

## **SAG 101 INTRODUCTION TO SUSTAINABLE AGRICULTURE**

**2008 Spring Semester  
Tuesday and Thursday, 9:30 am to 10:45 am  
Ag Sciences North S221**

The main characteristic of Nature's farming can therefore be summed up in a few words. Mother earth never attempts to farm without livestock; she always raises mixed crops; great pains are taken to preserve the soil and to prevent erosion; the mixed vegetable and animal wastes are converted into humus; there is no waste; the process of growth and the process of decay balance one another; ample provision is made to maintain large reserves of fertility; the greatest care is taken to store the rainfall; both plants and animals are left to protect themselves against disease.

Sir Albert Howard, *An Agricultural Testament*

### INSTRUCTORS

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### COURSE DESCRIPTION

GEN 109 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

GEN 109 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, GEN 109 is an

introductory course without prerequisites and its interdisciplinary structure is meant to clarify, not complicate the subject matter. Like inquisitive cooks working with a favorite recipe, students in GEN 109 become familiar with each ingredient while adapting the proportions to best suit their individual taste.

Sustainable agriculture has a reputation as an eye-of-the-beholder term encompassing practices including organic certification, biodynamic farming, integrated pest management, direct marketing, local food systems, and fair trade in a global economy. To clarify the meaning of the term, GEN 109 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 evaluate the present condition and future potential of agricultural systems. This approach does not produce a thumb's up or down verdict whether a particular agricultural operation is sustainable. Rather, it identifies critical components within the system where improvement over time can enhance the operation's vitality and viability.

With a context for sustainability established, GEN 109 addresses 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 potential of alternatives to improve sustainability. Guest lecturers with production, marketing, community organizing, and regulatory experience provide a personal perspective on how the theory and practice of sustainability come together. GEN 109 concludes with an overview of contemporary global agriculture and the potential for the principles of sustainability to influence its future course.

GEN 109 is an introductory course designed for students with little or no background in agriculture to explore significant environmental, economic, and social issues in food production and distribution. At the same time, the course is sufficiently comprehensive and detailed to be informative to students already pursuing a degree 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 the framework of sustainability;

- ~ 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 drawn from this course to make more informed decisions regarding personal dietary choices.

### PERFORMANCE EVALUATION

Performance evaluation for GEN 109 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:

Course journal:	35 points
First in-class exam:	15 points
Second in-class exam:	15 points
Final in-class examination:	15 points
Class participation:	20 points

The general letter grade assignments will be as follows:

≥ 90 points	A	70-79	C
80-89	B	61-70	D

#### *Description of components*

Course journal: Students are required to submit seven course journal entries of approximately two double-spaced, typed pages. If handwritten, entries should be readily legible and also double spaced. 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 during the semester and provide timely feedback. The due dates for journal

entries are indicated in the syllabus by an asterisk. No entries will be accepted after the final day of class (April 24).

**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.

**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.

### COURSE POLICIES

**Class attendance.** Dialogue with instructors, guest lecturers, and classmates is vital for getting the most out of GEN 109 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. Students are responsible for signing the daily roster to document their attendance. 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. Please do not engage in text messaging during class. 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.

**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 promote a constructive and 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, speak with us or send an 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

**\*Indicates due date for course journal entry**

I		Sustainability: Context and History
1/10	TH	Course Introduction (MB, MK)
1/15	TU	The Three Pillars of Sustainability (MK)
1/17	TH	If It Isn't Broken, Don't Fix It (MK)
1/22	TU	O Word: Organic Chemistry, Organic Matter, Organic Agriculture (MB)*
1/24	TH	Historical Roots of Sustainable Agriculture (MK)
1/29	TU	<i>Guest lecture – Lee Meyer, UK Department of Agricultural Economics</i>
1/31	TH	<i>Guest lecture – Lee Meyer, UK Department of Agricultural Economics</i>

2/05 TU Review for in-class examination\*

2/07 TH First in-class examination

II. Sustainability: Farming Practices, Consumer Choices, Social Outcomes

2/12 TU Keeping Soil Alive and Healthy (MB)

2/14 TH Keeping Soil Alive and Healthy (MB)

2/19 TU Food Safety: Pesticides and Pathogens (MK)\*

2/21 TH *To be announced*

2/26 TU Ecological Balance and Pest Management (MB)

2/28 TH *Guest lecture – Anne Hopkins, General Manager, Good Foods Coop*

3/04 TU Sustainability and Federal Agricultural Policy (MK)\*

3/06 TH Biotechnology and Sustainability (MK)

3/11 – 3/13 Classes recessed – Spring Vacation!

3/18 TU Review for in-class examination

3/20 TH Second in-class examination

III. Sustainability: National and Global Considerations

3/25 TU Agriculture and Global Change (MB)\*

3/27 TH Case Study: Cuba's Response to Agricultural Crisis 1989-1999 (MB)

4/01 TU *Guest lecture – Bob Perry, Coordinator UK Sustainable Food Initiative*

4/03 TH Sustainability and the Farm Bill (MK)

4/08 TU *Guest lecture – Kaycie Len Carter, Rural Organizer, CFA\**

4/10 TH Peak Oil and Energy Alternatives (MK)

4/15 TU Energy Efficient Agriculture (MB)

4/17 TH A Tale of Two Lettuces (MB)

4/22 TU Review for in-class examination\*

4/24 TH Third in-class examination

Lecture content will be supplemented by reading material including required and recommended texts. The content of required reading is fair game for in-class exams. Copies of all reading material will be accessible through Blackboard, public access Internet sources, or the course reading packet. A list of reading assignments will be distributed during the first week of class which may be augmented as pertinent material (newspaper or journal articles, primarily) become available during the semester. The volume of reading will be kept to a modest level (two to three hours per week on average) so please come to class well versed with the material assigned for that session.