)

Lecture 9: Propagule supply issues, controlling what comes in. Exotic spp. and unwanted species.

Lecture 10: Ecological resistance, the diversity/invisibility debate.

Week 6: **(May 8, 10)**

Lecture 11: MIDTERM.

Lecture 12. Disturbance regimes. Small scale disturbances to large scale…How can disturbance regime be managed?

Week 7: (May 15,17)

Lecture 13: Lecture 12: More on disturbance regime. Big scale…controlling the flow of water, fire.

Lecture 14: Genetics and restoration 1. Overview of the problems.

Week 8: (May 22, 24)

Lecture 14: Genetics and restoration 2. Selecting plant material or animal genepools.

Lecture 15: Animals as targets and ecosystem controllers. Food webs and trophic cascades in restoration.

Week 9: (May 29, May 31)

Lecture 17: Peter Schuyler. Restoring ecosystems by focusing on charismatic fauna: case study from Santa Cruz Island.

Lecture 18: Animal issues continued…If you restore the plants, will the animals come.

Week 10: (June 5, 7)

Lecture 19: Lectures 18: Case study--Shellfish population restoration in a marine ecosystem. Hunter Lenihan, GUEST speaker.

Lecture 20. Wrap up. Overview.

ES/EEMB 128, EEMB 228: Ecological constraints on ecosystem restoration (aka Restoration Ecology). Spring 2007. TuTh, 11-12:15

Faculty:
Dr. Carla D'Antonio, Schuyler Chair (email: dantonio@es.ucsb.edu)
Environmental Studies, EEMB
Office: 4017 BREN
Mailboxes in both ES (4312L Bren) and EEMB (3rd floor, LSB) main offices
Office hours: M Tu 2:30 – 3:30 or by arrangement (send me an email)

TA:
George Thomsen (email: G_thomson@lifesci.ucsb.edu)
Graduate student in EEMB
Office: 4324 LSB
Office hours: Wed 11-12, Th 1-2. Cell phone 805 705-2582

Course description: This course is intended to give you an overview of how ecological knowledge can be used to facilitate the restoration or guide the recovery of degraded ecosystems. Although many restoration projects are constrained logistically (money, people power, statutes etc), we will focus largely on ecological processes that constrain restoration success or choices and what the science of ecology can bring to the growing practice of ecological restoration. Case studies will be presented.

Required Reading: Currently there is no textbook on the subject of restoration ecology. Readings each week will be assigned from the reader which is available at the ASU reader office.

Required Sections: The sections are designed to give you a more hands on feeling for some of the ecological issues restoration practitioners face. The Section is held in the classroom at the Cheadle Center for Biodiversity and Ecological Restoration at Harder Stadium (Isla Vista side of campus). **Times are Wed. 5-7 and Thursday 3-5**. See George Thomson if you want to add the course and the section. Currently there are openings in both sections. Section will involve some field trips in the campus area. Wear sturdy shoes, watch out for poison oak, and bring notebooks.

Grading:
Midterm (short answer essays): 30%
Take home final: 30%
Guest lecture summaries: 15%
Discussion section: 25%
(includes participation=10%, presentations=10%, brief written assignments 10%)

Grading for graduate students: to receive graduate level credit for the class you will be required to complete the above assignments plus a term paper on a restoration topic of your choice that shows how ecological science can be applied to the restoration process.