Submit originals and one copy and electronic

I propose to convert Ecosystem Ecology to an Oral-Intensive course. The proposed change is motivated

The attached syllabus must clearly reflect the following basic elements for the **ORAL COMMUNICATION** emphasis requested. Please note them directly on the syllabus, using the corresponding letter. (See Guidelines in this manual.)

GROUP (medium or	(Regularly enrolling at least 12 students)
A	15% of the final grade based on oral communication
B	1 ongoing, integrated group project with 5-8 students
C	2 presentations (minimum of 5 minutes per member)
E	Group and Individual grading
	presentations
PUBLIC (medium or large class)	(Regularly enrolling at least 12 students)
A	15% of the final grade based on oral communication

APPROVALS?

Signature, Chair,

Ecosystem Ecology
Biology 476 (3 credits)
Spring 2013

Instructor: Tamara Harms
Office: 120 Arctic Health Research Building
Email: tkharms@alaska.edu
Office hours:

Prerequisites: Introductory Ecology

Course materials
Textbook: Chapin, F.S., III, P.A. Matson, and H.A. Mooney. 2011. Principles of Terrestrial Ecosystem Ecology. 2nd edition. Springer Verlag, New York. The text is

available on the internet
Chapters as assigned from: Schlesinger, W.H. 2007. Biogeochemistry: An Analysis of

experiment. Each student will be responsible for presenting an informal, individual summary of mid-term results, and a final group presentation will synthesize individual

[redacted]

results with contributions from each student.

Objectives

–Describe the major ecosystem processes and the factors influencing process rates (in

[redacted]

written and oral forms)
–Apply the scientific method to ecosystem problems
–Analyze ecosystem processes using quantitative methods
–Read, analyze, and discuss scientific literature

Instructional methods

Class periods will include lectures, discussions, problem sets, and short written exercises. I will establish an atmosphere that encourages interaction. Your participation

[redacted]

session will follow each presentation (D). Students will receive instructor

feedback following presentations, which is to be incorporated into the final

from all experiments (B). Each student will present during the final session (C).

Schedule

Jan 17 (Thurs)
-Course mechanics
-Problem-solving
-Introduction to C cycle and decomposition

Jan 22 (Tues)
-How to read scientific papers
-Structure and goals of scientific discussions
-Discussion: Decomposition, Hobbie 1996
Reading: p. 151-175 in Chapin et al., Hobbie 1996 Ecological Monographs

Jan 24 (Thurs)
-Field trip to various West Ridge sites
-Design decomposition experiments

Jan 29 (Tues)
[redacted]

Reading: p. 3-13 in Chapin et al.

Jan 24 (Thurs)
-Climate, atmosphere, and ocean circulation
-Discussion: history and development of the ecosystem concept, Tansley, Gleeson, and Clements
Reading: Excerpts from Tansley, Gleeson, and Clements

Jan 29 (Tues)

Feb 12 (Tues)
-Metabolism
-Productivity
Reading: p. 97-150 in Chapin et al.

Feb 14 (Thurs)
-Decomposition
-Discussion: trophic effects on whole ecosystem metabolism, Schindler et al.
Reading: p. 151-175 in Chapin et al.—Schindler et al. 1997 Science

Feb 19 (Tues)
-Carbon cycle
-Weigh litterbags
Reading: p. 358-382 in Schlesinger,

Feb 21 (Thurs)
-Nitrogen cycle
Reading: p. 197-215 in Chapin et al.,

Feb 26 (Tues)
N cycle

Reading: p. 383-396 in Schlesinger

Feb 28 (Thurs)
-N cycle
-Discussion: small watershed approach, Likens et al.
Reading: Likens et al. 1970 Ecological Monographs

Mar 5 (Tues)
-P cycle
-Weigh litterbags
Reading: p. 215-219 in Chapin

-Stoichiometry
-Weigh litterbags
Reading: Elser et al. 2000 Ecology Letters

Mar 28 (Thurs)
-Stoichiometry
-Discussion: ecological stoichiometry, Cross et al.
Reading: Cross et al. 2003 Ecology Letters

Apr 2 (Tues)
-Succession
-Weigh litterbags
Reading: p. 281-304 in Chapin et al.

Apr 4 (Thurs)
-Succession
-Discussion: Vitousek & Reiners
Reading: Vitousek & Reiners 1975 Bioscience

Apr 9 (Tues)
-Ecosystem services
[redacted]

-Sustainability
-Discussion: ecosystem services, Foley et al.
Reading: Foley et al. 2005

Apr 16 (Tues)
-Resilience
-Informal summaries of preliminary decomposition results
Reading: p. 356-369 in Chapin et al.

Apr 18 (Thurs)
-Socio-ecological systems
-Discussion: regime change, Scheffer et al.
Reading: Scheffer et al. 2001

Reading: Hoegh-Guldberg et al. 2007 Science

May 2 (Thurs)
-Decomposition presentation
-Recap and review

May 7-10: Final exams