

Ecology and Management of Weeds

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Course Information:

CropS 305
Fall 2006
8:10 – 9:00 Tue Thu
Johnson Hall 204
Lab: Plant Biosciences 35
(PBS1 45)

Course Description

Ecology and Management of Weeds should provide an insight into the discipline of Weed Science. Humans have managed weeds since the first plants were cultivated thousands of years ago. In its present state - Weed Science as it evolved since World War II - the discipline has made major contributions to the production of food and fiber for humankind. Weed Science is multi-disciplinary and includes many other fields of study including plant systematics, plant ecology, plant anatomy, plant physiology, engineering, genetics, biotechnology, botany, biochemistry, toxicology, molecular biology, plant breeding, soil chemistry, soil fertility, soil physics, chemistry, entomology and plant pathology.

Course Goals

- I. To develop an appreciation for the components and importance of an integrated weed management system to manage unwanted vegetation while minimizing environmental impacts.
- II. To become familiar with and develop an understanding of the concepts, techniques and nomenclature of Weed Science.
- III. To allow you to integrate Weed Science with your individual specialty.
- IV. To recognize Weed Science as a profession/career and area of study.

To address these goals, we will spend time covering:

- a) Weed Biology and Ecology.
- b) Weed Management Systems (including biological, cultural, and chemical components).
- c) Herbicide Families.
- d) Specific Weed Management Systems (Based on Student Interest).

- e) Development of a Weed Management System.
- f) Weed Identification through an understanding of basic plant morphological characters (approximately 60 seedlings and mature plants by common and scientific names).

Prerequisites

Biol 106, 120, (currently requires CropS 101, 201, or Hort 101 or 201 now both courses are listed as 102, 202)

Required Texts

No required text – assigned readings will be provided or assigned.

Policies

1. GRADING SCALE

Grading will be consistent with University policy and the +/- system will be used.

A =	93% and above	B- =	80-82%	D+ =	67-69%
A- =	90-92%	C+ =	77-79%	D =	60-66%
B+ =	87-89%	C =	73-76%	F =	below 60%
B =	83-86%	C- =	70-72%		

2. TESTS ARE COMPREHENSIVE

All lecture and where indicated lab tests and quizzes are comprehensive. Lecture tests are listed on the syllabus. Quizzes may or may not be announced.

3. GRADE COMPONENTS

Grades will be determined from performance on the following components:

4 hour exams@ 100 points each	=	400 points
1 final exam@ 100 points	=	100 points
3 laboratory tests @ 50 points each	=	150 points
Quizzes and Class Assignments (lecture and/or lab)	=	Approx. 400 points
Term Paper	=	50 points
Weed Collection	=	<u>100 points</u>
	Approximately	1,200 points total

For those who opt for a pass/fail grade, each assignment in the course must be completed for a student to receive a passing grade.

Students can drop the lowest hour exam or final grade score. I would encourage each of you to do well on the tests and quizzes – if you are happy with your grade without a final, I will not require you to take it.

4. QUIZES

Short quizzes (usually about 5 to 15 minutes long) may be given on any day and usually will not be given on the week of an hour exam, except if there are too many absent students. One quiz score will be dropped.

5. TERM PAPER:

Details concerning the term paper will be given by the 2nd week of classes.

6. ACADEMIC INTEGRITY:

Students are expected to comply with University policies concerning academic honesty. A grade of 0% will be assigned to any examination, quiz, or assignment for which there is evidence of cheating or plagiarism.

7. ATTENDANCE POLICY:

Regular attendance at all lecture, laboratory sessions, and examinations is expected of all students. Students should inform the instructor if they anticipate being absent for a valid reason.

8. EXCUSED ABSENCES:

Excuses for emergency absences (due to illness, injury, or death in the family, etc) should be reported to the instructor as soon as possible, but not more than one week after return to class. Exams may be taken early if the student presents a valid reason for absence. Make-up exams will only be allowed if there is a legitimate (i.e. university-sanctioned) excuse.

9. LABORATORY SAFETY:

Students will be instructed in safe laboratory practices before they will be allowed to participate in laboratories. Students should use these practices at all times while in the laboratory, and behave appropriately in order to ensure the safety of themselves and others. If for any reason the student does not feel competent in conducting an individual lab procedure in a safe manner, they should inform the instructor so an alternate activity can be assigned.

10. FIELD TRIPS:

There are no group field trips or field trip costs associated with this course. However, if there is interest in visiting successful examples of weed control systems in different commodities, I will make preparations for a non-compulsory trip.

11. DISABILITY STATEMENT:

Students with Disabilities: I am committed to providing assistance to help you be successful in this course. Reasonable accommodations are available for students with a documented disability. Please go to the Disability Resource Center (DRC) during the first two weeks of every semester to seek information or to qualify for accommodations. All accommodations MUST be approved through the DRC, located in the Administration Annex Bldg, Room 205. To make an appointment with a disability counselor, please call 335-3417.

Schedule (Note schedule is tentative)

Course Outline

- Week 1: Aug 22 and 24
 - Tu: Introduction, review syllabus, define 'weed'.
 - Th: Importance of weeds, biological characteristics.
- Week 2: Aug 29 and 31
 - Tu: Weed life cycles and dispersal Mechanisms.
 - Th: Weed Interference and Competition.
- Week 3: Sept 5 and 7
 - Tu: Photosynthesis and Plant (ie weed) Biochemistry.
 - Th: First Hour Exam
- Week 4: Sept 12 and 14
 - Tu: Methods of Weed Management, Review Exam.
 - Th: Methods of Weed Management.
- Week 5: Sept 19 and 21
 - Tu: Biological and Cultural weed control.
 - Th: Chemical Weed Control.
- Week 6: Sept 26 and 28
 - Tu: Developing Weed Management Systems.
 - Th: Hazards and toxicities, herbicide registrations, EPA, categories of registration, organic certification requirements.
- Week 7: Sept 26 and 28
 - Tu: Environmental fate of herbicides on plants and in soil, reducing environmental impact.
 - Th: Herbicide selectivity, mode- and sites-of-action and resistance management
- Week 8: Oct 3 and 5
 - Tu: Methods of herbicide application including herbicide formulations, adjuvants, and drift management
 - Th: Second Hour Exam
- Week 9: Oct 10 and 12
 - Tu: Review hour exam
 - Th: Dinitroanilines, Chloroacetamides and Acid Amide herbicides

