

**CRSS 4340/6340 Weed Science**  
**CRSS 4340L/6340L Weed Science Lab**

**Fall 2009**  
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3 (lecture) + 1 (lab) credits

Lecture/Lab: Tuesday and Thursday  
Class Tuesday 8:00 - 9:15  
Lab 1 9:30 - 11:30  
Class Thursday 8:00 - 9:15  
Lab 2 Thursday 9:30 - 11:30  
Meeting Place: 201 NESPAL  
Professor: Timothy L. Grey  
157 Plant Science Building  
386-7239  
[tgrey@uga.edu](mailto:tgrey@uga.edu)

Office hours: Tue 11:30-12:00 p.m. in 157 Plant Science Building or by appt.

**Course Description:**

CRSS 4340/6340 will be taught by Dr. Grey. The course covers classification, characteristics, reproduction, identification, ecology and management of weeds. We will study mechanical, cultural, biological, and chemical methods of control and the integration of these methods in integrated weed management systems.

Course Goals

This course is designed so the diligent student will know the general principles of Weed Science, and be able to apply them in experimental and practical situations. The specific objectives are for students to be familiar with:

1. fundamental aspects of weed biology and ecology relevant to managed landscapes;
2. the four control methods used in managing weed populations;
3. how control measures can be integrated to accomplish acceptable levels of pest suppression;
4. how herbicides enter and move to their site of action in plants and
5. classifying herbicides by their site of action.

## Course Outline

- I. Introduction
  - A. What is a weed? **Chapter 1 Lembi and Ross**
  - B. What makes for a good weed? **Chapter 2 Lembi and Ross**
  - C. Invasive Weeds **Chapter 3 Lembi and Ross**
  
- II. Weed Biology
  - A. Where do weeds come from? **Chapter 4 Lembi and Ross**
  - B. How long do weed seeds last in the soil?
  - C. What is a weed seedbank?
  - D. Seed dormancy (Please read article by Benech-Arnold et al. 2000. Environmental control of dormancy in weed seedbanks in soil. **Field Crops Research 67: 105-122.**)
  
- III. Weed-Crop Competition (Please read article by Rajcan and Swanton. 2001. Understanding maize-weed competition: resource competition, light quality, and the whole plant. **Field Crops Research 71: 139-150.**)
  - A. How do weeds compete with crops?
  - B. What do weeds and crops compete for?
  - C. How long does it take for weeds to reduce crop yields?
  - D. How many weeds does it take to reduce crop yields?
  - E. Can plants use chemical warfare? (Please read article by Belz. 2007. Allelopathy in crop/weed interaction – an update. **Pest Management Science 63:308-326.**)
  
- IV. Weed Control Methods **Chapter 7 Lembi and Ross**
  - A. Prevention
  - B. How many ways can you kill a weed?
  - C. How can fire, floods and steel kill weeds?
  - D. Can we use biological warfare to kill weeds?
  - E. Differences in IPM and Organic Weed Control – Natural enemies
  - F. Chemical control practices

**Exam I (100 Points)**

- V. Introduction to Herbicides           **Chapter 8 Lembi and Ross**
  - A. History
  - B. Characteristics of Herbicides
  - C. Concerns Regarding Herbicide Use
- VI. Plant - Herbicide Interactions   **Chapter 9 Lembi and Ross**
  - A. Herbicide uptake
  - B. Herbicide movement
  - C. Herbicide mode of action
  - D. Herbicide fate
  - E. Plant related selectivity
- VII. Soil-Herbicide interactions       **Chapter 10 Lembi and Ross**
  - A. Fate of herbicides in soil
  - B. Soil, herbicides, and weed control

**Exam II (100 points)**

- VIII. Herbicide Families
  - A. Herbicide Groups with Significant Foliar Use: Translocated to New Growth  
**Chapter 12 Lembi and Ross**
  - B. Herbicide Groups with Significant Foliar Use: Translocated to Old Growth  
**Chapter 13 Lembi and Ross**
  - C. Herbicide Groups with Significant Foliar Use: Non-Translocated  
**Chapter 14 Lembi and Ross**
  - D. Herbicide Groups Applied Almost Exclusively to Soil  
**Chapter 15 Lembi and Ross**

**Exam III (100 points)**

- IX. Herbicide Resistant Crops and Weeds           **Chapter 11 Lembi and Ross**

**READING DAY: WEDNESDAY, DECEMBER 9, 2009**

**FINAL EXAM: FRIDAY, DECEMBER 11, 8:00-11:00 am**

**Comprehensive final exam**

## Writing Assignment

The writing assignment is worth 80 points of the total final grade. The writing assignment will consist of a 5-7 page paper providing a comprehensive overview of an aspect of:

- A. weed biology such as weed competition in crops; invasive species; weed physiology such as dormancy, etc.
- B. integrated weed management in agronomic or non-agronomic situations
- C. herbicide physiology issues such as resistance, effect of abiotic stresses on herbicides, etc.
- D. herbicide fate in the environment

These assignments need to follow the formatting style of the journal *Weed Science* (instructions can be found at [www.wssa.net](http://www.wssa.net)). Primary literature should be used; that is do not use the web or trade publications as sources.

All sources must be listed per academic honesty regulations.

First draft will be due by 22 October 2009 and will count for 40 points. The final draft will be due 19 November and will count for 40 points.

## Specific course requirements for grading purposes:

Assignments are due on the dates announced in class. Ten percent of the grade for that assignment will be deducted for each day after the due date for in-class assignments.

### Grading Policy:

#### *Lecture*

In-class assignments & quizzes 200 pts

8 quizzes (15 pts each)

Writing assignment (80 pts)

Three hour exams 300 pts

Final exam 150 pts

### TOTAL 650 pts

Grades:

A	605-650 pts (93-100%)
A-	585-604 (90-92%)
B+	566-584 (87-89%)
B	540 – 565 (83-86%)
B-	520-539 (80-82%)
C+	501 – 519 (77-79%)
C	475 – 474 (73-76%)
C-	455-474 (70-72%)
D	390-454 (60-69%)
F	<390 (<60%)

Under the new plus/minus grading, here is the GPA with the grade distribution:

A	4.0	C+	2.3
A-	3.7	C	2.0
B+	3.3	C-	1.7
B	3.0	D	1.0
B-	2.7	F	0.0

### Attendance

Previous experience will tell you that you cannot do well in this class by getting notes from friends or the ELC page. There is a strong positive correlation between class attendance (and being on time to class) and grade. Attendance is expected. As per Board of Regents policy, I reserve the right to drop students from the class roll who miss more than 5 class periods. Such students will be given a WF grade.

A student who incurs an excessive number of absences may be withdrawn from a class at the discretion of the professor. (<http://bulletin.uga.edu/bulletin/ind/attendance.html>).

## **Required course material, including texts:**

There are two required books for this course, one for lecture and one for those taking the lab. The book required for lecture is:

“**Applied Weed Science**” by Ross and Lembi

This is a useful reference book to provide background on some areas of lecture.

The other book for lab is:

“**Weeds of the South**” by Bryson and DeFellice.

For the weed biology part of the course, there will be specific readings that will be available on the ELC site for the course.

## **Policy for make-up of examinations:**

There will be no make ups for the weekly quiz. Without an official excuse or overwhelming extenuating circumstances, you will get a zero for missed quizzes. Students can only make up a missed exam with a note from a doctor or extreme circumstance. Any unexcused exam will be recorded as a zero. Any exams used for missed exams will be different than the other students have taken.

**Academic Honesty:** The policy regarding Academic Honesty in First-year Composition can be found in *First-year Composition at UGA*. Further information about the “UGA Academic Honesty Policy” can be found at the web site of the Office of the Vice President for Instruction: <http://www.uga.edu/ovpi/>

**Access Policy:** Students with special needs are invited and encouraged to discuss them with the instructor.

## **Class and Laboratory periods:**

1. All cell phones **off** in the classroom, no text messaging or any electronic devices (blackberry, I-phones, etc)
  - a. If cell phones or other devices go off during class (vibrating, beeping, anything),
    - i. First offense by any student means that the entire class takes an automatic quiz on the current subject in class.
    - ii. Student First offense, 1 point deduction from your final grade
    - iii. Second offense means 10 points removed from your final grade
    - iv. This goes for both class and lab, i.e. field days, etc.
2. Computers **off** and closed during class, unless taking notes, and then there better be the sound of key strokes occurring.
3. No wearing of hats on in the classroom.
4. Use of tobacco products is prohibited during class – classroom policy
5. Test policy – bring a calculator to class - no cell phone or other digital devices

The syllabus represents a general plan for this class; deviations may be necessary.