

**COLLEGE OF AGRICULTURE
COURSE REQUIREMENTS**

Course Title: AGRI 331 - Agricultural Ecology

Instructor: Dr. Rich Rosecrance (Lab)

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Office hrs: M 9:15-10:45, W 9:15-11:45 and by appointment.

Class Schedule:	Lecture	MW 8:00 - 8:50	Plumas 205
	Lab (1)	M 11:00 - 1:50	Plumas 301
	Lab (2)	M 2:00 - 4:50	Plumas 301

Course Text: Required

Stephen R. Gliessman 2007. Agroecology: Ecological Processes in Sustainable Agriculture, Second Edition. CRC Press. 384 pp.

Course Reader: Required

The course reader contains the labs we will do in the field.

Course Description:

AGRI 331 - Agricultural Ecology - is an interdisciplinary treatment of the physical and biological environments used for agriculture. The ecological nature of agriculture and its impacts on the landscape are discussed. Sustainable and non-sustainable agricultural practices will be examined.

Because agriculture involves the manipulation of the physical and biological environment, it requires an understanding of, and appreciation for the unique nature of all land, and ecological functions and processes of ecosystems that exist on this land. It is for this reason that the course has a laboratory component that is primarily conducted in the field.

Course Objectives/Goals:

1. Develop an understanding of the form, function, and processes of ecosystems (both natural and intensively managed)
2. Collect, analyze and use ecosystem data to explain and predict ecosystem properties and management impacts
3. Study criteria and indicators of ecosystem health
4. Analyze how current agricultural practices impact the environment and rural society and predict future trends if continued in the same way.
5. Develop the necessary writing and thinking skills to describe research methods, results, and discuss research findings.

Course Attendance:

I take a dim view of poor attendance and will therefore take regular roll. If you have to miss class or lab for some important reason I expect that you inform me *beforehand*. You are allowed a total of **three** excused absences from lectures and **one** excused absence from labs. Non-excused absences (or absences in excess of the excused ones) will result in progressively fewer points for class presence and participation.

Course Grading:

Course grades will have the following components:

<u>EVALUATION</u>	<u>CONTRIBUTION</u>	<u>DUE DATE</u>
Lab reports (4 written up)	34%	Monday in lab, throughout term
First midterm exam	12%	February 29
Second midterm exam	12%	April 18
Final exam	12%	May 18, 8-9:50.
Quizzes (in class/online)	26%	Throughout term
Book review	4%	May 3

There are six (6) required labs for which you must complete four (4) lab reports. You will get zero (0) points for missed labs and half credit for labs turned in late (no more than one week after the due date). If you don't like the grade you earned for any of these four lab reports you may turn in additional lab reports to replace them. Lab 7 is a book review and you can start it at any time, I will provide more information on this assignment at a later date.

Quizzes: Your weekly online quiz will test your preparation in the reading materials, in-class discussions, and labs. You can take the quiz twice. Your higher grade will be recorded. Quizzes will be available on Monday at 8 am and close Thursday at 11 am. For these quizzes you may have your textbook and notes open if you wish, but do your own work. In addition, there will be in-class quizzes using the clickers

Grade	Criterion	Point range
A	Unusual ability and distinctive achievement	90% and above
B	Articulate, above-average performance	80-89%
C	Satisfactory performance	70-79%
D	Passing work below the standard required for graduation	63-69%
F	Failure to achieve credit	Below 63%

Course Work:

All submitted work is considered as your final draft and best you are capable of. It is therefore important that you have edited for grammar, style, unity, and clarity, and that you have followed the instructions provided for the labs in the course reader. Work that is well written and presented receives a better grade. Work will always be due on Thursday in lab. Late work (within one week) will always receive half credit and thus a failing grade.

Work that has not been edited, and for which you did not follow the instructions provided in the course reader and in Guidelines for Writing Scientific Papers may be returned to you unread and ungraded with an automatic F.

ACADEMIC DISHONESTY

Lack of academic honesty will result in a lower course grade, a failing course grade, probation, suspension, or expulsion depending the severity and frequency of the offense. Please see the University Catalog pages 144 and 623, the *Code of Students' Rights and Responsibilities*.

Taking and/or Providing Information

Plagiarism

Plagiarism can be defined as the unauthorized use or close imitation of the language and thoughts of another author and the representation of them as one's own original work. To reduce plagiarism, students are required to submit their papers in Turnitin (thru Vista) on the Thursday that the paper is due. If there is a single occurrence and single sentence I will first bring it to your attention (e.g. I will write in the margin: “*Do your own work*” or “*Don't plagiarize*”). If in a subsequent piece of work you again plagiarize my action will be depend on the amount, frequency, and source of plagiarism. For example, if in assigned work you repeatedly (more than twice) and extensively (more than two sentences) plagiarize another student (past or present) I will do the following: 1) On the first offense I will give an **F** for the work, and 2) On the second offense I will give an **F** for the course and file an **Incident Report** with the Office of Student Judicial Affairs for further disciplinary action.

Team-work

While you will do the fieldwork and data collection in small teams of four to five students, you are personally responsible for the accuracy of all reported data. **Any error is your error.** You may discuss your data and results with your team members (such discussions are an excellent way of learning), however, **you may not turn in any part of their work as your own.** Thus tables, figures, text of results, and the interpretation of these results must be your own work.

Book Review Assignment (Lab 7)

All students will read and review a popular book on a agroecology topic. We will have a “book club” discussion in lab. To prepare for the discussion, please write a brief review (no more than three double-spaced pages) of the book that you read.

Laboratory Reports

Laboratory reports must be typed, double spaced, in 12 font, and have 1 inch margins. Unless otherwise instructed, you must use the format of a scientific paper as described in: ***Guidelines for Writing Scientific Papers***. You will find this paper at the beginning of the course reader. Each lab report must contain the following:

- A **title** that clearly identifies the author, subject (e.g. *Lab 2* is insufficient), and course. The subject title of the paper (topic) must be clear and complete.
- An **introduction** that introduces the reader to the topic (e.g. what we already know about it and why it deserves our attention), describes the nature of the problem and purpose of the study.
- A **methods and materials** section in which you describe the “where, how and with what” of your research. Keep this section short; describe where and how you did the study. Don't provide a list of things you used. If the methodology is well and fully described in the course reader you may cite the reader as your reference.
- A **results** section in which you report only the obtained factual data, including properly labeled and executed figures and tables.
- A **discussion** section in which you discuss and interpret the results of your study.

Note: Abstract and literature citation are optional. *However*, if you cite the lab instructions in your methods and materials section, you must have a literature citation section. A writing rubric will be use to grade your research papers (see Vista).

The following outline is tentative and subject to change.

LECTURE TOPIC AND READING OUTLINE

Week	Topic	Reading	Quiz
1	1/23 1/25 Introduction Ecological and Environmental Impact of Modern Agriculture	Ch. 1; Brown Chapter 6; Lab 1	1
2	1/30 2/1 What is Agroecology and Why is it Needed? Articles The Energetics of Agroecosystems	Ch. 2; Tillman et al., 2002; Read Case Study: Whose Watershed is This?	2
3	2/6 2/8 Case Study – Whose Watershed is This? No Class – Read Ch. 11 & 18	Ch. 11 and 18	3
4	2/13 2/15 Processes of Soil Formation and Structure The Living Soil: Diversity and Structure	Ch. 8: Basic Soil Properties Article	4
5	2/20 2/22 Plant & Soil Water Relations Plant & Soil Water Relations cont.	Ch. 9; Plant Water Relations article and Soil Management & Quality in Organic Crops article	5
6	2/27 2/29 Soil Management in Agroecosystems Midterm 1		
7	3/5 3/7 Water & Irrigation Species Interactions in Crop Communities	Ch. 15, Weed Management for Organic Crops article	6
	3/12 3/14 Plant Population Dynamics Disturbance & Succession	Ch. 13 and 10 Crops article Ch. 11, 15	
8	3/19 3/21 Spring Break !		7
9	3/26 3/28 Biodiversity and Genetic Engineering Integrating Animals in Agroecosystems	Read Ch. 14 & 16 and intercropping article	8
10	4/2 4/4 California Agriculture California & Climate Change	Read Ch 19 and Environmental Issues of Animal Feeding article	9
11	4/9 4/11 World Food Demand Biofuels Cassman	Read Global warming and California articles	10
12	4/16 4/18 Review for Midterm 2 Midterm 2		
13	4/23 4/25 Nutrient Cycling & Decomposition Sustainable Farming Principles and Practices	Nitrogen Cycling article	11
14	4/30 5/2 Making the Transition to Sustainability Concerns for the Future	Applying Principles of Sustainable Farming article and Lester Brown-Chapter 12	12
15	5/7 5/9 Concerns for the Future cont. Review	Ch. 20; Berry 2003; Kirschenmann (2004); ROBERTSON et al., (2004)	
16	Final 8:00 to 9:50 : Friday, May 18		

LABORATORY EXERCISES**Laboratory Schedule:**

Week	Date	Topic	Date Due
1	1/23	LAB 1: Ecosystem Characteristics of Different Land Types. Stops at Humboldt Rd near Hwy 32 intersection and at upper Bidwell Park	2/6
2	1/30	LAB 1 cont: at University farm, Sacramento Nat Wildlife Refuge, and Llano Seco	
3	2/6	LAB 2: Description of Atmospheric and Soil Conditions in Natural and Agro-Ecosystems (meet at bus stop 1 st and Warner) Lower Bidwell Park	2/20
4	2/13	LAB 2 cont: (meet at bus stop 1 st and Warner) University farm	
5	2/20	LAB 6: Effects of Seeding Density and Resource Availability on Radish Yield (meet in front Plumas Hall (west side))	4/2
6	2/27	LAB 5: Effects of Vegetation and Land Use on Soil Properties (meet 1 st and Warner for week 6 & 7)	3/19
7	3/5	LAB 5 cont: Effects of Vegetation and Land Use on Soil Properties (meet 1 st and Warner for week 6 & 7)	
8	3/12	LAB 5 cont: Effects of Vegetation and Land Use on Soil Properties (meet in Soils Lab Plumas Hall 3 rd floor)	
	3/19	Spring Break	
9	3/26	LAB 6 cont: Effects of Seeding Density and Resource Availability on Radish Yield (meet in front Plumas Hall (west side))	
10	4/2	LAB 4: Urban and Agricultural Effects on Water Quality (meet at bus stop 1 st and Warner) Big Chico Creek at Five-mile Rec. Area	
11	4/9	LAB 4 cont: Urban and Agricultural Effects on Water Quality (meet at bus stop 1 st and Warner) Chico Mun'l Water Treatment Plant & University Farm	4/16
12	4/16	LAB 3: Effects of Urban Land Use on Stream Health (meet at bus stop 1 st and Warner) Big Chico Creek at Five-mile Rec. Area	
13	4/23	LAB 3 cont: Effects of Urban Land Use on Stream Health Big Chico Creek on campus below Warner St. bridge.	4/30
14	4/30	Work on Book Review	
15	5/7	Book Review Presentations in Plumas 301	

Note: The above sequence of labs is tentative depending on weather conditions. If we have to cancel a lab period for some reason we will only use two lab periods for Lab 5.

To the extent possible we will have a university bus for our field trips. You are neither required nor encouraged to drive your own vehicles and will not have university coverage in case of accidents.