

BSPM 308 Ecology and Management of Weeds

3 credits; two 1-hour lectures weekly; one 3-hr lab weekly

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Course Objectives: students will be able to:

- Understand and explain how weed biology and the environment interact to influence weed ecology ;
- Show how biological and ecological factors influence and are used to create management systems;
- Describe physical, cultural, chemical, and biological control methods and understand how these are woven into management systems;
- Develop ecologically-based weed management systems for rangeland, natural areas, cropping systems, horticultural and landscape settings, and non-crop areas.

Cheating and plagiarism: We will follow CSU's policies on cheating and plagiarism.

Lectures: Tuesday and Thursday 9:00-9:50 a.m., Shepardson 118

Laboratory: Section 1; Tuesday 2:00-5:00 p.m., E009 Plant Sciences
Section 2; Wednesday 2:00-5:00 p.m. E009 Plant Sciences
Section 3; Friday 2:00-5:00 p.m. E009 Plant Sciences

Text: Required: Nissen, S.J. 2016. Native & Non-Native Seedlings of the West.
Recommended: Zimdahl, R.L. 2013. Fundamentals of Weed Science. Fourth edition.

Grading:

2 one-hour exams @ 200 point each	400 points
1 final exam	250
5 lab quizzes @ 10 point each	50
Weed identification exam	70
5 lab reports @ 30 point each	150
Weed management project	<u>80</u>
TOTAL POINTS POSSIBLE	1000 points

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The plus/minus grading system will be used as follows:

Grade	Course Credit	Numerical Equivalent	Indicates
A +	4.0	97-100	
A	4.0	93-96.9	<i>Excellent</i>
A-	3.7	90-92.9	
B+	3.3	87-89.9	
B	3.0	83-86.9	<i>Above Average</i>
B-	2.7	80-82.9	
C+	2.3	77-79.9	
C	2.0	70-76.9	<i>Average</i>
D	1.0	60-69.9	<i>Below Average</i>
F	0	0-59.9	<i>Failure</i>

- A. The two one-hour exams are not comprehensive but the final exam is comprehensive.
- B. There are 8 labs with 5 lab reports and 1 assigned group lab project. Except for the weed identification and sprayer calibration labs, students will conduct group experiments as a means to learn and understand basic weed science principles.
- C. A weed identification quiz is part of the lab and students will learn to recognize the identifying characteristics associated with 50 weeds.
- D. There will be 5 lab quizzes on information that *will be* covered in labs and questions concerning results from completed lab exercises.
- E. Students will have the opportunity to score extra credit points on each 1-hour exam and the final; Weed Jeopardy will be played during the last week of class as an aid for final exam preparation and students can earn extra credit points during this exercise.

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Lecture Topic	Week of Semester
Introduction BSPM308 objectives What is weed science? What is weed management?	1
Worker Protection Safety Training	1
What is a weed? Definitions Crops and manipulated environments Wildland & non-crop areas Aquatic Positive & negative aspects of weeds Characteristics of weeds	2
Weed classification Phylogenetic relationships Type of plant Habitat Life history- aquatic and terrestrial Physiological Undesirability	2
Weed biology Sexual reproduction Asexual reproduction Dispersal in time and space Weed spread Weed seed dormancy Recruitment Germination Establishment	3-4
Weed ecology Definitions Succession Patterns or evolutionary development	4-6

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<u>Lecture Topic</u>	<u>Week of Semester</u>
<ul style="list-style-type: none"> Weeds as Strategists Competitive ruderals Stress-tolerant competitors Influence of humans on weed evolution Crop mimics Invasive and noxious weeds Interference <ul style="list-style-type: none"> Positive types of interference Negative types of interference 	
Exam I (September 28th)	6
<ul style="list-style-type: none"> Terrestrial and aquatic weed management Prevention, eradication, and control Methods of weed control <ul style="list-style-type: none"> History Physical Cultural Biological Chemical (synthetic & organic herbicides) Advantages Disadvantages 	7-11
EXAM II (November 7th)	12
<ul style="list-style-type: none"> Herbicide Classification Herbicide modes of action 	12-13
Thanksgiving break	
<ul style="list-style-type: none"> Herbicide resistance Environmental fate 	14
Invasive weeds and noxious weed public policy	15
Weed Jeopardy (prepare for final exam)	15
Final exam (Dec. 11 th 9:40-11:40am)	16

BSPM 308 LABORATORY SCHEDULE 2017

Lab¹	Week of Semester	Number of weeks for lab
1. Introduction and Weed ID	1	4
2. Sprayer Calibration and Weed ID	2	1
3. Aquatic Weeds and Weed ID	3	1
4. Turf Establishment Weed Control and Weed ID	4	6
5. Weed ID Exam & experiment maintenance	5	4
6. Herbicide Volatility	6	5
7. Herbicide MOA and selectivity	7	5
8. Weed Management Project	10	8

¹Three-hour lab meets once weekly; 3 sections; finished by Thanksgiving week