

COURSE OUTLINE

Crop and Soil Management

Course Description

AG 142. Crop and Soil Management. 3 hours credit. This course will enable the student to apply the basic principles of crop and soil management to crop production, including planting to harvest management, soil fertility, plant pest control, soil conservation, and economic decision making. The student will explore career opportunities in crop and soil management.

Course Relevance

The management and concepts learned in this course will impact student knowledge base needed in crop production and related agri-business fields. It is a suggested course in farm and ranch management.

Required Materials

Instructor Lecture and Lab notes

Large three-ring notebook

Learning Outcomes

The intention is for the student to be able to

1. Demonstrate an understanding of crop and soil management in the production of field crops
2. Recognize crop and soil management systems of field crop production, disease treatment, soil and plant deficiencies, insect damage
3. Discover career opportunities in crop and soil management

Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course

Through the student's involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Critical Thinking
 - Through the analysis of various crop and soil management technologies, the student will make well founded decisions regarding production, management, and conservation.
2. Problem Solving
 - Through the understanding of concepts in crop and soil management, the student will solve problems related to crop production, variety selection, soil fertility, and management.
3. Field-Related Technology

- Through laboratory learning experiences, the student will identify crop pest that affect the production and marketing safe human food sources.

Secondary skills (developed but not documented):

Time Management
Reading

Major Summative Assessment Task(s)

These learning outcomes and the primary Learning PACT skills will be demonstrated by

1. Complete case studies showing awareness of the industry's latest technologies and career opportunities
2. Demonstrate knowledge of crop and soil management by oral presentations and collecting management guides on field crops

Course Content

- I. Themes – Key recurring concepts that run throughout this course:
 - A. Crop and soil management
 - B. Cultivar selection
 - C. Crop nutrition
 - D. Pest control
 - E. Soil management
- II. Issues – Key areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Interpreting variety test data in selection of crops
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Management adjustments to new technologies
- IV. Skills/Competencies – Actions that are essential to achieve the course outcomes:
 - A. Describe plant morphology and stages of growth
 - B. Describe the influence of light quality and temperatures for plant growth
 - C. Compare crop and soil management practices and relate to plant growth and development
 - D. Describe alternatives to conventional tillage methods
 - E. Describe modes of pest control
 - F. Relate proper machinery adjustments and calibrations

Learning Units

- I. Cultivar and variety selection
 - A. Interpreting data from performance trails
 - B. Certified seed and germination test
- II. Crop nutrition
 - A. Soil test
 - B. Plant symptoms
 - C. Tissue test

III. Pest control

- A. Insects
- B. Weeds

IV. Soil Management

- A. Soil texture and amendments
- B. Affects of machinery
- C. Soil conservation

V. Career opportunities in crop and soil management

- A. Grain and forage producer
- B. Seed producer and sales
- C. Consulting in crop and soils management
- D. Soil conservationist
- E. Machinery
- F. Custom crop and soil treatments

Learning Activities

Lecture is designed to enable the student to understand the key principles in crop and soil management. Learning activities will be directed towards lecture/demonstrations and practical exercises.

Grade Determination

The student will be graded on assessment tasks, and written examinations.