



**Sustainable Agriculture**  
**ENVS 325 - 01E**  
**FALL 2015**

**Faculty Instructor:** Dr. Kelly Garbach

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*Office Hours:* T/Th 2:30 p.m. – 3:30 p.m. in BVM Hall 424,  
 and by appointment

**Class Meeting Times: T/Th 10 – 11:15 am, IES #218**

**Course Description:** The course is based on a framework of interdisciplinary analyses of agroecosystems. We will engage in classroom presentations, discussions, lectures, and hands-on activities in the Ecodome greenhouse. We will explore the concepts governing the functioning of agroecosystems in relation to resource availability, ecological sustainability, and socio-economic viability. Throughout the semester we will examine strategies to increase resource use efficiency while minimizing negative impacts on the environment. Our work aims to build the skills to conduct comparative analysis of approaches to agriculture and its sustainability, including historical examples and trends, and alternative systems.

**Objectives:** We will examine challenges of food production, management decisions, and environmental change facing agroecosystems. Students in this course will work towards the following objectives:

Course Objectives	Course learning outcomes
Learning fundamental principles, generalizations, or theories	<ul style="list-style-type: none"> <li>• Identify key attributes of different agroecological systems</li> <li>• Characterize agroecosystems and their performance</li> </ul>
Learning to apply course material to improve thinking, problem solving, and decisions.	<ul style="list-style-type: none"> <li>• Investigate societal trends in agriculture and outcomes for the natural resource base and human well-being</li> <li>• Evaluate potential approaches to increase agricultural sustainability</li> </ul>
Developing a clearer understanding of, and commitment to, personal values.	<ul style="list-style-type: none"> <li>• Integrate personal experience with course content to enhance personal understanding and decision-making</li> </ul>

**Readings:** We will draw from the core text (below) and supplemented with additional resources, which will be posted on Sakai, sakai.luc.edu.

I will announce readings in class and on Sakai. Please keep up to date on your email and check Sakai regularly to ensure that you don't miss anything. All readings should be completed before the start of class so that you are prepared to actively contribute to our discussions.

**Core Readings**

Gléissman, S. 2015. The Ecology of Sustainable Food Systems. Taylor & Francis.

**Expectations & Course Norms:** This course is a professional working group among colleagues. Extend the professional courtesies that you wish to receive (e.g. in e-mail correspondence and in discussion). Use of cell phones is limited to emergencies; no texting or personal calls during class. Use of laptops, tablets and other devices is acceptable for course-related activities only. These devices should not distract others. Attend the course meetings on-time and prepared to discuss readings and actively engage in group discussions. All participants should use their Loyola email to facilitate communication through Sakai and other shared resources.

The course is a dynamic and respectful place to question and explore diverse ideas, including those voiced by students, faculty and our guest speakers. Collegial debate and disagreement can be a healthy part of this process; this approach allows space for divergent views. Each of us brings a unique perspective to the discussion that can enrich the learning experience for everyone.

**Course Tasks & Evaluation**

Grades will be assigned in the course according to the following:

Table 1. Tasks and Grade Criteria

Criteria	Maximum Percent Value
Class Participation	10%
Discussion leadership	10%
Crop planning and sustainability outlook	30%
Intercrop experiment	20%
Quizzes (two quizzes, 5% each)	10%
Final Exam	20%

### *Class Participation (10%)*

Throughout the semester we will have guest speakers, brainstorming and discussions, hands-on activities, review questions, and written reflections. Participation includes both attendance and completion of in-class activities. You are responsible for material covered in presentations, class discussions, and activities. Please come by office hours anytime if you have questions or would like to discuss further.

### *Discussion leadership (10%)*

Working in teams, students will facilitate short in-class discussions over the course of the semester in collaboration with your colleagues from class. This activity will allow you to select aspects of agroecology that interest you most for further discussion and investigation. Student teams will choose one thoughtfully selected resource and lead a short in-class discussion. Resources may include: a piece from popular press, such as The New York Times, or an on-line science resource such as The New Scientist, TED (Technology Environment and Design) Talks, Radio Lab, Science Friday, or other relevant sources.

### *Crop planning and sustainability outlook (30%)*

We will work with a farm client on crop plans and sustainability outlook. After learning about the farm and consulting with the farm manager, student teams will develop proposals that include two main elements: 1) an updated crop plan (15%); 2) detailed natural history of several crops in use or those proposed for future plans (15%).

This work will include a trip to the LUREC farm, planned for Saturday, October 17th. Farm plans and natural histories will be presented and documented in a format suitable for sharing with the general public.

### *Intercrop experiment and supporting observations (20%)*

Over the course of the semester we will conduct an experiment in the ecodome greenhouse exploring crop interactions and conducting quantitative analysis of the cropping system. We will support this experiment with observations of environmental conditions in the greenhouse. This experiment investigates questions encountered in both research and management of agroecosystems.

*Taken together, the crop planning and sustainability outlook and intercrop experiment fulfill the university's engaged learning requirement.*

### *Quizzes (5% each, 2 quizzes)*

Quizzes will cover material from lectures, guest presentations, readings, and in-class activities. They will be presented in the same format as the final exam with a mix of essay and short answer questions.

### *Final Exam (20%)*

Our final will be cumulative and cover material from lectures, guest presentations, readings, and in-class activities; it will be presented as a mix of essay and short answer questions. The final must be taken during designated class period. If you require alternative arrangements, please make them in advance so that we can request the proper approvals from the University and Institute of Environmental Sustainability.

### *Evaluation*

Final letter grades will be calculated as follows, based on the cumulative percentage from the tasks listed above.

A: 94-100	A-: 90-93	
B+: 87-89	B: 83-86	B-: 80-82
C+: 77-79	C: 73-76	C-: 70-72
D+: 65-69	D: 60-64	F: <60

**Academic Honesty:** I follow the College of Arts and Sciences definition of academic honesty: [http://luc.edu/cas/pdfs/CAS\\_Academic\\_Integrity\\_Statement\\_December\\_07.pdf](http://luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf) Breaches of this policy will automatically lead to zero points for the assignment/quiz/exam in question. I reserve the right to impose more severe penalties, including a failing grade for the course. All breaches of the policy will be reported to the Dean's office.

**Accessibility:** Please let me know as soon as possible if you require consideration for a disability. I will be happy to work with you. Disabilities must be registered with the Services for Students With Disabilities (SSWD) office, and consideration will begin after I am made aware of the need. The University policy on accommodations and participation in courses is available at: <http://www.luc.edu/sswd/>

**Overview of topics & activities:** This is a draft schedule for the course topics and activities. Dates will be updated as the course progresses. Any changes will be announced in class and on Sakai. You are responsible for staying up-to-date on class schedule and activities.

Week	Date	Topic	Draft in-class activities & Guest Speakers
1	25-Aug	Introduction	Overview
	27-Aug	Cropping Systems	Student teams formed
2	1-Sep	Agroecosystems	
	3-Sep		Kevin Erickson - microgreens
3	8-Sep		<i>Tentative - Transplant intercrop experiment</i>
	10-Sep	The Plant	
4	15-Sep		Winthrop garden tour
	17-Sep		Emily Zach - LUREC Farm
5	22-Sep	Abiotic Factors: Light & Temp	
	24-Sep		
6	29-Sep	Society & Agroecology	
	1-Oct		Zach Grant - Local Food Systems and Small Farms Advisor
7	6-Oct		No Class – Fall Break
	8-Oct	Abiotic Factors: Moisture & Soil	
8	13-Oct	Biotic Factors	
	15-Oct		
SAT	17-Oct		<i>LUREC FARM VISIT</i>
9	20-Oct		Anthony Boatman - A Just Harvest
	22-Oct	Species Interactions	
10	27-Oct	Population Ecology	
	29-Oct		
11	3-Nov	Genetic Resources	
	5-Nov		
12	10-Nov	Agroecosystem Diversity	<i>Tentative - David Miller, Iroquois Valley Farm</i>
	12-Nov		
13	17-Nov	Animals in Agroecosystems	
	19-Nov		
14	24-Nov	Community & Culture	
	26-Nov		No Class – Thanksgiving Break
15	1-Dec	Review & Synthesis	
	3-Dec	Review & Synthesis	
Exam	Tuesday, Dec 8th		Final Exam Period, 1-3 p.m.