

Ancient and Modern Agriculture Biology (or ES) 079



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Professor: Barry Logan

Druckenmiller 220A

725-3944

blogan@bowdoin.edu

Lecture:

Tuesday & Thursday from 10:00 to 11:25AM

Adams 114

Laboratory:

Wednesday from 1:00 to 3:55PM

Druckenmiller 222

Lecture syllabus

Date	Topic
Jan. 20	The Nature of Science and Agriculture
Jan. 22	Essentials of Plant Biology
Jan. 27	Essentials of Plant Biology (cont.)
Jan. 29	Artificial and Natural Selection
Feb. 3	Artificial and Natural Selection (cont.)
Feb. 5	The Molecular Basis for Inheritance
<i>Feb. 10</i>	The Molecular Basis for Inheritance (cont.)
Feb. 12	<i>Mid-term</i>
Feb. 17	The Origins of Agriculture: When, Where, Why Then and There?
Feb. 19	The Origins of Agriculture: When, Where, Why Then and There? (cont.)
Feb. 24	The Health of Early Farmers
Feb. 26	Case Study: Polynesia
March 3	Reading the Forested Landscape: Colonial Land Use and its Effects on Present-Day New England
March 5	The Irish Potato Famine
March 24	Farming Enters the 20 th Century
March 26	The Green Revolution
March 31	The Green Revolution (cont.)
April 2	Creating a Genetically Modified Crop Variety (GMO)
April 7	GMO's: Current Uses and Future Applications
April 9	GMO's: Health Considerations
April 14	GMO's: Ecological Considerations
April 16	GMO's: Oversight & Regulation
April 21	GMO's: General Discussion
April 23	Locavores and the Carbon Economy of Farming
April 28	What Lies Ahead: Farming and Global Climate Change
April 30	Farming Trees
May 5	Farming Trees
<i>May 13 (9AM)</i>	<i>Final Exam</i>

Laboratory syllabus

Date	Laboratory
Jan. 21	No Formal lab
Jan. 28	Group I: Plant Form and Function
Feb. 11	Group II: Plant Form and Function
Feb. 18	All: Preliminary Lab Discussion: Environmental Persistence of Glyphosate (Round-up™)
Feb. 25	Group I: Environmental Persistence of Glyphosate (Round-up™) – Initiate Treatments
March 4	Group II: Environmental Persistence of Glyphosate (Round-up™) – Initiate Treatments
March 25	Group I: Environmental Persistence of Glyphosate (Round-up™) – Bioassay
April 1	Group II: Environmental Persistence of Glyphosate (Round-up™) – Bioassay
April 8	Group I: Workshop - Data Analysis and Presentation
April 15	Group II: Workshop - Data Analysis and Presentation
April 22	No formal lab
April 29	Bowdoin Proceedings on Organic Agriculture
May 6	No formal lab

Laboratory Policy

Laboratory attendance is mandatory. You must discuss any pending conflicts with the instructor *in advance*. Under some circumstances I may allow you to switch between groups if that will eliminate a conflict, but this is not to be considered a generally-accepted practice. Some of the lab exercises require that you work in groups. However, each individual is expected to keep track of his/her group's data and to write up data independently.

Grading: Grades will be determined based upon a 1000 pt. system composed of the following:

	<u>Points</u>
Exams:	
Mid-term exam	150
Final exam	300
Bowdoin Organic Proceedings Paper	200
Bowdoin Proceedings Presentation	200
Summary & Plot(s) from Glyphosate Experiment	100
Take-Home Problems	50
	Total = 1000

Participation & Involvement

The "X" Factor

Exams Exams will focus upon material presented in lecture, however the mid-term may include material from lab. The final will be cumulative, and will include material presented in the *Bowdoin Proceedings on Organic Agriculture*. My exams often include questions that require you to 'go beyond' the material presented in class and/or to synthesize material from more than one lecture. On all questions, I am searching for *correct, complete, clear* and *concise* answers. Such answers earn full credit; make them your goal.

Bowdoin Proceedings on Organic Agriculture You will be asked compare organic and conventional agriculture with respect to a clearly defined question. Your question may involve ecological impacts, health concerns or any issue of interest to you. You will report your findings in a paper and a presentation in class. Your report should frame your question clearly, place it in the context of agricultural practices, examine the relevant scientific literature (summarizing experimental methods), and reach some conclusion(s).

Summary & Plot(s) from Glyphosate Experiment We will conduct an experiment (that you will design) that examines the effects of various environmental variables on the rate of degradation of glyphosate, the active ingredient in the herbicide Round-up™. You will prepare plots of your data and a short written summary of your experiment.

Take-Home Problems I will provide you (~ weekly) with questions/problems that help you explore your comfort with the course material and offer you the opportunity to get accustomed to my style. They will be graded; however, I employ these problems primarily as a means of providing you feedback, not as an evaluative tool. This is reflected in the relatively low priority they are assigned for the purposes of determining your final grade.

Participation & Involvement The success of this course, both collectively and for you as individuals, hinges on your active participation. The design of some labs is somewhat loose and open-ended, giving you the opportunity to explore the material in a manner that best suits you. Many lectures require your preparation and discussion. If you show up for lectures and labs mentally keen and full of zeal and curiosity, then we'll all enjoy the course fully and come away with a meaningful appreciation for the subject. When assigning grades to those students who find themselves "on the borderline," I will give great consideration to their level of participation and involvement.

I will not set numerical standards for grades until the end of the course. However, please feel free to make an appointment to discuss how you're doing, if you like.

The Academic Honor Code [excerpted from the Student Handbook]

The success of the Academic Honor Code requires the active commitment of the College community. Bowdoin College expects its students to be responsible for their behavior on and off the campus and to assure the same behavior of their guests. Uncompromised intellectual inquiry lies at the heart of a liberal education. Integrity is essential in creating an academic environment dedicated to the development of independent modes of learning, analysis, judgment, and expression. Academic dishonesty, in or out of the classroom, is antithetical to the College's institutional values and constitutes a violation of the Honor Code. The Academic Honor Code plays a central role in the intellectual life at Bowdoin College. Students and faculty are obligated to ensure its success.

III. Proscribed Conduct

The following sections describe activities constituting breaches of the Academic Honor Code.

1. "Academic Dishonesty" includes but is not limited to (1) *the receiving, giving, or using of any assistance on quizzes, tests, written assignments, examinations or laboratory assignments;* (2) *references to sources beyond those authorized by the instructor in preparing papers, constructing reports, solving problems, or carrying out other academic assignments;* (3) *inadequate citation of sources;* (4) *acquisition, without permission, of tests, computer files or similar material which would give the student an unfair advantage on an assignment or examination;* (5) *submission of academic work not a student's own original effort;* (6) *use of the same work for multiple courses without prior knowledge of the receiving instructors;* (7) *depriving learners of access, including computer access, to library information through intentional monopolization, mutilation, defacing, unauthorized removal of books or other materials from College libraries, or purposeful failure to return library materials on a timely basis;* (8) *unauthorized altering of academic records (transcripts, grading sheets, Course Registration Cards, etc.).*

2. A number of Bowdoin College courses employ various kinds of collaborative assignments in several different situations, including homework, laboratory reports, and in-class assignments. When preparing such course work, students should follow the individual instructor's policy on collaboration. When the instructor permits collaboration among students, the use of another student's work or ideas should be credited properly.

3. It is the obligation of students to be thoroughly familiar with proper citation of sources and to consult and refer to authoritative style guides for research papers. New students will receive a copy of Sources during Orientation. Students should keep this booklet for reference throughout their years at Bowdoin. The Bowdoin College Library Web site provides links to style guides at <http://www.bowdoin.edu/dept/library/eref/write.html>. Students are particularly encouraged to consult the MLA Style Guides, Sources, and Bibliographic Formats for Citing Electronic Information. Plagiarism is possible with any work performed in any medium and any scholarly discipline. Plagiarism involves the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment in all such scholarly work as essays, examinations, quizzes, oral/written reports, homework assignments, laboratory reports, computer programs, music scores, choreography, graphic depictions, and visual representations. Plagiarism also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.