

## CENTER FOR INTERNATIONAL PROGRAMS

**COURSE NAME:** Agroecology and Sustainable Food Systems

**COURSE CODE:** ENV 4030

**TOTAL CONTACT HOURS:** 60 hrs.

\*This syllabus is tentative and subject to change. A new copy will be provided if changes are made.\*

### COURSE DESCRIPTION

This course will examine agricultural and food systems from an ecological systems perspective. After establishing a foundation of basic ecological concepts (relationships and interactions between abiotic/non-living and biotic/living components of an ecosystem), different applications of these concepts to agricultural systems will be investigated. Consumption and production issues related to food system sustainability will be analyzed, and students will explore their own role in the food system. Field trips will provide opportunities for direct observation of (and interaction with) different approaches to food production and distribution in Costa Rica.

### OBJECTIVES

Upon successful completion of this course students will be able to:

- Define sustainability
- Describe basic ecological principles upon which agriculture is based and how these are exploited
- Understand the biophysical needs of plants and how these are met in conventional and alternative agriculture
- Appreciate the biological, social/cultural, economic, and political aspects of food systems
- Comment on various current approaches to agriculture in Costa Rica
- Recognize their own role in a food system
- Discuss literature related to agriculture from an ecological perspective

### COURSE PRE-REQUISITES

None. An open mind and enthusiasm are helpful when learning any subject!

### METHODOLOGY

#### Attendance

You are expected to attend every class meeting; however, you are allowed two unexcused absences. Emergency absences will be excused when proper documentation is provided. Three late arrivals count as one absence. If you miss class it is your responsibility to get missed notes, etc., and you are still be responsible for turning in all assignments on time. If you know you will be absent please talk to me in advance, and if you are unexpectedly absent, please contact me as soon as possible. Field trip attendance is mandatory; absence from a field trip will result in failure of the course.

#### Behavior

We will be respectful of one another in class; this means appreciating that we all have different backgrounds, and also that no one else will speak when someone is addressing the class. Any behavior that inhibits others' learning will not be tolerated. Such behavior will result in dismissal from class (unexcused absence). Texting is not allowed in class.

#### Assignments

Details of assignments will be discussed in class. Written assignments must be submitted electronically.

## Exams

There will be two exams. The second exam will cover the second half of the course, but keep in mind we will be building on what we learn throughout the session (the subject matter is cumulative in nature).

## Field Trips

We will take two field trips: 26-28 July and 2-4 August. Details to be determined and discussed in class.

## EVALUATION

Exams (2)	20%
Current events in Costa Rican agriculture (2)	10%
Case study of a Costa Rican crop	10%
Creative presentation of an agroecology concept	10%
Sustainable shopping	10%
Design an agroecosystem	10%
Field trip reports (2)	30%

## COURSE OUTLINE

Date	Topic	Reading / Resources	Assignment
8 July	Introductions to each other and to course		
9 July	Why should we care? An overview of problems associated with agriculture		Current events
10 July	Introduction to ecology, biological organization, energy flow through ecosystems		Sustainable shopping
11 July	The kingdoms of life in agriculture - archaea, bacteria, fungi, plants, animals		
15 July	Light, CO <sub>2</sub> , photosynthesis, respiration		
16 July	Water, temperature, and evapotranspiration		
17 July	Animals in agroecosystems		
18 July	Nutrients and nutrient cycling	Film: Killing Fields	
22 July	Soils		
23 July	Soils	Film: Dirt! The Movie	
24 July	Exam 1		
25 July	NO CLASS		
26-28 July	FIELD TRIP - Creative presentations		
29 July	Communities, diversity, productivity, stability		
30 July	Diversity and pest control		
31 July	Organic, biointensive, biodynamic agriculture		
1 August	Permaculture, agroforestry		
2-4 August	FIELD TRIP - Case studies		
5 August	Economics of food systems		Design
6 August	Energy and food systems	Film: The Power of Community	
7 August	Role of consumers in food systems		
8 August	Exam 2		

## TEXTBOOK / COURSE RESOURCES

Gliessman SR. 2006. Agroecology: the ecology of sustainable food systems. 2nd ed. CRC Press. 408 p.

Vandermeer, JH. 2009. The ecology of agroecosystems. Jones and Bartlett Publishers. 350 p.

These texts will be available in the library and electronically. Specific sections from these texts and readings from other sources will be assigned in class.