Ecosystem Ecology
Biology 476
Fall semester, 2001
Terry Chapin

I. CONTEXT
The Ecosystem concept (Chapter 1) (1) Sept. 7
Climate and ocean circulation (Chapter 2) (2) Sept. 10-12
Geology and soils (Chapter 3) (2) Sept. 14-17
Field trip to Bonanza Creek Sat., Sept. 15

II. MECHANISMS
Photosynthesis and Production (Chapters 4-5) (4) Sept. 19-26

MID-TERM EXAM
Sept. 28

Decomposition and net ecosystem production (Chapter 6) (4) Oct. 1-8
Nutrient cycling through vegetation (Chapter 7) (2) Oct. 10-12
Ecosystem Water and Energy Balance (Chapter 9) (2) Oct. 15-17
Nutrient cycling in soils (Chapter 8) (3) Oct. 19-24
Trophic Dynamics (Chapter 10) (3) Oct. 26-31
Species Effects on Ecosystem Processes (Chapter 11) (2)Nov. 2-5

MID-TERM EXAM
Nov. 7

III. PATTERNS
Temporal variation (Chapter 12) (3) Nov. 9-14
Spatial heterogeneity (Chapter 13) (3) Nov. 16-21
Ecosystem comparisons (Chapter 14) (3) Nov. 26-30

IV. INTEGRATION
Global cycles (Chapter 15) (3) Dec. 3-7
Ecosystem sustainability (Chapter 16) (2) Dec. 10-12

Review
Dec. 14
Final exam
Dec. 17
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Instructor:
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Office hours: Monday 1-2 or by arrangement

Classes:
MWF at 11:45-12:45 in Irving 208
Field trip Saturday, Sept. 15

Textbook:
Principles of Ecosystem Ecology
(Draft textbook by Chapin, Matson, and Mooney)
To be available from Dateline copy

Grading policy
First mid-term 20%
Second mid-term 20%
Three two-minute talks (newsbites): 10%
1 to 2-page term paper: 10%; Due November 19
Final 30%
Class participation 10%

Class goals
My major goals for this class are that students understand the general principles of ecosystem ecology and their implications for society and that students be able to explain these principles clearly. In other words, the goal is understanding the general ideas and why they are important—not in memorizing particular facts, terms, and figures. In order to meet these goals, the lectures will emphasize the logical connections among ideas, so that complex processes can be understood from some fairly simple general principles.

The two mid-terms and the final exam will be discussion questions that address the general ideas. Each student will give three short (1-2 minute) talks (newsbites) that explain general ideas in simple terms and will write a term paper that is 1-2 pages. The term paper will be based on an article in the literature: It will describe the important ecological issue addressed by the paper, summarize and evaluate the results, and explain the implications for society of the results of the paper.