



South Central College

PLSC 1400 Agronomy II

Course Outcome Summary

Course Information

Description	This course considers the characteristics and identification of noxious and common weeds and weed seeds, methods of control, evaluation of herbicide performance and tolerance to herbicides. Topics on herbicide characteristics, formulations and application methods will be taken into account in determining the most economic method of weed control. (Prerequisite: PLSC1300)
Total Credits	3
Total Hours	64

Types of Instruction

Instruction Type	Credits/Hours
Lecture	2/32
Lab	1/32

Pre/Corequisites

PLSC 1300

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Summarize plant classification, reproduction and life cycles.

Learning Objectives

- Describe the annual, bi-annual and perennial life cycles in plants.
- Distinguish the differences between a monocotyledon and dicotyledon.
- Explain the uses and purposes of modified stems (rhizomes, stolons, bulbs, tubers and corms).
- Identify the parts of various types of flowers: perfect, imperfect, complete and incomplete.
- List Minnesota's restricted and prohibited weeds.

2. Distinguish plant parts to assist in plant identification.

Learning Objectives

- Identify the different types of plant leaf arrangements.

Identify the various types of leaf margins (entire, undulate, serrate, dentate, dissected).
Describe the various leaf shapes (oblong, cordate, ovate, linear, spatulate, lanceolate).

3. Identify the major weed species at various growth stages that affect agricultural production in Minnesota.

Learning Objectives

Define a weed.

Identify the parts of a monocotyledon which are used to distinguish grass species from another (collar, blade, node, internode, crown, inflorescence, ligule, auricle, sheath).

Use the following plant characteristics to differentiate weeds: cotyledons, stem shape, root system, vein pattern of leaves, and seeds.

Use an identification flow chart to identify weeds.

4. Describe the various methods of weed control.

Learning Objectives

Identify the methods by which weeds move and spread.

Describe cultural methods of weed control.

Describe the various methods of mechanical methods of weed control.

Explain how biological control of weeds is achieved.

5. Classify agricultural chemicals according to the time of application, mode of action, restricted and non-restricted.

Learning Objectives

Explain the types of application in relation to time of application: pre-plant incorporated, pre-emergence, post-emergence.

Define selective and non-selective herbicides.

Explain the different modes of action by which herbicides control weeds.

6. Calculate the rates and cost for different herbicide programs.

Learning Objectives

Read and follow pesticide label instructions.

Explain how the following pesticide characteristics affect pesticide selection: mode of action, persistence, selectivity, environmental hazard, chemical properties and physical properties.

Explain how the following factors affect pesticide selection: economics, field history, application method, weather conditions and label restrictions.

Select herbicides which would perform when given crop production information.

7. Explain the physiological mechanisms of herbicide resistance.

Learning Objectives

Describe the scope of the herbicide resistance problem.

State the theories for the development of herbicide resistance weeds.

List the steps producers can take to reduce and slow the development of herbicide resistant weeds.

Distinguish conventional resistance from transgenic resistance.

Explain the importance of rotating among pesticide modes of action.

8. Investigate herbicide non-performance scenarios and practice troubleshooting field complaint situations.

Learning Objectives

Describe herbicide injury symptoms on corn, soybeans, oats, wheat and alfalfa.

Identify injury symptoms caused by the following herbicide mode-of-action: growth regulators, pigment inhibitors, cell membrane disruptors, lipid syntheses inhibitors and seeding growth inhibitors.

Design a protocol to use when investigating herbicide application problems.

9. Demonstrate professional behavior.

Learning Objectives

Accept responsibility for preparing and attending class.

Display professional demeanor.

Participate in class discussions.

Complete an evaluation of a Career Planning Application at PAS State Conference.

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

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