

Department:

Precision Agriculture

Course Description:

This course will prepare the student in the use of various spatial data management platforms. Students will be required to do the initial setup, create management and production lists, save and unload data cards, process field data, and duplicate the process that end-users must do to complete the task of transferring data from the field to the computer. After setting up a data management tree, students will be required to do a field check to ensure that it works to collect and separate the appropriate data. In addition, students will use the software to create reports and prescription maps. This will be a project driven course for which the instructor will provide guidance and the student will be required to read software documentation to complete most of the tasks.

Course Competencies:

1. Describe the origination, function, and application of various precision agriculture data management platforms
2. Set the preferences, management structure, resources/inputs, and production or financial data required to collect data efficiently
3. Collect field data, set guidance parameters, and diagnose problems using agricultural machinery
4. Produce visual aids and printed media to demonstrate the recordkeeping, guidance, and control applications of precision agriculture

Course Content:

- A. Introduction to Precision Agriculture Software
 - 1) List software produced by various equipment and software manufacturers
 - 2) Review and interpret available digital documentation for software
 - 3) Recognize and compare basic functions of the software based on documentation
- B. Setup of Profiles and Data Management Tree
 - 1) Review and set options for operation of the platform
 - 2) Create a Client/Farm/Field data management tree using real data in multiple platforms
 - 3) Create a resource list of operations and tasks, machinery, and crop inputs that will be used within the platform
 - 4) Assign economic and accounting parameters to all resources
- C. Data Collection and Processing
 - 1) Save field and operation setup information to a PC card or other transfer device

- 2) Transfer and setup information into a display/controller
 - 3) Collect coverage data of a field operation
 - 4) Collect geo-referenced yield data
 - 5) Create and use A-B lines for field guidance
 - 6) Evaluate accuracy of Differential Global Positioning System
 - 7) Determine current firmware version of controller and update if necessary
 - 8) Diagnose connection of various CAN bus nodes
- D. Output
- 1) Transfer data from field computer to desktop software
 - 2) Clean and process data into geo-referenced data layers
 - 3) Combine multiple layers of data to create a single map
 - 4) Generate and print out a summary report of field operations
 - 5) Create a prescription map for variable rate application

Learning Assessments:

- A. Discussion Questions
- B. Graded Assignments
- C. Comprehensive Assignments
- D. Research Paper/Projects/Presentation/Portfolio
- E. Quizzes and Exams

Instructional Materials:

Software operator's manuals will be used as reference material. Instructors will provide links to appropriate documents.

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.