

# AGRI 275: Introduction to Precision Agriculture

Course Syllabus: Spring 2015, Course #22942, 3 credit hours

## Course Information

### Meeting Days

Mon, Wed, Fri

### Meeting Times

11:00-11:50AM

### Class Location

Rm "West 40", Dakota Precision Ag Center/North Campus

### Prerequisite

None required.

### Catalog Description

An introduction to precision farming applications. Students will be in the field using various GPS equipment in mastering the tasks associated with using today GPS/GIS.

## Instructor Information

Instructor Names	Email	Phone Number	Office Location & Hours
Brittany Hanson	Brittany.R.Hanson@lrsc.edu	(701) 665-4611	DPAC/North Campus, 8:00-9:00AM TR or by appointment
Preston Sundeen	Preston.Sundeen@lrsc.edu	(701) 665-4608	DPAC/North Campus, 8:00-9:00AM M-F or by appointment
Dr. Jason Fewell	Jason.Fewell@lrsc.edu	(701) 662-1554	DPAC/North Campus, 1:00-3:00PM TR or by appointment

## Materials of Instruction

### Required Materials

- *The Precision-Farming Guide for Agriculturalists: An Agricultural Premier*. Daniel R. Ess and Mark T. Morgan. 2010. Deere & Company: Moline, IL. 168 pgs. ISBN: 0-86691-358-0

## Grading & Assessment

### Grading Scale

Grade	Percentage of Total Points for the Course:
A	90% and above

<b>Grade</b>	<b>Percentage of Total Points for the Course:</b>
<b>B</b>	80% through < 90%
<b>C</b>	70% through < 80%
<b>D</b>	60% through < 70%
<b>F</b>	Less than 60%

### Assessment Tools

Assessments contributing to the measure of student learning will be based on: class participation, homework, labs, projects, exams, and quizzes throughout the semester.

### Course Outline by Major Units

<b>Unit</b>	<b>Chapters/Exams/Project</b>
<b>1</b>	Ch 1: An Introduction to Precision Farming & Ch 2: Satellite-Based Positioning Systems Exam 1: Ch 1 & 2
<b>2</b>	Ch 3: Yield Monitoring & Mapping & Ch 4: Soil Sampling & Analysis Exam 2: Ch 3 & 4
<b>3</b>	Ch 5: Remote Sensing Exam 3: Ch 5
<b>4</b>	Ch 6: Computers & Geographic Information Systems Exam 4: Ch 6
<b>5</b>	Ch 7: Variable-Rate Technologies Exam 5: Ch 7
<b>6</b>	Ch 8: Precision Farming – Issues to Consider Ch 8 Paper
<b>7</b>	Introduction to Farm Works® Software Final Project

### Exam Schedule

<b>Date*</b>	<b>Subject</b>
<b>January 30, 2015</b>	Exam #1 – Chapters 1 & 2
<b>February 13, 2015</b>	Exam #2 – Chapters 3 & 4
<b>February 27, 2015</b>	Exam #3 – Chapter 5

<b>Date*</b>	<b>Subject</b>
<b>March 11, 2015</b>	Exam #4 – Chapter 6
<b>March 30, 2015</b>	Exam #5 – Chapter 7
<b>May 13, 2015</b>	Final Project Due

*\*Exam dates are subject to change*

## **Guidelines for Success**

### **Attendance**

Class attendance contributes significantly to academic success. Students who attend classes regularly tend to earn higher grades and have higher passing rates. Excessive absences may jeopardize a student's grade or even his/her ability to continue with the course. Each student is responsible for letting the instructor for *each class* know when he/she will be absent from class, whether it is for sports, illness, or based on a choice made by the student.

### **Class Absences & Late Assignments**

If a student is absent from class for any reason, the student is responsible for all missed work and for promptly contacting his/her instructor. If a student misses class for an extended period of time due to illness, he/she will need to present a doctor's note to make up the work for the classes missed. Quizzes and labs cannot be made up due to an absence unless arranged with the instructor prior to the quiz or lab. Late homework assignments will not be accepted. Arrangements with the instructor to make up an exam must be done *prior* to an exam date. If arrangements are not made prior to the exam date, exams taken after the scheduled exam date will be marked down as follows:

- 20% for the first weekday following the exam date,
- 40% for the second weekday following the exam date, and
- 100% for the third weekday following the exam. Exams not made up within the first two weekdays following an exam date cannot be made up.

## **Objectives & Outcomes**

### **Course Objectives**

This course introduces basic principles of precision agriculture, featuring the following topics: global positioning and geographic information systems, yield monitoring, remote sensing, and soil sampling. Emphasis is placed on how the systems work, and acquiring and managing data.

### **Student Outcomes/Competencies**

Upon completion of this course, the student should: understand and demonstrate the use of a global positioning system, understand how soil sampling and remote sensing data is collected and analyzed, and understand the use of geographic information systems.

## Scholastic Dishonesty: Plagiarism

Plagiarism takes the words and/or ideas of another and uses them as your own without giving appropriate credit to the original source. Any clear violations of these standards and others such as cheating, or violating copyright laws, are handled promptly, firmly, privately, and fairly by the instructor. Other examples of scholastic dishonesty and the grievance process can be found in the LRSC Student Catalogue.

Students who either intentionally or unintentionally practice plagiarism will receive a grade of zero for that assignment. Additionally, instructors have the ability to have students submit assignments through TurnItIn via Pearson LearningStudio or the website [www.turnitin.com](http://www.turnitin.com). The website will provide a plagiarism check of similar content, citations and sources, provide feedback on grammar, spelling and word usage and critiques on writing from Pearson professional tutors.

**1<sup>st</sup> Offense: Since it is impossible to evaluate a plagiarized paper, no credit can be given. At the discretion of the instructor, a student may also be:**

Assigned a reduced grade for the course

Allowed to rewrite and submit the assignment for credit

**2<sup>nd</sup> Offense: Dismissed from the class with a failing grade**

Please go to the following site for resource information on Plagiarism:

[http://www.academicplagiarism.com/?page\\_id=109](http://www.academicplagiarism.com/?page_id=109)

Use the following sites to check your papers for plagiarism:

<http://www.plagtracker.com/>

<http://www.dustball.com/cs/plagiarism.checker/>

## General Education Objectives

- I.3. To apply knowledge gained in the educational process and use that knowledge in everyday living—*apply knowledge to the real world.*
- I.7. To develop work habits and ethics necessary to function effectively in the workplace—*work-related skills.*
- II.3. To use information objectively for solving problems and arriving at alternative solutions—*problem-solving skills.*
- VI.3. To apply current technologies to access and utilization of information—*application of technology.*
- VII.1. To develop a pattern of intellectual curiosity and inquiry which promotes life-long learning—*value of life-long learning.*

## Trade and Technical Division Mission

The Trade and Technical Division offers various specialized programs. The division frequently assesses industry trends and standards and alters curricula to ensure the quality of its programs. It is the mission of the Trade and Technical Division to provide students with current knowledge and training necessary for immediate entry into various specialties within the job market.

## Rules for Class Success

- Eating and drinking is fine, but please throw all cups, bottles, and other garbage in the trash.
- Do not have cell phones out. When put away, set it to vibrate if it is needed for an emergency.
- Please use the computer for class. Do not use it as a diversion from class.
- All work must be your own. Cheating will not be accepted.
- Class assignment deadlines are necessary and apply to all students. Please do not ask for special exceptions.
- Care about your work from the beginning.
- Being absent for any reason will hinder progress in the class.
- Asking questions will help, but not 2 minutes before a deadline.
- The computer does not lose assignments, nor do we. It is only an excuse or wishful thinking.
- Treat all members of the class with respect.

## Accommodations

If you need special accommodations because of a disability, we will gladly work to meet your needs. Please let us know if you need any special accommodations of the curriculum, instruction, or assessments of this course to enable you to participate fully. We will keep any information you share with us confidential.

## Tentative Course Schedule and Assignments

The following schedule is *tentative* and subject to modification based on assessment of student needs. Instructor may replace planned assignments with pop quizzes as deemed appropriate to encourage student attendance and participation. Students are expected to have chapter materials read prior to class and be prepared to participate in group discussion and activities. Assignments will be given specific deadlines and will be expected to be turned in on time.

	<b>Weekday</b>	<b>In-class work</b>	<b>Homework</b>
<b>Week 1</b>	Monday	<b>Orientation day - no class</b>	
	Wednesday	Syllabus, assessment questionnaire, <b>Quiz #1</b>	Read Ch 1, Ch 1 questions
	Friday	Ch 1: What is precision agriculture?	Read Ch 2, Ch 1 questions
<b>Week 2</b>	Monday	<b>MLK Day - no class</b>	
	Wednesday	Ch 2: Satellite-based positioning systems, <b>Quiz #2, Ch 1 questions due</b>	Ch 2 questions
	Friday	Ch 2: Satellite-based positioning systems	Ch 2 questions
<b>Week 3</b>	Monday	Ch 2: Satellite-based positioning systems, <b>Quiz #3</b>	Ch 2 questions
	Wednesday	Review Ch 1 & 2, <b>Ch 2 questions due</b>	
	Friday	<b>Exam - Ch 1 &amp; 2</b>	Read Ch 3, Ch 3 questions

<b>Week 4</b>	Monday	Review Exam, Ch 3: Yield Monitoring	Ch 3 questions
	Wednesday	Ch 3: Yield Monitoring	Ch 3 questions
	Friday	Ch 4: Soil Sampling, <b>Ch 3 questions due, Quiz #4</b>	Read Ch 4, Ch 4 questions
<b>Week 5</b>	Monday	Ch 4: Soil Sampling, <b>Quiz #5</b>	Ch 4 questions
	Wednesday	Review Ch 3 & 4, <b>Ch 4 questions due</b>	
	Friday	<b>Exam - Ch 3 &amp; 4</b>	Read Ch 5
<b>Week 6</b>	Monday	<b>President's Day - no class</b>	
	Wednesday	Review Exam, Ch 5: Remote Sensing	Ch 5 questions
	Friday	Ch 5: Remote Sensing	Ch 5 questions
<b>Week 7</b>	Monday	Ch 5: Remote Sensing, <b>Quiz #6</b>	Ch 5 questions
	Wednesday	Review Ch 5, <b>Ch 5 questions due</b>	
	Friday	<b>Exam - Ch 5</b>	Read Ch 6
<b>Week 8</b>	Monday	Review Exam, Ch 6: Geographic Information Systems	Ch 6 questions
	Wednesday	Ch 6: Geographic Information Systems	Ch 6 questions
	Friday	Ch 6: Geographic Information Systems, <b>Quiz #7</b>	Ch 6 questions
<b>Week 9</b>	Monday	Review Ch 6, <b>Ch 6 questions due</b>	
	Wednesday	<b>Exam - Ch 6</b>	Read Ch 7
	Friday	Review Exam, Ch 7: Variable rate technology	Ch 7 questions
<b>Week 10</b>	Monday	<b>Spring break - no class</b>	
	Wednesday	<b>Spring break - no class</b>	
	Friday	<b>Spring break - no class</b>	
<b>Week 11</b>	Monday	Ch 7: Variable rate technology	Ch 7 questions
	Wednesday	Ch 7: Variable rate technology, <b>Quiz #8</b>	Ch 7 questions
	Friday	Review Ch 7, <b>Ch 7 questions due</b>	
<b>Week 12</b>	Monday	<b>Exam - Ch 7</b>	Read Ch 8
	Wednesday	Ch 8: Issues in precision farming	Ch 8 paper
	Friday	<b>Good Friday - no class</b>	
<b>Week 13</b>	Monday	<b>Easter Monday - no class</b>	
	Wednesday	Ch 8: Issues in precision farming, <b>Quiz #9</b>	Ch 8 paper
	Friday	Review Ch 8, <b>Ch 8 paper due</b>	
<b>Week 14</b>	Monday	GPS Lab	Make sure Farm Works is working
	Wednesday	Soil testing lab, <b>Quiz #10</b>	Download Farm Works data
	Friday	Guest speaker	
<b>Week 15</b>	Monday	Farm Works - Student Workbook	Farm Works Lessons
	Wednesday	Farm Works - Student Workbook	Farm Works Lessons
	Friday	Farm Works - Student Workbook	Farm Works Lessons
<b>Week 16</b>	Monday	Farm Works - Student Workbook	Farm Works Lessons
	Wednesday	Farm Works - Student Workbook	Farm Works Lessons
	Friday	Farm Works - Student Workbook	Farm Works Lessons
<b>Week 17</b>	Monday	Farm Works - Work on Final Project	Final Project
	Wednesday	Farm Works - Work on Final Project	Final Project

	Friday	Assessment questionnaire, Farm Works - Work on Final Project	Final Project
<b>Week 18</b>	Monday	<b>Finals week - no class</b>	
	Wednesday	<b>Finals week - no class</b>	<b>Final Project Due</b>
	Friday	<b>Finals week - no class</b>	

Department of Labor

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