

Biology 530 -- CONSERVATION BIOLOGY

"Teach your children what we have taught our children, that the earth is our mother. Whatever befalls the earth befalls the children of the earth. If we spit upon the ground we spit upon ourselves. This we know. The earth does not belong to us; we belong to the earth...."

...Attributed to Chief Seattle, 1855

Biology 530 is an introduction to the principles of conservation biology. I hope that you enjoy this course. I think that the conservation biology is not only interesting, but is becoming more and more important in our crowded world. I will provide you with a view and tools that you will be able to apply to a broad variety of circumstances and problems. I also hope that the course will give you a more inquiring and quantitative view of the world around you, regardless of your background in ecology.

COURSE OBJECTIVES: Learn basic ecological theory well enough to identify and evaluate concrete conservation problems.

Develop skills in data analysis (spreadsheets and other computer tools) and scientific communication

Apply ecological theory and techniques to conservation biology

ATTENDANCE: This is a seminar-type class where attendance and participation is critical. If you miss a lecture for any reason, it is your responsibility to become informed about specific activities and information presented during your absence, to arrange help from the instructor or classmates, and to get your homework and papers delivered on time. There will be no makeup exams.

LATE PENALTY for assignments: -10 points off per weekday and 20 points off per weekend, even if you are absent.

GRADING SUMMARY:

Term Project Outline Due - Oct. 6; Paper Due – Nov 26--25%

Mid-Term Examination – Oct 15--25%

Class Participation, Discussion Leadership, Excel homework--25%

Final Examination (Comprehensive)--25%

GRADING SCALE:

This may be adjusted by the professor.

A 94% A- 90% B+ 88% B 85% B- 80%

C+ 78% C 75% C- 70% D+ 65% D 60% F <60%

If you are taking the course pass/fail, you must receive at least a 75% to pass.

IMPORTANT NOTICE: All assignments must be your own work. You absolutely, positively cannot copy something from the web, a paper, a book or anything else

unless you put it in quotes and reference the source material correctly. You will receive a 0 for any assignment turned in that has even a sentence that is copied from another source. Plagiarism, or not documenting all sources of information in a paper file, is academic dishonesty and a serious Honor Code violation. I will not tolerate even the hint of plagiarism.

Even if you worked with a partner on a project and have results that are the same, you must write the reports separately. Collaboration on the writing of reports is a serious violation of the Honor Code. I will repeat---Plagiarism, or not documenting all sources of information in a everything that you turn in to me, is academic dishonesty and a serious Honor Code violation.

Text:

Donovan and Welden. 2002. Spreadsheet exercises in Conservation Biology and Landscape Ecology. Sinauer Associates, Sunderland, MA.

Electronic Reserves. <http://www.eres.sfsu.edu>

Some of the readings are listed below on the syllabus. I will continue to add appropriate and timely articles as the course proceeds

SCHEDULE

I. What is Conservation Biology? 8/29-9/12

- A. Course Expectations
- B. Scope of Conservation Biology
- C. History
- D. Excel basics

Readings:

Chapter 1 and 6, Primack

D&W Ch 1-2

Leopold, A. 1933. The conservation ethic. *Journal of Forestry* 31:634-643.

Clark, J.C. 1998. Leopold's land ethic: A vision for today. *Wildlife Society Bulletin* 26:719-724.

Tucker, M.E. & J. Grim. 1998. Religions of the world and ecology: Discovering the common ground. *Earth Ethics* 10:1-5.

www.greenmuseum.org

Speaker: Green museum

II. Environmental economics 9/17-10/3

- A. Direct economic benefits
- B. Indirect economic benefits
- C. The real price of a species
- D. Ethics and culture

Readings:

D&W Chapter 32

Primack Chapters 4 and 5

Edwards, P.J. & C. Abivardi. 1998. The value of biodiversity: where ecology and economy blend. *Biological Conservation* 83:239-246.

Apples and oranges article from NY Times

Speakers: Frank Cipriano

III. Population Biology of Conservation 10/8-10/31

- A. Population Models
- B. Logistic Models
- C. Demography and Life tables
- D. Population viability analysis (PVA)
- E. Harvest models

Readings:

D&W Ch. 7, 8, 10, 28, 29

Morris and Doak Ch 2 and 3

Mann, C.C. & M.L. Plummer. 1999. A species' fate, by the numbers. *Science* 284:36-37.

Speakers: Lynn Lozier

IV. Community Biology of Conservation 11/5-11/26

A. Island Biogeography and Habitat loss

B. Metapopulation dynamics

C. Source-sink dynamics

D. Species richness

Readings:

D&W Ch 10, 16, 17, 6

Chazdon, R.L. 1998. Tropical forests -- log 'em or leave 'em? *Science* 281:1295-1296.

Speaker: Ralph Larson

V. Threats and Conservation Tools 12/3-12/13

A. Over exploitation, invasion, and disease

B. Population pressure & urbanization

C. Energy use, global warming, & the ozone layer

E. Good conservation management

F. Reserve design and management

Readings:

D&W Ch. 6, 14, 16

Wilcove, D.S., D. Rothstein, J. Dubow, A. Phillips, & E. Losos. 1998. Quantifying threats to imperiled species in the United States. *BioScience* 48:607-615.

Arendt, R.G., A.E. Hutchinson, H.M. Harper, & S. Kuter. 1997. Growing greener: putting conservation into local codes. *Natural Lands Trust*. 17 pp.

Lawton, J. 1998. Green tourism and nature's services. *Oikos* 82:3-4.

Speaker: Greg Giusti