

# Minnesota State College Southeast

## AGRI 2200: Crop Science

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 1

Lab Hours/Week: 1

OJT Hours/Week: \*.\*

Prerequisites:

This course requires both of these prerequisites

BIOL 1240 - Introduction to Agroecology

BIOL 2240 - Soil Science

Corequisites: None

MnTC Goals: None

This course blends basic knowledge in plant science, embracing horticulture, crop science and agroforestry, in order to provide students with the broadest understanding about the important role played by plants in modern, sustainable farms. Origin of cultivated plants, their propagation techniques (sexual, asexual), their agronomic needs, harvest and fruits/seed conservation will be the main, general topics to be taught in the first half of the semester. Selected herbaceous (corn, soybean, barley, sunflower, fodder crops) and arboreal crops (apple, plum, grapes, hazelnut) valuable for Southeastern Minnesota agriculture will be considered in the second half of the course. Special consideration will be given to sustainable and regenerative practices integrating crops in a diversified farm. (Prerequisite: BIOL1240 and BIOL2240) (3 Credits)

**B. COURSE EFFECTIVE DATES:** 09/20/2018 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Modern and historic role of crops in food production
2. Plant physiology, genetics, and reproduction
3. Common and non-traditional food crops
4. Crop management and production
5. Agrobiodiversity

#### **D. LEARNING OUTCOMES (General)**

1. Explain the processes involved with harvesting, storage, and conservation of crop products
2. Describe the origins of agriculture around the world and in the United States
3. Explain the relevance of Nikolay Vavilov to modern agriculture
4. Describe basic plant physiology and the basic biology of plant development
5. Explain the basic science of crop genetics, breeding, hybridization, and the principles of genetically modified organisms
6. Recognize the factors that influence plant growth and development
7. Compare and contrast a variety of methods of weed and pest control as they relate to both crop production and systems biology
8. Explain the benefits, limitations, and risks of agronomic practices as they relate to both crop production and environmental impacts
9. Describe the biology, propagation (sexual and asexual), and taxonomy of cultivated plants (herbaceous and woody)
10. Compare and contrast the advantages and disadvantages of perennials versus annuals/biennials
11. Explain the difference between a landrace and a cultivar
12. Identify several farm crop value added products
13. Describe the agronomic and crop protection practices for selected crops that are typically grown in our region
14. Describe specific agronomic management practices for herbaceous crops such as corn, soybean, barley, sunflower, and fodder crops
15. Describe specific agronomic management practices for arboreal and woody crops such as apple, plum, and hazelnut
16. Describe the importance of agrobiodiversity and the role of crops within a diversified farm system
17. Apply principles of sustainable crop management with respect to environmental, social, and economic considerations.

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted