

Department:

Agriculture

Course Description:

This course will examine plant morphology and anatomy and will also provide a history of plant agriculture. The course will emphasize plant structures and systems related to the five major field crops found in the local region: corn, sorghum, wheat, soybeans, and alfalfa. Growth stages, critical periods of development, plant nutrition, mineral elements involved in physiology, and grain grading and marketing will also be covered.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Evaluate and explain in detail the relationship of plant morphology and environment to agricultural plant growth and production.
2. Explain how plant modifications can be affected by the agricultural industry.

Course Content:

- A. The Role of Higher Plants
 1. Dependence of animals on plants for survival
 2. Fossil fuels and their origin from plants
 3. Benefits from plants
- B. Structures of Higher Plants
 1. Dicots and monocots
 2. Cell structure
 3. Plant tissues
 4. Plant morphology
- C. Origin, Domestication, and Cultivated Varieties
 1. Searching for and maintaining a desirable germplasm
 2. Basic genetic concepts for plant improvement
- D. Propagation of Plants
 1. Sexual Propagation
 2. Propagation by cuttings and grafting
 3. Propagation by roots and specialized stems
- E. Photosynthesis, Respiration, and Translocation
 1. Energy requirements of photosynthesis
 2. Factors affecting photosynthesis
 3. Carbohydrate synthesis
 4. Plant respiration
 5. Photorespiration

- F. Soils and Soil Water
 - 1. Factors involved in soil formation
 - 2. Physical properties of soils
 - 3. Chemical properties of soils
 - 4. Soil organic matter
 - 5. Soil organisms
- G. Plant Nutrition
 - 1. Primary nutrients
 - 2. Secondary nutrients
 - 3. Micronutrients
 - 4. Chelating
- H. Weeds and Pests of Plants
 - 1. Types of weeds and their control
 - 2. Common Midwest insect pests and their control
 - 3. Effects of parasites and nematodes on plants
 - 4. Plant diseases and their repression

Learning Assessments:

Course competencies will be assessed by use of regular exams, quizzes, lab work, and class assignments.

Instructional Materials:

Introductory Crop Science, Waldren, 5th Ed., Pearson Publishing, 2003.

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the "Disabilities Self-Identification Form" at this link:

<https://highlandcc.edu/pages/disability-services>.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.