GLOBAL to LOCAL SUSTAINABILITY  
ANTH/BIOL/ECON/NRM 647  
FALL, 2009

Course Information  
Location: 183 AHRB  
Meeting Time: TR 11:30-1:00

Instructors  
Dave Valentine, 309 O’Neil; x7614; dvalentine@alaska.edu, office hours, T,TH 10-11  
Joshua Greenberg, 372 O’Neill; x7189; j.greenberg@uaf.edu; office hours, MW 10-11

Course Materials  

Course Description  
This course develops the basic principles that govern sustainability, resilience and change of linked ecological and social systems. We explore the roots of these concepts as they have developed in various disciplinary fields with emphasis on ecology and economics. We then explore the integration of these concepts at various scales through student-led projects. Emphasis throughout will be on societal goals, tradeoffs, drivers of stability and change, feedbacks and interactions, emergent properties, temporal and spatial scales. Sustainability, Vulnerability, Adaptability, and Resilience are general frameworks for discussion.

One purpose of the course is to explore the problem solving implications of interdisciplinary thought and practice; while the study of complex adaptive systems requires interdisciplinary organization, the focus here will be on understanding the problem. Apart from the theoretical frameworks presented and discussed, we hope to explore the opportunity for practical application of course topics and how theory structures observations and informs research and design of ideal” solutions to real-world problems. Through all of the discussions we will also look at the way that different disciplines describe people, places and ecosystems and stress the common ground that integrates rather than fragments understanding across the disciplines of ecology, economics, anthropology and human geography.

Course Goals/Learning Objectives  
- Develop a conceptual framework for exploring sustainability &  
- Develop skills applying basic principles to the analysis of real-world issues related to resilience and sustainability  
- Apply these principles through student led projects at various scales: local, regional/national, and global with focus on integrating social, economic and ecological dimensions of system organization.
Instructional Methods and Course Expectations
The course will use a combination of lectures, student discussions and presentations, and guest speakers from time to time. This class is interactive, relying on strong student contribution. We hope to engender an atmosphere that encourages this joint class exploration of course themes. This class will work best if everyone participates.

You are expected to do all of the assigned readings and to come to every class prepared to discuss or lead discussion. You will be graded on a combination of short discussion papers and student presentations to follow each of the initial four course sections (sustainability, vulnerability, adaptability, and resilience), mid-term evaluation, and contributions to the final set of student led discussions and final research paper. Specific reading and writing assignments will be made on a weekly basis throughout the semester. Rather than viewing this course as rigidly organized in terms of a specific typology, consider the outline below to be fluid and responsive to student interests and to ideas that develop during class discussions.

Assignments/ Grades/Requirements

Thematic Discussions

Student Teams I. All students will be assigned to a team that will lead class in a seminar discussion format on one of the 4 major course themes presented in the first part of the course.


The student team led discussions will occur in the final lecture period devoted to each of the themes. The expectation is that the teams will identify a specific issue to which the concepts presented in class can be applied. The issue will serve as the focal point for the class led discussion that exemplifies and challenges course material. Each student team will be responsible for presenting a proposition/question to the class and a relevant reading(s) to the class one week before the class session. See below for student team discussion dates.

Reaction papers. There will be four written assignments before the midterm associated with the student team led classes. These will consist of short (1-2 page) responses to the proposition/question presented by student teams. Students are expected to apply ideas from class materials and demonstrate familiarity with the literature for the thematic area relevant to the class (i.e., sustainability, vulnerability, adaptability, or resilience) in their papers. The reaction papers will be due on the day of the in-class discussion.

Dates: Sustainability October 1
       Vulnerability October 15
       Adaptability October 29
       Resilience November 12

Mid-term. The mid-term exam will consist of several discussion questions that require integration of the material presented prior to the exam. The exam will be an open-book take-home exam.
Student Teams II. The last several weeks of the course will be devoted to student team led class presentations that address and integrate sustainability, vulnerability, adaptability and resilience at one of four assigned scales (local, regional, national or global) and the interactions that occur between that scale and other scales (cross-scale interactions). Each student will be assigned to a team and responsible for organizing and co-presenting material and leading an informative presentation that focuses on a specific assigned scale. The class as a whole will determine a broad topic area to which all student team presentations will apply. The student teams will then be responsible for choosing a specific setting and context relevant to that topic for their presentation. Teams are expected to consult with the instructors in choosing their specific setting. Possible broad topic areas include energy, climate change, globalization, marine resources, food production, biodiversity, and fresh water.

Dates: Local scale       Dec. 1
National scale  Dec. 3
Regional scale  Dec. 8
Global scale    Dec. 10

Final paper. Final papers will be written collectively by each of the student groups. The paper will be about 15 pages in length and will address sustainability, vulnerability, adaptability and resilience at the scale to which the group was assigned for the class presentations. All students are expected to contribute equally to the final paper. Individual student contributions will be determined in consultation with group members. Additional information on the final paper will be provided to the class later in the semester. Final Papers are due Dec. 10.

Grading
Grades will be determined on the basis of 100 possible points.

Student Team I Class discussion  10pts
Student Team II Class presentation   10pts
Reaction papers 10pts
Mid-term 25pts
Final paper 25pts
Class participation 20pts

The following grading scale will apply:
A = 93+   B+ = 85-89   C+ = 75-79   D+ = 65-69
A- = 90-92  B  =  80-84  C = 70-74  D = 60-64
F = <60

The instructors reserve the right to modify the final grade in consideration of notable progress demonstrated by an individual, or unforeseen and extenuating circumstances. In such cases, extra credit assignments and/or makeup work may be used at the discretion of the instructors. Assignments handed in after the due dates will receive reduced credit. In the final accounting, effort counts for much in all areas!!!!
Student Code of Conduct
According to the UAF code of conduct “Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless the instructor of the course grants permission…. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports…. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors……” Students are expected to abide by the UAF Student Code of Conduct. The UAF Student Code of Conduct is available on page 47 of the 2009-10 UAF Catalog.

An explanation of plagiarism and how to properly cite sources are available at the following two sites: http://www.uaf.edu/library/instruction/handouts/Plagiarism.html. http://www.uaf.edu/library/instruction/handouts/Citing.html

Plagiarism is grounds for course failure.

UAF Policies Disabilities Services
The University of Alaska Fairbanks is committed to providing equal access for students with disabilities. The Office of Disability Services implements the Americans with Disabilities Act (ADA) and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities. If you have a physical or learning disability, please advise us in writing of any special consideration necessary by the beginning of the second class. We will do everything possible to accommodate you in accordance with the Americans with Disabilities Act. Priority seating close to the board and screen is provided for students who need to be in close proximity to the board.

Blackboard
We will use the UAF Blackboard site for this course to send emails and post readings, assignments and other materials. Blackboard can be accessed at http://classes.uaf.edu. Email notification through Blackboard will not work for a non-UAF email address. If you principally use a non-UAF email service, (such as yahoo) go to your UAF account and forward your UAF email to that address. You are responsible for all emails sent to your UAF email account.

Blackboard resources, links and support information are available at the UAF Blackboard homepage
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<th>No.</th>
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<td>1</td>
<td>R</td>
<td>Introduction to course. Discussion Q’s from the Yale F&amp;ES Conference.</td>
<td>All</td>
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<td>2</td>
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<td>Overview of sustainability, vulnerability, adaptability and resilience. Discussion: Economist debate—Is sustainable development sustainable?</td>
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<tr>
<td>3</td>
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<td>Why are we concerned about sustainability? Discussion: J. Diamond, Collapse. Pick a characteristic common to a collapsed or sustained society and discuss its relevance to current societies within context of sustainability, vulnerability, adaptability or resilience.</td>
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<td>&quot;Sustainability what does it mean?&quot; An issue raised through opening class discussions is whether sustainability is achievable and possible and if so can it be achieved by gradual social/cultural change. The lectures will explore the relationship between economic growth, standard of living, human well being, and sustainability of human systems. To what extent are these mutually supportive, competing, complementary, and interdependent concepts?</td>
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<td>Lecture 3 Economic approach based on growth: neoclassical economics. Readings: Lomborg; Solow, Arrow Discussion: Is the dominant economic paradigm or world economies appropriate to sustainable societies? What are the limits, how are they identified, how are they institutionalized in public policy?</td>
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<td>Lecture 4. Weak vs Strong Sustainability. The prospect for sustainable growth &amp; continued prosperity vs overshoot and collapse depends on substitutability of natural and non-natural capital. This discussion has been framed within the context of weak and strong sustainability. Discussion: Top 10 myths of sustainability. Critique one of the presented myths.</td>
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<td>Lecture 5. Measures of well being and indicators of sustainability.</td>
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<td>Lecture 6—Sustainability Group Discussion</td>
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### Vulnerability

**Lecture 1.** Risk assessment, perception and role of uncertainty.
Discussion: How do people respond to risks from various sources?
Overview of vulnerability analysis. Key concepts of vulnerability analysis from the literature.
Discussion: Collapse *redux* — what key factors contribute to vulnerability at different scales.

**Lecture 2.** Vulnerability analysis in application.
Vulnerability of Interior Alaska SES, where are the salmon?

**Lecture 3.** Vulnerability analysis in application.

**Lecture 4.** Vulnerability Group discussion

### Adaptability

**Lectures 1 & 2.** topics include social, economic, and biological diversity, social learning, integrating knowledge systems, experimentation and innovation, adaptive management and co-management, effective governance and matching institutions & social-ecological properties

**Lecture 3.** The commons and approaches toward their management.
Discussion. Provide a resource problem related to the commons and that institutional approach you find the most appropriate remedy.

**Lecture 4.** Adaptability Group discussion

### Resilience.

**Lectures 1,2,3.** An ecological perspective
Sustaining ecological and cultural legacies
Adaptive cycles and resilience learning
Maintaining flexibility in the face of uncertainty in context of large-scale, long-term constraints and interactions?
Thresholds and regime shifts, social transformations and adaptive governance

**Lecture 4.** Resilience Group discussion

### Midterm.

**Implementation.**
Lecture 1. What are the constraints in a pluralistic society
Lecture 2. Political roundtable

### THANKSGIVING
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<td>2/5</td>
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<td>The Local Scale Group discussion</td>
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<td>The Global Scale Group discussion</td>
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<td>T</td>
<td>D17</td>
<td>Final Papers due</td>
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**The Course Schedule is tentative and subject to change**
Introduction (Sept. 3)

Required readings

Overview of social-ecological frameworks (Sept. 8)

Required readings

Other readings

Sustainability (Sept. 10–29)

Required readings

Web readings:
Limits to growth, 30-year update synopsis: http://www.mnforsustain.org/meadows_limits_to_growth_30_year_update_2004.htm#EcologicalFootprint
Environmental Performance Index, Yale U. http://epi.yale.edu/Contents
Environmental Performance Index, interactive map, http://epi.yale.edu/Home
Other readings


Boulding, K. E. 1966. The Economics of the coming spaceship earth.”. http://www.geocities.com/RainForest/3621/BOULDING.HTM and on blackboard,


Vulnerability (Oct. 1 – 13)

Required readings


Other readings


Other excellent references


