



ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Natural Sciences and Business

COURSE: AGR 1218 Crop Pest Management

Date: Spring 2023

Credit Hours: 3

Complete all that apply or mark "None" where appropriate:

Prerequisite(s): None

Enrollment by assessment or other measure? Yes No
If yes, please describe:

Corequisite(s): None

Pre- or Corequisite(s): None

Consent of Instructor: Yes No

Delivery Method: **Lecture** **3 Contact Hours** (1 contact = 1 credit hour)
 Seminar **0 Contact Hours** (1 contact = 1 credit hour)
 Lab **0 Contact Hours** (2-3 contact = 1 credit hour)
 Clinical **0 Contact Hours** (3 contact = 1 credit hour)

Offered: **Fall** **Spring** **Summer**

CATALOG DESCRIPTION and IAI NUMBER (if applicable):

The study of the principles of weed, insect, and disease identification and management techniques used in agriculture and closely related fields. The emphasis of the course will be identification, prevention, and management of agricultural pests.

ACCREDITATION STATEMENTS AND COURSE NOTES:

None

COURSE TOPICS AND CONTENT REQUIREMENTS:

1. Crop Scouting Basics
 - a. 1.1.Fundamental Concepts of Integrated Pest Management
 - b. 1.1.1.Patterns of Crop Protection
 - c.1.1.2.Scouting Fields for Pests
 - d. 1.1.3.Economic Thresholds and Injury Levels
 - e. 1.1.4.Integrated Pest Management
 - f. 1.2.Basic Principles of Crop Monitoring
 - g. 1.2.1.Plant Sample Collection and Submission
 - h. 1.2.2.General Scouting Reports
 - i. 1.2.3.Collection and Shipment of Insect Specimens
 - j. 1.2.4.Collection and Shipment of Soil Samples
 - k.1.2.5.Collecting Plant Tissues for Nutrient Analysis
2. Crop Production
 - a. 2.1.Corn Management
 - b. 2.1.1.Growth Stages
 - c.2.1.2.Symptoms of Plant Damage and Deficiencies
 - d. 2.1.3.Corn Pest Management Calendar
 - e. 2.1.4.Nutrient Deficiencies
 - f. 2.1.5.Diagnostic Guide for Corn Problems
 - g. 2.2.Soybean Management
 - h. 2.2.1.Growth of Soybean Plant
 - i. 2.2.2.Soybean Nutrient Deficiencies
 - j. 2.2.3.Soybean Pest Management Calendar
 - k.2.2.4.Diagnostic Guide for Soybean Problems
3. Insect Management
 - a. 3.1.Entomology
 - b. 3.1.1.Basic Insect Scouting Procedures
 - c.3.1.2.Identifying Injury
 - d. 3.1.3.Field Scouting Equipment
 - e. 3.1.4.Economic Thresholds
 - f. 3.2.Identification of Corn Insects
 - g. 3.3.Identification of Soybean Insects
 - h. 3.4.Identification of Forage Crop Insects
 - i. 3.5.Identification of Wheat Insects
 - j. 3.6.Identification of Beneficial Insects
 - k.3.7.Insecticide Use Theory
4. Plant Disease Management
 - a. 4.1.Management of Disease
 - b. 4.1.1.Economic Thresholds
 - c.4.1.2.Use of Pesticides
 - d. 4.1.3.Seed Selection
 - e. 4.2.Corn Diseases
 - f. 4.2.1.Corn Seed Rots
 - g. 4.2.2.Corn Seedling Diseases
 - h. 4.2.3.Corn Leaf Diseases
 - l. 4.2.4.Storage Rots

- m. 4.2.5.Corn Nematodes
- n. 4.3.Soybean Diseases
 - o. 4.3.1.Soybean Seed Rot
 - p. 4.3.2.Soybean Seedling Diseases
 - q. 4.3.3.Soybean Foliar Diseases
 - r. 4.3.4.Soybean Stem Diseases
- s.4.4.Wheat Diseases
 - t. 4.4.1.Wheat Seed and Seedling Diseases
 - u. 4.4.2.Wheat Leaf Diseases
 - v.4.4.3.Head Diseases
 - w. 4.4.4.Crown and Root Rots
 - x.4.4.5.Viral Diseases
- y.4.5.Forage Diseases
 - z.4.5.1.Seed and Seedling Diseases
 - aa. 4.5.2.Foliar Diseases
 - bb. 4.5.3.Stem, Crown, Root, and Wilt Diseases
- 5. Weed Management
 - a. 5.1.Weed Scouting and Management
 - b. 5.1.1.Basic weed scouting procedures
 - c.5.1.2.Economic Thresholds of Weeds
 - d. 5.2.Weed Identification and Biology
 - e. 5.2.1.Annual Grass Weeds
 - f. 5.2.2.Perennial Grass Weeds
 - g. 5.2.3.Annual Broadleaf Weeds
 - h. 5.2.4.Biennial Broadleaf Weeds
 - i. 5.2.5.Perennial Broadleaf Weeds
 - j. 5.3.Herbicide Use
 - k.5.3.1.Mode of Action
 - l. 5.3.2.Product Selection
 - m. 5.3.3.Soil Applied Herbicides
 - n. 5.3.4.Foliar-Applied Herbicides
 - o. 5.3.5.Herbicide injury
 - p. 5.3.6.Herbicide Resistance
- 6. Current issues in pest management

INSTRUCTIONAL METHODS:

- Lecture
- Discussion
- Projects
- Field Trips

EVALUATION OF STUDENT ACHIEVEMENT:

A= 90-100
 B= 80-89
 C= 70-79
 D= 60-69
 F= 0-59

Tests: 50%

Quizzes: 30%

Homework Assignments: 20%

INSTRUCTIONAL MATERIALS:

Textbooks

University of Illinois Extension. 2010. Field crop scouting manual. University of Illinois. X880e. Crop Sciences Extension and Outreach. 2017. Illinois agronomy handbook. University of Illinois. <http://extension.cropsciences.illinois.edu/handbook/> (accessed 31 Jan. 2023).

Resources

- Pedigo, L.P., and M.E. Rice. 2009. Entomology and pest management. Waveland Press, Inc. ISBN 10:1-4786-2285-7.
- University of Illinois Extension publications.
<http://web.extension.illinois.edu/state/index.php>
- Iowa State University Extension and Outreach Extension Store publications.
<https://store.extension.iastate.edu/>.
- Purdue University Extension publications.
<https://extension.purdue.edu/Pages/default.aspx>

LEARNING OUTCOMES AND GOALS:

Institutional Learning Outcomes

- 1) Communication – to communicate effectively;
- 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;
- 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;
- 4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies

1. Select and explain appropriate crop scouting methods for grain and forage crops.
2. Prepare and justify a crop pest monitoring and management plan.
3. Identify growth stages of grain and forage crops important to the Midwest.
4. Identify common crop pests including; insects, weeds, and diseases.
5. Estimate economic and action thresholds of crop pests.
6. Evaluate and recommend crop pest prevention and management strategies.
7. Identify and explain factors that influence pest levels within the field.
8. Evaluate pest injury levels and make management recommendations to minimize economic damage.
9. Determine timing of pesticide applications and make defensible pesticide product recommendations.