BI308 Biology and Control of Weeds – 2004 Syllabus

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Lecture: T and Th 9:00 – 9:50 a.m., 118 Shepardson
Lab: M, T, W, or Th 2:10 PM – 5:00 PM, E009 Plant Sciences

Course Objectives

1. To become familiar with important weed and invasive plant species
2. To be able to identify 21 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 individual student 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 text:
Applied Weed Science, Merrill Ross & Carole Lembi, Prentice Hall, 1999.
Laboratory manual (available in CSU Bookstore as course packet)
Recommended text:
Weeds of the West, T. Whitson ed., University of Wyoming, 2001.

Assignment Outline

Class	Activity	Date	Points
Lecture	3 midterm exams	Th 9/23, 10/21, 11/18 (drop lowest)	150
Lecture	Final exam (cumulative)	M 12/13 (3:40-5:40 pm)	100
Lecture	Quizzes	Unannounced	50
Lab	3 quizzes	Week of 9/27, 11/1, 11/29 in lab	90
Lab	Calibration problems	Due week of 10/18 in lab	20
Lab	Project protocol		10
Lab	Project execution		30
Lab	Preliminary project report	Due Th 11/16 in lecture	20
Lab	Project presentation	Presentations week of 12/6 in lab	30
Lab	Final project report	Due Th 12/9 in lecture	30
Lab	Participation		70
		Total points	600

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 (see below**)**. The **midterm exams** will be a combination of short answer, multiple choice, true/false and essay questions. One (1) essay question worth 30 points will be included on each midterm exam. It will be selected from a list of possible essay questions that will be handed out before the exam. You should prepare answers to all of these potential questions before the exam. Your answers will be graded not only on content, but organization, mechanics (spelling and grammar) and development of arguments to support your answers. Only your two highest midterm scores will count toward your final grade. The **final** exam will be cumulative and will be comprised of short answer, multiple choice and true/false questions (i.e. no essay question). The material covered by exams will include what has been presented in lecture and assigned as reading.

(2) Quizzes – Unannounced quizzes will be given periodically. If you come to class, you will be able to earn full credit on these tests.

Laboratory

(1) Three (3) quizzes worth 30 points each will be given during lab. Each will include the identification of 10 of the 20 weeds introduced during that section of 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. There will also be short answer and multiple choice questions as well as problems to solve on topics presented in that section of the course.

(2) 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.

(3) Individual Project (120 points total) – Each student 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.

(4) Participation (70) – Approximately 5 points will be awarded for work turned in at the end of each lab.

Lecture Outline **General Topic**	**Approximate** **Lecture Dates**	**Reading in** **Ross & Lembi**
Introduction	Aug 24	
Weed definition & classification	Aug 26, 31 Sep 2	Ch.1
Weed biology	Sep 7, 9, 14, 16	Ch 2 & 3
Midterm Exam #1	Sep 23	
Weed ecology	Sep 21, 28, 30, Oct 5, 7	
Herbicide interactions with soil & plants	Oct 12, 14	Ch 7, 6, respectively
Midterm Exam #2	Oct 21	
Herbicide resistance & modes of action	Oct 19, 26, 28, Nov 2,	Ch 5, 8, 9, 10, 11, 12
International weed control	Nov 4	
Non-chemical weed control & management	Nov 9, 11, 16	Ch 4
Midterm Exam #3	Nov 18	
Thanksgiving break-no class	Nov 23, 25	
Successional weed management	Nov 30	Handout, Ch 13
Weed management in turf & horticulture	Dec 2, 7	Ch 14, 20
Final Exam	**M Dec 13**	**3:40-5:40 pm**

Laboratory Outline

Week 1 (8/23-8/27) Introductions, weed identification activity, individual student projects, visit herbarium, take student photos
Lab manual: Chapter 1 & 2
Week 2 (8/30-9/3) Weed identification activity; Weed research & vegetation sampling ***(field trip)***
Lab manual: Chapter 3
Week 3 (9/6-10) **Labor Day – No lab.** Students meet individually with instructors to discuss projects
Week 4 (9/13-17) Weed identification activity; Integrated Weed Management Plans
Lab manual: Chapter 4
Individual student project protocols due in lab
***Week 5** (9/20-24) Weed identification activity; Set-up individual student projects
Lab manual: none
Week 6 (9/27-10/1) Weed identification activity; Herbicide labels, formulations and compatibility
Lab manual: Chapter 5 & 6
Quiz #1
Week 7 (10/4-10/8) Weed identification activity; Application equipment, introduction to sprayer calibration and problems
Lab manual: Chapter 7
Week 8 (10/11-15) Weed identification activity; Sprayer calibration and problems ***(field trip)***
Lab manual: Chapter 8
***Week 9** (10/18-22) Weed identification activity; Soil aspects of herbicides
Lab manual: Chapter 9
Calibration problem set due in lab
Week 10 (10/25-29) Herbicide modes of action and injury symptoms CD ***(computer room)***
Lab manual: Chapters 10 & 11
Week 11 (11/1-5) Herbicide injury symptoms ***(greenhouse)***
Lab manual: Chapter 10
Quiz #2
Week 12 (11/8-12) Pesticide Safety & Equipment *Sandra McDonald*
Lab manual: none
***Week 13** (11/15-19) Project data collection and clean-up
Preliminary project report due in lecture
Weed 14 (11/22-26) ***Fall Recess – No lab***
Week 15 (11/29-12/3)Project data analysis and graphing ***(computer room)***
Lab manual: Chapter 12
Quiz #3
Week 16 (12/6-10) Individual student project presentations
Final project report due in lecture
*Lecture midterm this week.