

FEB 20 2007

OFFICE OF THE
SENATE COUNCIL

APPLICATION FOR NEW COURSE
SAG 101
Introduction to Sustainable Agriculture

1.	Submitted by College of	AGRICULTURE			Date	JULY 2006			
	Department/Division offering course	NOT APPLICABLE							
2.	Proposed designation and Bulletin description of this course								
	a.	Prefix and Number	SAG 101	b.	Title*	INTRODUCTION TO SUSTAINABLE AGRICULTURE			
		*NOTE: If the title is longer than 24 characters (including spaces), write A sensible title (not exceeding 24 characters) for use on transcripts				INTRO. SUSTAIN. AGRIC.			
	c.	Lecture/Discussion hours per week	2 lectures, 75 min/lect.		d.	Laboratory hours per week	-0-		
	e.	Studio hours per week	NOT APPLICABLE		f.	Credits	3		
	g.	<p>Course description Broad introduction to the environmental, economic and cultural components of sustainable food production and marketing. The definition, emergence, and growth of sustainable agriculture are discussed along with pertinent soil, crop and livestock management practices. Relationships between environmental stewardship, producer profitability, and community-based food systems are emphasized.</p>							
	h.	Prerequisites (if any) NONE							
	i.	May be repeated to a maximum of	NOT APPLICABLE				(if applicable)		
4.	To be cross-listed as								
		NOT APPLICABLE							
		Prefix and Number			Signature, Chairman, cross-listing department				
5.	Effective Date	FALL 2007			(semester and year)				
6.	Course to be offered	X	Fall		Spring		Summer		
7.	Will the course be offered each year?					X	Yes		No
	(Explain if not annually)								
8.	<p>Why is this course needed? This course is the foundational class for a proposed new undergraduate major, Sustainable Agriculture. It will be a prerequisite for all other core courses in the Major and is a required course for the proposed Sustainable Agriculture Minor.</p>								
9.	a.	By whom will the course be taught?			Mr. Mark Keating (Dept. Horticulture) and Dr. Mike Bomford (KSU)				
	b.	Are facilities for teaching the course now available?					X	Yes	No
		If not, what plans have been made for providing them?							

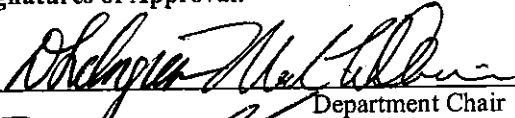


APPLICATION FOR NEW COURSE
SAG 101 Introduction to Sustainable Agriculture (cont.)

10.	What enrollment may be reasonably anticipated?	20 to 35 each Fall semester			
11.	Will this course serve students in the Department (i.e., the Major) primarily?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
	Will it be of service to a significant number of students outside the Department?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
	If so, explain.				
	The course is proposed to serve as a University Studies Program course within the Natural Sciences area, and so it is anticipated that non-majors will be interested in the course. In addition, a Sustainable Agriculture Minor is proposed and this course will be required of these students.				
	Will the course serve as a University Studies Program course?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
	If yes, under what Area?	Natural Science			
12.	Check the category most applicable to this course				
	<input type="checkbox"/>	traditional; offered in corresponding departments elsewhere;			
	<input type="checkbox"/>	relatively new, now being widely established			
	<input checked="" type="checkbox"/>	not yet to be found in many (or any) other universities			
13.	Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky?				
		<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
14.	Is this course part of a proposed new program:				
	If yes, which?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No
	Minor IN SUSTAINABLE AGRICULTURE				
15.	Will adding this course change the degree requirements in one or more programs?*				
	If yes, explain the change(s) below	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	No
16.	Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.				
17.	If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted. <input checked="" type="checkbox"/> Check here if 100-200.				
18.	If the course is 400G or 500 level, include syllabi or course statement showing differentiation for undergraduate and graduate students in assignments, grading criteria, and grading scales. <input type="checkbox"/> Check here if 400G-500.				
19.	Within the Department, who should be contacted for further information about the proposed course?				
	Name	Dr. Mark Williams, Department of Horticulture	Phone Extension	257-2638	

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.

APPLICATION FOR NEW COURSE
SAG 101 Introduction to Sustainable Agriculture (cont.)

Signatures of Approval:

 _____ Department Chair	10/23/06 _____ Date
 _____ Dean of the College	1/15/2007 _____ Date
 _____ *Undergraduate Council	Date of Notice to the Faculty 2/06/07 _____ Date
_____ *University Studies	_____ Date
_____ *Graduate Council	_____ Date
_____ *Academic Council for the Medical Center	_____ Date
_____ *Senate Council (Chair)	_____ Date of Notice to University Senate

*If applicable, as provided by the Rules of the University Senate

ACTION OTHER THAN APPROVAL

SUSTAINABLE AGRICULTURE 101

INTRODUCTION TO SUSTAINABLE AGRICULTURE

“To be Commanded, Nature Must be Obeyed” ~ Sir Francis Bacon
Anticipated Initial Offering: Fall 2007

Meeting twice weekly for seventy-five minute classes

INSTRUCTORS

Mark Keating
322 Ag Sciences North
University of Kentucky
Office Phone: (859) 257-5130
Email: mkeat2@uky.edu
Office Hours: MW, 9:00 – 11:00
Additional hours by appointment

Dr. Michael Bomford
125 Atwood Building
Kentucky State University
Office Phone: (502) 597-5752
Email: michael.bomford@ksu.edu
Office Hours: By appointment

COURSE DESCRIPTION

SAG 101 provides a broad introduction to the economic, environmental and cultural components of the food production and marketing systems popularly known as sustainable agriculture. Subjects covered include the meaning of sustainable agriculture; its emergence and growth as a social movement; pertinent soil, crop and livestock management practices; and a global perspective on sustainability and twenty-first century agriculture. Course lectures, reading materials, and student assignments emphasize the relationships between environmental stewardship, farmer profitability, and community-based food systems.

COURSE OVERVIEW

SAG 101 is designed to impart a basic understanding of sustainable agriculture while enabling students to delve deeper into areas that especially interest them. The course's scope is expansive and incorporates material from multiple academic disciplines. For example, students examine the biology and chemistry of healthy soil, the economics of direct marketing and the history of organic certification. That being said, SAG 101 is an introductory course without prerequisites and its interdisciplinary structure is meant to clarify, not complicate the subject matter. Like inquisitive cooks with a favorite recipe, students in SAG 101 become familiar with each ingredient while adapting the proportions to best suit their taste.

Sustainable agriculture has a reputation as an eye-of-the-beholder term encompassing sometimes overlapping, sometime exclusive practices including organic certification, biodynamic farming, integrated pest management, naturally grown, direct marketing of locally raised food, and fair trade in a global economy. To clarify its meaning, SAG 101 begins with a practical framework for identifying and evaluating the key components of sustainable agriculture. The framework

uses environmental stewardship, farmer profitability, and social responsibility as criteria to measure the present condition and future potential of agricultural operations. This approach is not intended to produce a thumb up or down verdict whether a particular agricultural operation is sustainable. Rather, it identifies critical components within the system where improvement over time can best enhance the vitality and viability of the operation.

With a context for sustainability established, SAG 101 takes up a variety of agricultural production and marketing issues on the local, national, and global scale. Included in these issues are soil and water conservation, concentration of production capacity and marketing channels, food quality and safety, the impact of biotechnology and the implications of peak oil. Understanding conventional agricultural practices and outcomes is a prerequisite for evaluating the merit of “sustainable” alternatives. Guest lecturers with production, marketing, community organizing, and regulatory experience provide a personal perspective on how the theory and practice of sustainability come together in the commercial world. SAG 101 concludes with a “big picture” appraisal of contemporary global agriculture and the potential for sustainability to influence its future course.

SAG 101 is an introductory course designed for students with little or no background in agriculture to explore significant environmental, economic, and social concerns in food production and distribution. At the same time, the course is sufficiently comprehensive and detailed to be informative to students already pursuing a future in agriculture. The common denominator is that everyone who eats is involved in agriculture and shares responsibility for the consequences of his or her dietary decisions.

LEARNING OBJECTIVES

Upon completion of this course, students should be able to:

- ~ Comprehend and convey a fundamental framework for defining sustainable agriculture; (If you take this course, count on being asked, “What is sustainable agriculture?”)
- ~ Critically evaluate the environmental, economic and social components of an agricultural production and marketing system within this framework;
- ~ Discuss elementary soil, crop and livestock management practices integral to sustainable agriculture including biologically active soils, ecological pest management and rotational grazing;
- ~ Trace the recent cultural and political history of sustainable agricultural production and marketing systems including organic certification;
- ~ Analyze the environmental impact of contemporary agriculture and assess the potential for alternative practices to mitigate its effects;
- ~ Use lessons gleaned from this course to make more informed decisions regarding personal dietary choices.

PERFORMANCE EVALUATION

Performance evaluation for SAG 101 provides considerable leeway for students to demonstrate what they bring to the course and what they learn while in it. Every component of the grading system allows for individual input, be it in the selection of the question to be answered or the content of the information to be provided. Students will be rewarded more for expanding their knowledge base than memorizing it. There is no final examination in this course. Grades are determined on a cumulative scale of 100 points calculated as follows:

First in-class exam:	10 points
Second in-class exam:	10 points
First take home assignment:	15 points
Second take home assignment:	15 points
Class participation:	10 points
Class summary:	5 points
Course journal:	35 points

The general letter grade assignments will be as follows:

≥ 90 points	A
80-89	B
70-79	C
61-70	D
≤60	E

Description of components

In-class exam: During a scheduled class session, students provide written responses to short answer questions and elementary scientific problems. One to two paragraph responses or lists of four to five items will suffice for the short answer problems. The scientific problems require explaining fundamental principles and relationships, such as sketching the nitrogen cycle or the soil food web. The test is distributed at the beginning of class and students select the questions and problems they answer from a pool of choices. For example, a test may contain seven questions and seven problems with the student being responsible to answer five from each category. Do not expect true/false, fill-in-the-blank, multiple choice, or matching questions. No make-ups are offered without an excused absence.

Take home assignment: A series of more open-ended questions and problems that students complete outside of class. Each assignment will require students to combine some personal experience with a current issue or development related to sustainable agriculture. For example, students may be required to describe their experience while attending a farmers market or trace the origin and path traveled by the ingredients in one of their meals. Students may be asked to draft a substantive letter to the editor weighing in on a legislative proposal related to sustainable agriculture. Assignments are due two weeks after distribution and should require two to three double-spaced, typed pages.

Class participation: An appraisal of the student's contribution to the classroom environment during the course of the semester. Criteria include attendance, attentiveness, contribution to class discussion, and courteousness.

Class summary: At the beginning of class, a student will provide a two to three minute oral summary of the lecture material from the previous session. The purpose of this exercise is to familiarize students with organizing and delivering a synopsis of relevant information. Once student enrollment is finalized, the instructors will assign an equal number of presentations to each student. Swapping of assigned dates between students must have the pre-approval of an instructor.

Course journal: Students are required to maintain a course journal with *weekly* contributions of two double-spaced, typed pages at a minimum. Subject matter can be drawn from lectures, assigned readings, personal experience, news and entertainment media, or other inspirational source. Students are expected to use the journal to develop their understanding of sustainable agriculture and consider how their impressions impact their behavior. There are no correct or incorrect answers for this exercise and its usefulness by and large reflects the thought and energy invested by the author. The instructors will review journals periodically during the semester and provide feedback. Final journal submissions are due on the last day of class (December 7).

COURSE POLICIES

Class attendance. Dialogue with instructors, guest lecturers, and classmates is essential for getting the most out of SAG 101 and students are responsible for attending class. Attendance is taken at the beginning of each class with students allowed two unexcused absences per semester. Additional unexcused absences will be considered in determining a student's grade. The instructor determines when class concludes and prior departure can result in a student being marked absent. Please consult the Academic Standards provisions in Section 5.2.4 of the University Senate Rules for additional information.

Class etiquette. Please respect your colleagues by arriving to class on time and avoiding disruptive behavior during lecture such as side conversation, newspaper browsing, and the use of cell phones or pagers. You are welcome to bring beverages to class but please, no eating. Feel welcome to express views pertinent to the subject of the lecture by raising your hand and waiting to be recognized. Please respect the right of others to express their opinion as they choose.

No form of plagiarism or cheating will be tolerated. Part II of *Student Rights and Responsibilities* (available online at <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's

work, whether it be published article, chapter of a book, a paper from a friend or some file, or whatever. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain. (Section 6.3.1).

The minimum penalty for an academic offense, such as cheating or plagiarism, is an 0 on the assignment. Repeated offenses will result in more serious penalties.

Disability. If you have a disability that requires special accommodation during class or for completion of assignments, please tell the instructor at the beginning of the semester.

Support for students. We look forward to a constructive, interactive learning environment. If you are having problems with the course material, please come see the instructors sooner, rather than later. If you cannot come during scheduled office hours, email to make an appointment. Feel free to talk to us about your problems with the course and we'll do our best to correct them.

Course Schedule (subject to change)

MK: Mark Keating lecturing; MB: Mike Bomford lecturing

8/24 Course Introduction (MK, MB)

I. Sustainability: Context and History

8/29 If it's Not Broken, Don't Fix It (MK)

8/31 A Theoretical Framework for Sustainable Agriculture (1/2) (MK)
Nineteenth Century Roots of Ag Sustainability (1/2)(MK)

9/5 The O Word: Organic Chemistry, Organic Matter, Organic Agriculture (MB)

9/7 A History of Soil (MK)

9/12 Keeping Soil Alive and Healthy (MB)

9/14 Thesis & Antithesis: Emergence of the Sustainable Alternative (MK)

9/19 Agriculture and Global Change (MB)

9/21 Overview of Federal Agricultural Policy (MK)

9/26 Ecological Balance and Pest Management (MB)

9/28 Implementation of the National Organic Standards (MK)

10/3 First in-class examination

II. Sustainability: Personal Choices, Social Outcomes

- 10/5 Contemporary Food Systems in the United States (MK)
- 10/10 Guest lecture - Sustainable Livestock Production – Dr. Hue Karreman
- 10/12 Overview of Sustainable Production and Marketing Practices (MK)
- 10/17 Guest lecture - Community Food Systems - TBA
- 10/19 Food Safety, Quality, and Access (MK)
- 10/24 Does BRIX = Quality? (MB)
- 10/26 Does BRIX = Quality? (Continued) (MB)
- 10/31 Case Study: Cuba's Response to Agricultural Crisis 1989-1999 (MB)
- 11/2 Guest lecture – Organic Farming and Certification – Ms. Cissy Bowman
- 11/7 Reserved
- 11/9 Second in-class examination

III. Sustainability and Global Food Systems

- 11/14 Indigenous Communities and Global Food Systems (MK)
- 11/16 Biotechnology (MK)
- 11/21 Video Presentation – *Darwin's Nightmare*
- 11/28 Sustainability: Everything to Everybody? (MB)
- 11/30 Peak Oil and Future Energy Sources for Agriculture (MK)
- 12/5 A Tale of Two Lettuces (MB)
- 12/7 Feed the Soil and Feed the World? (MK)

Lecture content will be supplemented by reading material including required and recommended texts. Completing the required reading for each class session should not require more than the seventy-five minutes scheduled for the lesson itself. All reading material will be provided to students in print or electronic form compatible with the copyright protection of the source material. A minimal fee to cover printing costs may be required. The content of required reading is fair game for in-class exams.

8/24 Course Introduction

I Sustainability: Context and History

8/29 *Current State and Trends: Ecosystems and Their Services around the Year 2000.*
From *Our Human Planet: Summary for Decision Makers*, Volume 5 of *Ecosystems and Human Well-Being, Millennium Ecosystem Assessment*. 25 pgs.
<http://www.maweb.org/en/Products.Global.Summary.aspx>

Executive Summary, Taking Stock: Food & Agricultural Policy for the New Century.
United States Department of Agriculture, 2001. 20 pgs.
<http://www.usda.gov/news/pubs/farmpolicy01/fpindex.html>

8/31 *Exploring Sustainability in Agriculture.*
Sustainable Agriculture Research and Education Program, USDA. 16 pages
<http://www.sare.org/publications/exploring.htm>

Sustainable Agriculture: An Introduction.
National Center for Appropriate Technology, 2005. 8 pages
<http://www.attra.org/attra-pub/sustagintro.html>

9/5 *Chemical Letters XI, XII & XIV* by Justus von Liebig.
London: Taylor and Walton, 1844. 11 pages
<http://www.soilandhealth.org/01aglibrary/010118liebigletters/liebigletters.toc.html>

Photosynthesis and Respiration: A Simple Carbon Cycle
National Oceanography Center, Southampton, 2002. 3 pgs.
http://www.noc.soton.ac.uk/JRD/SCHOOL/mt/mt001b_1.html

Chapters 1 & 3 from *The Living Soil* by Lady Eve Balfour.
London: Faber and Faber, 1943. 27 pages

9/7 *The Nature of Soil Fertility and The Restoration of Fertility*
From *An Agricultural Testament*, by Sir Albert Howard.
Oxford University Press, 1944. 15 pgs.

What Holds the Earth Together
From *Dust Bowl*, by Donald Worster.
Oxford University Press, 1979. 15 pages

9/12 *Sustainable Soil Management* by Preston Sullivan.
ATTRA, 2004. 26 pages
<http://attra.ncat.org/attra-pub/PDF/soilmgmt.pdf>

9/14 *The Pollution of Our Environment.*
From *Lost Woods, The Discovered Writing of Rachel Carson*
Edited by Linda Lear. Beacon Press, 1998. 12 pgs.

Living in the Future: The "Modern" Agricultural Ideal
From *The Unsettling of America*, Wendell Berry.
Sierra Club Press, 1977. 26 pgs.

Seven Deadly Myths of Industrial Agriculture
From *The Fatal Harvest Reader: Tragedy of Industrial Agriculture*
Edited by Andrew Kimbrell, Island Press, 2002 15 pgs.

9/19 Chapters 11 & 12 from *Biogeochemistry: An Analysis of Global Change* (2nd Edition) by William H. Schlesinger. Academic Press, 1997. 42 pgs.

Forecasting Agriculturally Driven Global Environmental Change by David Tilman et al. *Science* 292: 281-284. 4 pgs.

Farmers Look to Adapt with Innovation by Sonja Lee.
Great Falls Tribune, Great Falls, MO, June 18, 2006. 6 pgs.
<http://www.greatfallstribune.com/apps/pbcs.dll/article?AID=/20060618/NEWS01/606180301/1002>

Growing Carbon: A New Crop [...]
USDA NRCS, 2000. 7 pgs
http://www.environmentaldefense.org/documents/492_carbon_brochure.pdf

9/21 Review websites:

U.S. Department of Agriculture:
<http://www.usda.gov/wps/portal/usdahome>

US Senate Agriculture, Nutrition and Forestry Committee
<http://agriculture.senate.gov/>

US House of Representatives Agriculture Committee
<http://agriculture.house.gov/>

National Campaign for Sustainable Agriculture
<http://www.sustainableagriculture.net/>

9/26 *Biointensive Integrated Pest Management* by Rex Dufour.
ATTRA, 2001. 22 pgs.
<http://www.attra.org/attra-pub/PDF/ipm.pdf>

Excerpt from *Prodigal Summer* by Barbara Kingsolver.
HarperCollins, 2000. 4 pgs.

Predation Theory. Notes by Gordon A Fox, University of South Florida, 2001.
7 pgs

9/28 *The Past and the Future of the Organic Movement*, by Michael Sligh
From *The Fatal Harvest Reader: Tragedy of Industrial Agriculture*
Edited by Andrew Kimbrell, Island Press, 2002 10 pgs.

USDA National Organic Program
<http://www.ams.usda.gov/nop/indexIE.htm>

10/3 First in-class examination

II. Sustainability: Personal Choices, Social Outcomes

- 10/5 Excerpts from *Fast Food Nation*, by Eric Schlosser
Harper Perennial, 2001 20 pgs.

From "Eat More" to "Eat Less", 1900-1990
From *Food Politics*, by Marion Nestle
University of California Press, 2002 15 pgs.
- 10/10 Guest lecture - Sustainable Livestock Producer – Dr. Hue Karreman
- 10/12 *Building Soils for Better Crops*
Fred Magdoff and Harold Van Es
Sustainable Agriculture Research and Education Program, 2000

Some Thoughts About Selling at Market
By Nina Planck, 2006 10 pgs

What is Community Supported Agriculture?
From *Sharing the Harvest*, Elizabeth Henderson and Robyn Van En
Chelsea Green Publishing Company, 1999 6 pgs.
- 10/17 Guest lecture - Community Food Systems – TBA
- 10/19 *Fractured Law, Fractured Science: Restating the Pesticide Problem*
From *Our Children's Toxic Legacy*, by John Wargo 12 pgs

Community Food Security: Promoting Food Security & Building Healthy Food Systems.
By Mark Winne, Community Food Security Coalition 11 pgs.
<http://www.foodsecurity.org/pubs.html#newsletter>
- 10/24 *Using a Refractometer to Test the Quality of Fruits and Vegetables* by Rex Harrill,
Pineknoll Publishing, 1998.
<http://www.crossroads.ws/brixbook/BBook.htm>

Leaf Sap Brix and Leafhoppers in Vineyards by Mark Mayse, California State University.
Organic Farming Research Foundation, 1996. 15 pgs.
<http://www.ofrf.org/publications/Grant%20reports/94.36.Mayse.pdf>
- 10/26 Does BRIX = Quality? (Continued)
- 10/31 *Going Against the Grain: Agricultural Crisis and Transformation* by Minor Sinclair and
Martha Thompson. Oxfam America, 2001. 50 pgs.
http://www.oxfamamerica.org/newsandpublications/publications/research_reports/art1164.html
- 11/2 Guest lecture – Organic Farming and Certification – Ms. Cissy Bowman
- 11/7 Reserved
- 11/9 Second in-class examination

III. Sustainability and Global Food Systems

11/14 Review articles by and interview with Vandana Shiva:
<http://www.zmag.org/bios/homepage.cfm?authorID=90>
<http://zmagsite.zmag.org/Dec2002/shivaprint1202.htm>

11/16 Review Websites:

Ag Biotech Infonet
<http://www.biotech-info.net/>

Center for Food Safety
<http://www.centerforfoodsafety.org/geneticall7.cfm>

11/21 Video Presentation – *Darwin's Nightmare*

11/28 *The Sustainability Sham* by Eric T. Freyfogle
Orion 25(3): 11, 2006. 1 pg.

Sustainable Agriculture: It's a Matter of People by John Ikerd
Small Farm Today, July/August 2000. 3 pgs.
<http://www.ssu.missouri.edu/Faculty/JIkerd/papers/SFT2-people.htm>

Review Websites:

- <http://www.monsanto.com/monsanto/layout/products/tomorrow.asp>
- http://www.bcgreenhouse.ca/sustainable_agriculture.htm
- <http://www.bp.com>
- <http://www.tyson.com/Corporate/AboutTyson/TysonCares/Environment.aspx>
- <http://www.cargill.com/news/issues/soydevelopment.htm#TopOfPage>
- <http://www.ford.com/en/goodWorks/environment/airAndClimate/globalSustainableMobilityPartners.html>

11/30 *We Are Made of Sunlight*
From *The Last Hours of Ancient Sunlight*, by Thom Hartman
Harmony Books, 1998 12 pgs.

Review links to *The Problem* and *The Solution*
<http://www.communitysolution.org/index.html>

12/5 *No required reading*

12/7 Feed the Soil and Feed the World? (MK)

A Fable for Tomorrow
From *Silent Spring*, by Rachel Carson
Houghton Mifflin, 1962 4 pgs.

The Use of Energy
From *The Unsettling of America*, Wendell Berry.
Sierra Club Press, 1977. 14 pgs.

"It is an Immense Ocean that Surrounds the Island of Truth" ~ Sir Francis Bacon