

Note: This is for a non-majors class at Carleton College, a small college in Minnesota. It is a core course in the new Environmental Studies Major. See my contact info below.



Agroecology

Biology/ENTS 160 - Fall 2007

Course Syllabus

urgent. This course will focus on the biological properties of agricultural ecosystems, with an eye towards which systems are the most sustainable. This will involve using theoretical and empirical approaches that are often used to study natural ecological systems and applying them to heavily-managed agroecosystems.

The task of describing the ecological framework of an agricultural system is relatively straightforward, though at times complex. One approach will be using natural systems such as tallgrass prairie as a benchmark when examining ecological relationships in agricultural fields. However, deciding which type of agricultural system is most sustainable is not so easy. Making judgments about "sustainability" involves a host of non-scientific disciplines such as ethics, philosophy, history, and economics. I find that everyone I talk to has a different definition of "sustainable agriculture," based in part on their ideals, ethics, and background. We will be spending some time throughout the term looking at these different views of agriculture, with readings in ethics and history, as well as delving into some economic analysis. I am an organic farmer myself (my wife and I have a farm called Big Woods Farm) and I have my own opinions about a whole host of agricultural issues. However, my goal is to provide a balanced view of all issues – please let me know if my biases get out of hand (and also feel free to ask what my opinions are!).

Though defining a sustainable system is a difficult task, moving the agriculture of an area (be it county, state, or entire country) towards higher levels of sustainability is even more daunting. Federal farm policy is one possible mechanism – full of promise and potential, farm policies have been woefully inadequate at fixing the problems of agriculture. Another route to change is the free market, in particular consumer demand. An educated public, with knowledge about sustainable practices as well their benefits and implementation, has the power to cause changes on a large scale. As a first step, one goal in this class is to consider how a student-run farm might be implemented on the Carleton campus. This farm could be an excellent tool for educating the Carleton community about the importance of sustainable food production.

Course Format

The class will meet at the 4a time slot (MW 12:30-1:40pm; F 1:10-2:10pm) in Olin 04. The class meetings will consist of a mix of lecture, discussion, and outside speakers, as noted on the course schedule (available on the class Moodle page). I will use my lectures to present background information, for example on ecological theory and agricultural practices. Most discussions will focus on several assigned readings.

The first half of the course will involve a "crash course" in agricultural methods and the ecology of agricultural systems. Through my lectures and readings I hope to provide everyone with a common foundation of what techniques are involved in farming. Since the ecology and sustainability of an agricultural system depends on what practices are used, it's important to understand the set of possible practices from which to choose. During the second half, we will examine ecological interactions in agroecosystems and address several specific topics

Assigned Readings

Note: these texts may or may not be used the next time I teach the class.

Required texts for the course:

Agroecology: The Ecology of Sustainable Food Systems, 2nd edition, by Stephen Gliessman.

The Omnivore's Dilemma, by Michael Pollan

As mentioned above, the discussions will focus on several assigned readings, as listed on the schedule on the class web page. In addition, I will also assign material for most of the lectures and for speaker visits.

Instructor

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Course Models

There is a bewildering diversity of farms and farming methods used throughout this country and the world. In order to allow for discussion and analysis of alternative methods, we will focus our attention in the course on two farming 'models', as well as a natural ecosystem. By narrowing the discussions in this way, we can hopefully deal with particular situations and reduce the immense diversity in the types of farms and farming practices to a manageable level. For both of these models, I chose farms that occur in southern Minnesota. The **first model** is a standard Midwestern farm - a farm where the farmers derive most of their income from the farm, grow row crops that primarily include corn and soybeans, and may raise either hogs or dairy cows. If the farm has dairy cows, the farmers also will probably raise hay on some of the acreage. The **second model** is a Midwestern vegetable farm. Again the farmers derive some or all of their income from the farm and here they grow a variety of vegetables that are either sold through wholesale or direct-marketed to stores, co-ops, or farmer's markets. This type of farm is not common in Minnesota, however I happen to have one of those farms, so I hope you will excuse my bias towards this model.

Though we will focus on Midwestern farms, there will be times when our readings concern farms in other parts of the country, or our discussions deal with issues of a national or international nature. By giving ourselves a grounding in a specific area (i.e., the two Midwestern farm models and the tallgrass prairie), we will all have a common basis both for learning concepts and from which we can broaden our discussions to include more complicated (and hence more real) situations.

Grading

The class grade will be based on two quizzes, several case studies, a group project, and participation in the Moodle forums and in-class discussions. Since participation in discussions and interaction with the speakers are both integral parts of the course, attendance at all class meetings is mandatory (two unexcused absences are allowed).

Graded work:

30%	Quizzes
25%	Case studies
35%	Group project (including peer evaluation)
10%	Class participation

Quizzes

There will be at three 20-30 minute quizzes during the term. These quizzes will cover material from lecture and readings, focusing on the science of agroecology. There will not be a final exam in this course.

Case Studies

There will be three or four case studies that you will work on in a group. These studies will involve in-depth problem solving and work outside of class.

Group Service Project

Note: there is a different Service project each time I teach the class.
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During the term, you will work with several other students on a service learning project. The overriding context of the project will be planning what a student-run farm at Carleton might look like. One of the goals of the course is to help you become an active participant in solving environmental problems. There are many facets to this issue, involving the logistics of growing crops and purchasing supplies, how the students will manage the farm, administration and faculty involvement in the farm, what will happen to the crops, and educating the Carleton community about food issues. The culmination of the project will be a poster session where we will present our ideas to the Carleton community. We'll talk about potential topics for group work during the first week of the term. During the last week of the term, each group will submit a report about their work on the project. Refer to the report stylesheet on the class Moodle page.

After the report is completed, each member in the group will evaluate the other members in his/her project group in terms of how much each person participated. The score you give to your group members should reflect how you feel about the extent to which the other members of your group contributed to your group's work and performance. This score will be used to alter the group project score for each group member – up to one letter grade up or down. See the peer evaluation on the class Moodle page for a description of how this process will work.

Participation

Two types of participation are required for this course. First, as much of the course material is presented and discussed in class, I expect all students to attend all classes and take part in all discussion. Part of my expectation for your attendance in class is that you have completed the assigned readings before class begins. Second, each student should respond to all class speakers on Moodle forums (see below). To get full credit for participation on the Moodle forums, you must respond to each class speaker within one week of the speaker's visit.

Note: Moodle is a college-wide web-based teaching system.

Class Moodle Page

I have created a Moodle page for the course. This page will be the repository for most of the course materials in the course. I will place readings and class handouts here, as well as copies of lecture powerpoint presentations and class announcements. There will also be descriptions of assignments, forums, etc. In addition, there are quite a few resources available related to agriculture on the World Wide Web and I hope the Moodle page will help you in your search for information. I will post useful and interesting links to agriculturally-related sites on the course web page as I find them (let me know if you find any good sites), as well as current ag-related topics in the news.

Please let me know if you have problems accessing the class Moodle page. For technical issues on the use of Moodle, contact me or someone at the computer help desk in CMC.

Responses on Moodle “forums”

Forums on Moodle (these are online chat sessions) will provide a location for you to enter comments on visits from class speakers. Additionally, students in the class can feel free to start forums for online discussions about issues raised in the course (in lectures, readings, and discussions) and other current agriculture-related issues about which you have an interest.

E-mail

I will often use e-mail to make class announcements. As such, please check your e-mail at least twice per day. There is an e-mail class list called **biol160-00-f07@lists.carleton.edu**. If you send an email message to this address it will be received by everyone in the class. Please limit the use of the class e-mail list to class-related messages.

Class Course Folder

We will have a class folder on the network which I do not plan to use. However, you may want to use the class folder, in particular the “Common” subfolder, to save copies of group work.

I encourage anyone with special needs to talk to me after the first class period or come visit with me in my office.