

# BSPM 308 Ecology and Management of Weeds – 2009 Syllabus

**Instructor:** Cynthia Brown, Ph.D.

**Email:** cynthia.s.brown@colostate.edu

**Office:** Weed Laboratory 111      **Phone:** (970) 491-1949

**Office hours:** Tuesday 10:00 – 11:00 a.m. and by appointment

**Teaching Assistant:** Marques Munis      **Email:** mdmunis@rams.colostate.edu

**Office:** E003 Plant Sciences

**Phone:** (970) 491-4671

**Office hours:** By appointment

**Lecture:** T and Th 9:00 – 9:50 a.m., 118 Shepardson

**Lab:** M, T, W, or Th 2:00 PM – 4:50 PM, E009 Plant Sciences

## Course Objectives

1. To become familiar with important weed and invasive plant species
2. To be able to identify 22 plant families
3. To understand methods of weed control and research.
4. To apply selected methods to address a scientific question or create a weed management plan in an tam project.
5. To understand some aspects of weed physiology and ecology and methods of cultural control.
6. To understand and to be able to apply the general principles of chemical weed control and to be familiar with some of the classes of chemicals involved.

## Required texts and supplies:

Ecology of Weeds and Invasive Plants: Relationship to Agriculture and Natural Resource Management, 3<sup>rd</sup> Edition, S.R. Radosevich, J.S. Holt and C.M. Ghera, 2007, John Wiley & Sons, Inc.

Laboratory manual (available at CSU Bookstore as course packet)

iClicker (available at CSU Bookstore. You can use the same one for all of your classes at CSU)

## Recommended text:

Weeds of the West, T. Whitson ed., University of Wyoming, 2001.

## Assignment Outline

Class	Activity	Date	Points
Lecture	3 midterm exams	Th 9/24, 10/22, 11/19 (drop lowest)	150
Lecture	Final exam (cumulative)	W 12/16 (9:10 am – 11:10 pm)	100
Lecture	Participation/understanding	Periodically w/ iClicker	50
Lab	3 plant ID quizzes	Week of 10/5, 11/2, 11/30 in lab	60
Lab	2 lab content quizzes	Week of 10/12 and 11/9 in lab	30
Lab	Calibration problems	Due week of 10/26 in lab	20
Lab	Project protocol	Due week of 9/14 in lab	10
Lab	Project execution		30
Lab	Teamwork		50
Lab	Preliminary project report	Due Th 11/12 in lecture	20
Lab	Project presentation	Presentations week of 12/7 in lab	30
Lab	Final project report	Due Th 12/10 in lecture	30
Lab	Participation		<u>70</u>
<b>Total points</b>			<b>650</b>

## Lecture

1. There will be three (3) **midterm exams (not cumulative)**, each worth 75 points, and a **cumulative final exam**, worth 100 points. The midterms will be given during class (50 minutes) and the final exam will be given during the scheduled 2 hour final examination period. The **midterm** and **final exams** will be a combination of short answer, multiple choice, true/false and essay questions. The material covered by exams will include what has been presented in lecture and assigned as reading.
2. Participation/understanding – iClicker will be used to evaluate understanding and reward participation periodically during the semester in lecture.

## Laboratory

1. Three (3) weed identification quizzes worth 20 points each will be given during lab. Each will include the identification of 10 of the 20 weeds introduced during that section of the course (family, common name, genus and species) (i.e. not cumulative). You will be expected to know the identifying characteristics of each of the plant families covered during that section of the course.
2. Two (2) content quizzes worth 15 points each with short answer and multiple choice questions as well as problems to solve on topics presented in that section of the course.
3. One calibration problem set worth 20 points will be assigned. You may work with others to solve the problems, but must turn in your own work. This material will be on a lab quiz, so you must be capable of doing these problems on your own without assistance.
4. Group Project (120 points total) – Students will conduct an experiment or develop a weed management plan during the semester. Students will share their findings through a written report and an oral presentation.
5. Participation (70 points total) – Approximately 5 points will be awarded for work associated with each lab.

**Grading** – Letter grades are assigned on the basis of percentage of points earned. Grades are not determined using a curve, but a straight scale. The percentage cutoff for each grade may change in a given year, but is approximately as follows: A+ 97-100%, A 93-96.9%, A- 89-92.9%, B+ 87-88.9%, B 83-86.9%, B- 79-82.9%, C+ 77-78.9%, C 73-76.9%, C- 69-72.9%, D+ 67-68.9%, D 63-67.9%, D- 59-62.9%, F <59%.

**Late Work Grading Policy** - 10% will be subtracted from the total score for each day that an assignment is turned in late and no credit will be given for work turned in more than seven days late.

**Grading Issues** – Questions regarding grading for individual assignments should be raised with the instructor or teaching assistant within two weeks after graded assignments are returned to students.

**You are expected to attend all meetings of the lectures.**

**You must attend the laboratory section for which you are registered.**

## Lecture Outline

### General Topic

### Approximate

### Lecture Dates

Course introduction

Aug 25

Weed definitions, impacts & classification

Aug 27, Sep 1

Project research - library

Sep 3

Weed biology

Sep 8, 10, 15, 17, 22

### Midterm Exam #1

Sep 24

Weed ecology & evolution

Sep 29, Oct 1, 6, 8

Herbicide interactions with soil & plants

Oct 13, 15

### Midterm Exam #2

Oct 22

Herbicide resistance & modes of action

Oct 20, 27, 29

Non-chemical weed control

Nov 3, 5, 10, 12, 17

& management

### Midterm Exam #3

Nov 19

Fall Recess-no class

Nov 24, 26

Weed management in turf & landscapes

Dec 1, 3

Successional weed management

Dec 8

Course wrap-up/Final exam review

Dec 10

### Final Exam

W Dec 16

9:10 – 11:10 am

## Laboratory Outline

- Week 1** (8/24-28) Introductions, weed identification activity, individual student projects, take student photos  
Lab manual: Chapter 1 & 2
- Week 2** (8/31-9/4) **Labor Day** - Weed identification activity; Integrated Weed Management Plans; visit herbarium  
Lab manual: Chapter 3 and *Creating an Integrated Weed Management Plan* Ch III, IV, V and VI
- Week 3** (9/7-9/11) **No lab.** Students meet individually with instructors to discuss projects.  
**Draft student project protocol and library research worksheet due.**
- Week 4** (9/14-9/18) Weed identification activity; Weed research & vegetation sampling (*field trip*)  
Lab manual: Chapter 4  
**Individual student project protocols due in lab**
- \***Week 5** (9/21-9/25) Weed identification activity; Set-up individual student projects  
Lab manual: none
- Week 6** (9/28-10/2) Weed control in organic food production (*field trip*)
- Week 7** (10/5-10/9) Weed identification activity; Herbicide labels, formulations and compatibility  
Lab manual: Chapter 5 & 6 **Plant ID Quiz #1**
- Week 8** (10/12-10/16) Weed identification activity; Application equipment, introduction to sprayer calibration and problems  
Lab manual: Chapter 7 **Content Quiz #1**
- \***Week 9** (10/19-10/23) Weed identification activity; Sprayer calibration and problems (*on campus*)  
Lab manual: Chapter 8  
**Calibration problem set due in lab**
- Week 10** (10/26-10/30) Weed identification activity; Soil aspects of herbicides; Pesticide Safety & Equipment  
Lab manual: Chapter 9  
**Calibration problem set due in lab**
- Week 11** (11/2-11/6) Weed identification activity; Herbicide modes of action and injury symptoms CD (*computer room*)  
Lab manual: Chapters 10 & 11 **Plant ID Quiz #2**
- Week 12** (11/9-11/13) Weed identification activity; Herbicide injury symptoms (*greenhouse*)  
Lab manual: Chapter 10 **Content Quiz #2**  
**Preliminary project report due in lecture**
- \***Week 13** (11/16-11/20) Weed identification activity; Project data collection and clean-up
- Week 14** (11/23-11/27) **Fall Recess – No lab**
- Week 15** (12/30-12/4) Project data analysis and graphing (*computer room*)  
Lab manual: Chapter 12 **Plant ID Quiz #3**
- Week 16** (12/7-12/11) Individual student project presentations  
**Final project report due in lecture**

\***Lecture midterm this week.**