

<b>732 Agroecosystems</b>
---------------------------

Call Number: **00852-9**

**Official Course Description**

Holistic analysis of agricultural systems. Application of emergy analysis to evaluate and design sustainable agroecosystems.

<b><u>Quarters of Offering</u></b>	<b><u>Credits</u></b>	<b><u>Level</u></b>	<b><u>Class Times &amp; Room</u></b>	<b><u>Course Instructor</u></b>
Wi	4	UG	Tues, Thurs 2:00-4:00 PM Ag. Eng. 104 & 219	Jay Martin

**Course Prerequisites**

Graduate standing or permission of instructor.

**Text**

Lecture notes and journal articles will be distributed during the course via Carmen or downloaded from the OSU library. Books included in the Reading List are recommended as reference material and placed on reserve in the Agricultural Library.

**Course Objectives**

- Develop conceptual models of ecological, industrial, and urban systems that include inputs, outputs, processes, stocks, and flows.
- Use emergy analysis to evaluate the sustainability of a selected system.
- Using the results from the emergy analysis and comparisons with other systems, make recommendations to improve the sustainability of the selected system.

**Topics**

- Conceptual diagrams of systems
- Energy flow in systems
- Emergy analysis
- How to quantify and compare different system inputs on a common basis
- How to design systems to improve sustainability, resource use, and productivity

**Grading**

Weekly quizzes over readings	30%
Course participation/attendance	10%
Research project	60%
System diagram pres.	5%
Trans/Input/Export pres.	5%
Ratios/Results/Comp pres.	10%
Final Presentation	10%
Written Report	30%
<hr/>	
TOTAL	100%

**Professional Objectives**

This course provides content for criterion 4a and 4b.

**Program Educational Objectives**

This course primarily focuses on Objectives 1, 2 and 4.

**Prepared by**

Jay F. Martin

**Date**

1/2/07

## **Instructor Contact Information**

<i>Name</i>	<i>e-mail</i>	<i>phone</i>	<i>office</i>
Jay Martin	<i>martin.1130@osu.edu</i>	247-6133	230c Ag. Eng.

## **Office Hours**

Appointments will be arranged between students and instructor throughout the quarter.

## **Course Policies**

Incompletes will only be considered if warranted by official OSU policy.

Academic misconduct (plagiarism, cheating, and other forms of misconduct as defined by the university) of any kind will not be tolerated in this course. According to Faculty Rule 335-31-02 Academic misconduct is defined as any activity that tends to compromise the academic integrity of the institution or subvert the educational process. If students have questions about what activities constitute academic misconduct and what procedures to follow, they should consult with the instructor. Faculty Rule 3335-5-54 will be followed in all cases of academic misconduct; "Each instructor shall report to the Committee on Academic Misconduct all instances of what he or she believes may be academic misconduct."

Late assignments will not be accepted.

Students with disabilities who need accommodations should see the instructor privately after class to make arrangements.

## **Learning Exercises**

Weekly Quizzes: For approximately one-half hour during weeks three through eight students will thoughtfully write answers to questions about reading assignments. Groups of two students will be responsible for preparing and grading one quiz during the course. Overall quiz grades will be based on responses to questions and the quality of the quiz prepared by student groups. These quizzes should not test the ability to memorize the readings, but instead focus on general concepts and potential applications related to course readings.

The quizzes will be given on Tuesdays. On Thursdays the graded quizzes will be returned by the students who created each quiz. These students will discuss the correct answers for the quiz. The students who created the quiz will be responsible for developing a grading scheme. The instructor will normalize all quiz grades at the end of the quarter (the student with the highest quiz grade will receive 100%). The quality of each quiz will be evaluated by the students (50%) and the instructor (50%). The grade for the quiz developed by each student will be weighted as 4 quizzes to determine the overall quiz grade. Issues of confidentiality will be addressed accordingly by the instructor.

Research Project: The goal of the course is for each student to perform an energy analysis of a selected system. Based on the results from this analysis, recommendations will be made to improve the sustainability of the selected system. Each student is responsible for a final oral presentation and written report. In addition to the final products, intermediate deliverables (such as a systems diagram) will be evaluated for the overall research project. The final written report should have the format and quality of a published journal article. A goal of the course is to submit publications using energy analysis to compare the sustainability of selected systems.

