

## **SUST 434 - Synthesis of Sustainability Perspectives and Innovations Fall 2012**

(This document will be updated and available at: <http://sust.unm.edu>)

### **Instructor:**

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Office Hours: Monday 9:30 - 10:00 and Friday 10:00 – 11:30,  
or by appointment at our convenience

**Class sessions:** Tuesday, Thursday, 12:30-1:45 Castetter Hall, Room 57

### **Course description:**

Presents frameworks for complex and creative analysis, including systems thinking and synergistic integration of the three pillars of sustainability: environment, equity, economy. Examines innovative local and international case studies in environment, business, policy, and community development. Prerequisites: SUST 334

**Goals, purposes, and expectations:** This course is suited for students interested in the theoretical and practical aspects of community development, local economies, resource conservation, community activism, and environmental protection.

This course provides the opportunity to integrate experiences and knowledge gathered in Introduction to Sustainability and Environment (SUST 134), Sustainability Practicum (SUST 334), and the electives students have taken toward the minor degree in Sustainability Studies. Students will engage in more complex levels of understanding the challenges of sustainability as they prepare for the capstone project ahead (SUST 499).

Most students gravitate naturally to one or two of the three pillars of sustainability (environmental protection, social justice, and economic vitality). This course examines all pillars and the interactions among them. We will study frameworks for making meaning from complex situations and integrated design, including systems thinking and interdisciplinary philosophical underpinnings of sustainability. This will enable us to acquire a broader lens through which to design synergistic applications of sustainability's three pillars.

We engage in a caring, creative learning experience with responsible students and thereby gain perspectives that empower us all as agents of sustainability. From Steve Covey's *Seven Habits of Highly Effective People* we favor an outcome that is "win/win". Some languages have no words for "teaching" but over 30 words for "learning". Indeed we can only learn; learning is the basis of personal development and enrichment.

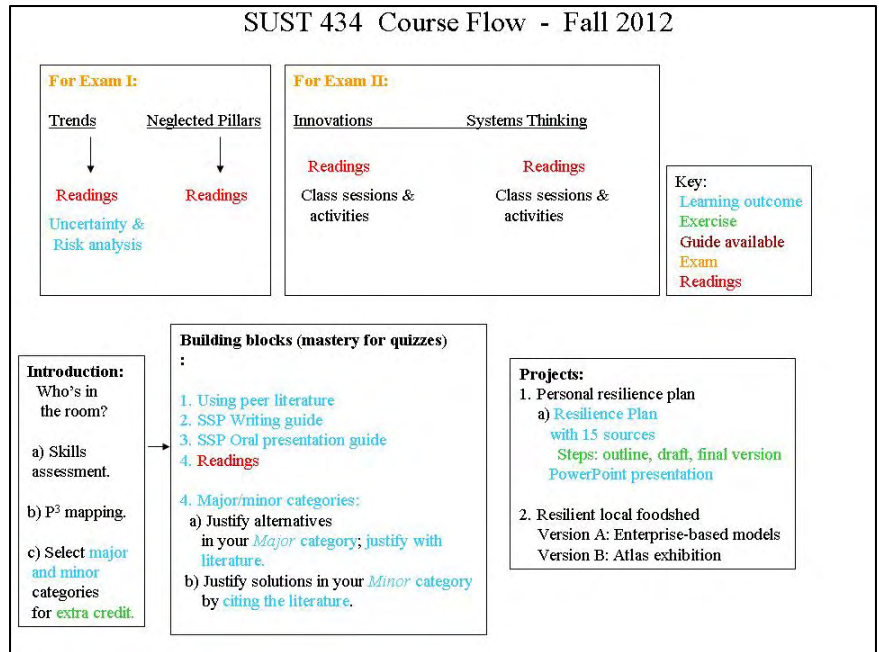
**Plagiarism:** The Faculty Handbook, policy D100, affords instructors the authority to respond to plagiarism by granting a grade of "...F" in the course and the involuntary withdrawal of the student from the class..." Avoid committing plagiarism by making all your work your own. Do not cut and paste from web sites or articles. Brief, direct quotes are allowed but must be documented as such. Always put quotes in quotes or in a smaller italics font, with complete attribution to the source.

### Course design:

First, we review *trends and the pillars of sustainability* to examine problems such as: (a) diseases traceable to industrial food, (b) threats to biodiversity due to biofuels development, (c) cancer due to environmental racism, and (d) tradeoffs involving genetically modified crops.

Second, we examine innovations for sustainable outcomes for the integrated 3-pillar system such as alternative currency models, cooperatives, performance-based strategies to achieve goals (e.g., Architecture 2030) and deep democracy, e.g., open source technology.

Third, we develop systems-thinking perspectives of networks, nonlinearities and tipping points exemplified by the behavior of epidemics, adoption of new ideas, and pattern formation.



Grading	%
- Risk analysis exercise	5
- Major/minor expertise w/ justification	5
- Scholarly literature check-in	5
- Exam I :	15
- Exam II:	25
- Resilience Plan	
i) Outline	5
ii) Final plan with 15 sources	20
- Resilient local foodshed project	20
Written and oral presentation	

## SUST 434 Spring 2012 Class Sessions, Resources, and Due Dates

Month	Date	Topics	Readings/Resources	Activity	Due
August	21	<a href="#">Introduction</a>	Berry (1988: Ch. <a href="#">6</a> , <a href="#">8</a> ) <a href="#">Journey of the Universe</a>	Skills	
	23	Resilience Planning Basics	<a href="#">Martenson (2010)</a> . <a href="#">Writing guide</a> . <a href="#">Resilience support</a> .	P <sup>3</sup> mapping. Assign Res. Plan. <a href="#">Peeves exercise</a> (pp. <a href="#">9-10</a> ).	
	28	Foodshed Development overview	<a href="#">Foodshed Nomad Kloppenburg et al. (1996)</a>	Major/minor inquiry	Peeves quiz
	30	Pillars of Sustainability	Resilience plan session	Using scholarly literature.	
Sept	4	<b>Trends</b> and Risk Analysis	<a href="#">Smil (2008, ch. 3, excerpted)</a> <a href="#">Speth (2008, ch. 1)</a> <a href="#">Wright and Boorse (2011)</a>	Discuss Smil (2008)	Major/minor Justification  RP Outline w/5 refs.
	6	Empire prosperity	<a href="#">Kimbrell (2010)</a>	Discuss Kimbrell	Quizz <a href="#">Kimbrell (2010)</a>
	11	Environmental racism	<a href="#">Grinde and Johansen (1995)</a>	Resilience plan check-in	Risk analysis exercise
	13	GMOs and seeds	<a href="#">Raney &amp; Pingali (2011)</a>	Readings check-in	Quizz <a href="#">Raney &amp; Pingali (2011)</a>
	18	Biofuels and Food	<a href="#">Pimentel et al. (2008)</a> <a href="#">Tilman et al. (2009)</a>	Review for exam	RP Draft w/12 refs
	20	<b>Exam I</b>		<b>Exam</b>	
	25	<b>Wealth:</b> Disparity & Well-being	<a href="#">Presentation guidelines</a> <a href="#">Kennedy et al. (1996)</a> <a href="#">Speth (2008, ch. 6)</a>	Scholarly skills	Scholarly literature check-in
	27	The Occupy movement	<a href="#">Moyers (2011)</a> <a href="#">Orr (2010)</a>	Readings check-in	<b>PR plan</b> w/15 refs
Oct	2	Currency & Microlending	<a href="#">Alperovitz (2005, ch. 6)</a>		
	4	<b>Food:</b> Security		Assign foodshed project	
	9	Foodshed development	<a href="#">Kloppenburg et al. (1996)</a> <a href="#">Peters et al. (2008)</a>	Open space FP brainstorming	
	11	<b>FALL BREAK</b>			
	16	Greenhorns et al.	<a href="#">Franceschini &amp; Tucker (2010)</a>		FP prospectus for comment

	18	<b>Energy:</b> Peak oil	<a href="#">Tom Whipple video</a> <a href="#">Maggie Koerth-Baker video</a> ; <a href="#">Whipple (2010)</a> <a href="#">Hughes (2010)</a>		Quiz: <a href="#">Whipple (2010)</a>
	23	Fracking	<a href="#">Gasland the movie</a> <a href="#">Fuel from plastic</a> <a href="#">Mooney (2011)</a>		
	25	Smart grid; Cap & Tax	<a href="#">Smart grid</a> , <a href="#">Fridley (2010)</a>		Quiz: <a href="#">Fridley (2010)</a>
	30	<b>Water:</b> Climate & Supplies	<a href="#">Postel (2010)</a>		
Nov	1	Dams & diversions		FP check-in	
	6	Water resilience		FP check-in	
	8	<b>Coops &amp; Fair Trade</b>	<a href="#">Fair Trade</a> <a href="#">Zeuli et al. 2003</a> <a href="#">Ling et al. 2002</a>	Discussion	Quiz: <a href="#">Ch. 1</a> <a href="#">What is a coop?</a>
	13	<b>Shelter:</b> Arch 2030, LEED & codes	<a href="#">Architecture 2030</a> ; <a href="#">US Green Building Council</a>		
	15	System Dynamics	<a href="#">Systems thinking</a>  <a href="#">Bettencourt et al. (2007)</a> <a href="#">Barabasi (2003) p. 79-92</a>	Readings check-in	
	20	Patterns in Nature	<a href="#">Fractals</a> <a href="#">Tero et al. (2010)</a>		
	22	<b>THANKSGIVING BREAK</b>			
	27	Presentations			Foodshed resilience reports
	29	Presentations			Foodshed resilience reports
Dec	4	Review for Exam II		Review; Course evaluation	

**Dec      6      Exam II**