



Precision Farming

AGT 209

Fall Semester 2021

Number of Credits: 3

Days Class Meets: Hybrid: Online + 2 Saturdays

Meeting Times: Saturdays 9/11/21 & 10/9/21 from 12:00 – 5:00 p.m.

Location/Venue: online, in the field (field location to be announced)

Instructor: Erin Camp

Office: n/a

Contact Phone: 517.719.1725; 517.581.8418

Contact Email: camperinn@jccmi.edu; erin@arablesolutions.com

Online Office Hours: please email or call for scheduling

Course Description

Precision Agriculture is farming management based on information and technology. It is site specific farming based on data related to soil, crops, moisture, pests and other environmental factors. The business of growing crops has become more and more complicated over time. More recently, farmers have been striving to meet demands of increased production and to be conscious of environmental impacts. Precision Agriculture will provide a comprehensive overview of present and emerging technologies, techniques and practices used for implementing precision agriculture programs. This course includes both online classroom and field experience components.

Prerequisite(s)

ENG 085, MAT 030 or higher, STM 101

Course Goals

After completing this course students will:

- Demonstrate foundational and practical knowledge of precision agriculture, and its application and usefulness towards the production, management and long-term sustainability of food production.
- Formulate a broader worldview of modern agriculture and understand the utilization of technology for improved efficiency and environmental benefits.
- Articulate the role of precision farming and examine the importance and impact from tools, techniques and practices that allow modern farmers to produce more with less.
- Identify the food challenges and demands created by a growing world population.

Course Objectives

The course goals and objectives incorporate specific General Education Outcomes (GEOs) established by the JC Board of Trustees, administration, and faculty. These goals are in concert with four-year colleges and universities and reflect input from the professional communities we serve. GEOs guarantee students achieve goals necessary for graduation credit, transferability, and professional skills needed in many certification programs. The GEOs and course objectives addressed in this class include the following:

- List the benefits from precision farming related to food production.
- Describe and summarize precision farming for production agriculture.
- Develop a working knowledge of concepts and principles of precision agriculture.
- Create precision agriculture management plans to increase profitability, and reduce economic and environmental risks associated with agricultural production.
- Explain how technology can increase yields and decrease inputs.
- Illustrate the impact precision farming has on food production.
- Construct a comprehensive precision farming program.

Textbook

Open Educational Resources (OER): OERs are teaching, learning, and research materials that are either (a) in the public domain or (b) licensed in a manner that provides everyone with free permission to:

- Retain – make, own, and control a copy of the resource
- Reuse – use your original, revised, or remixed copy of the resource publicly
- Revise – edit, adapt, and modify your copy of the resource
- Remix – combine your original or revised copy of the resource with other existing material to create something new
- Redistribute – share copies of your original, revised, or remixed copy of the resource with others

Extras

Students will need work boots, or close toed shoes for work in the field. You may also wish to use eye protection and/or hearing protection for in the field work.

Grading Procedure

1. Online Assignments: 50 points per week (350 points available)
2. Weekly Discussion Forums: 30 points per discussion (240 points available)
 - a. 20 points available for initial post
 - b. 5 points available for each additional post that provides a valuable contribution to another student's post (up to 10 points)
 - c. 2 bonus points for each additional value added post (up to 6 extra points available for each discussion)
3. Participation – In The Field: 200 points each in-person day (400 points available)
4. Presentation: 75 points (75 points available)

Total available points = 1,065

Grading Scale

GPA	GRADE RANGE
4.0	94-100%
3.5	89-93%
3.0	84-88%
2.5	78-83%
2.0	72-77%
1.5	66-71%
1.0	60-65%
0.5	55-59%
0.0	0-54%

Failure

Any circumstances under which a student could be dismissed from or failed in the course that is not covered in other college publications. In pass/fail courses, a listing of minimal competencies.

Academic Honesty Policy

Academic Honesty is defined as ethical behavior that includes student production of their own work and not representing others' work as their own, by cheating or by helping others to do so.

Plagiarism

Plagiarism is defined as the failure to give credit for the use of material from outside sources. Plagiarism includes but is not limited to:

- Submitting other's work as your own
- Using data, illustrations, pictures, quotations, or paraphrases from other sources without adequate documentation
- Reusing significant, identical or nearly identical portions of one's own prior work without acknowledging that one is doing so or without citing this original work (self-plagiarism)

Cheating

Cheating is defined as obtaining answers/material from an outside source without authorization. Cheating includes, but is not limited to:

- Plagiarizing in any form
- Using notes/books/electronic material without authorization
- Copying
- Submitting others' work as your own or submitting your work for others
- Altering graded work
- Falsifying data
- Exhibiting other behaviors generally considered unethical
- Allowing your work to be submitted by others

Accessibility

Jackson College understands that cultivating a broadly diverse community is crucial to our educational mission and to our foundational commitment to leadership and service. Jackson College is fully committed to ensuring our courses are accessible to everyone including those with disabilities. We are currently working to increase accessibility and usability of our course materials in order to meet or exceed the requirements of Section 508 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1991 and Web Content Accessibility Guidelines (WCAG) 2.0. For more information about Jackson College's efforts to ensure accessibility please visit the [Jackson College accessibility web page](#).

If you have an accessibility need in any of our classes please e-mail the Center for Student Success at JCCSS@jccmi.edu or visit the [Center for Student Success web page](#).

At the Center for Student Success (CSS), we are committed to providing all students the opportunity to achieve academic success by providing a variety of support services free of charge to Jackson College students. This includes, but is not limited to, peer and faculty tutoring, mental health referral, temporary assistance with transportation, various workshops/seminars, and the TRIO program.

In addition, the CSS staff is committed to adapting the College's general services to meet the individual needs of otherwise qualified students with disabilities, for the purpose of providing equal access to all programs and facilities.

Course Management

Students may log into their JetNet account to view an updated syllabus, check their grade, view current assignments and access course learning resources. In addition, students may discuss current issues in the Student Lounge of JetNet, pose questions to other students and interact with your instructor.

Makeup Policy

No makeups will be given unless a pre-excused absence plan is agreed upon prior to the regular scheduled assessment/presentation.

Help

Available learning services or opportunities for students seeking help with their course work. May include information about tutors, learning centers, reserved library materials, counseling services.

Academic Advising

It is important to contact a Center for Student Success professional prior to the start of the semester in order to receive accommodations in a timely manner. While we will make every effort to coordinate accommodations in a timely manner, failure to self-identify prior to the start of the semester may delay notification to instructors and timeliness of acquiring accommodations. Accommodations do not automatically carry over to the next semester. Please e-mail JCCSS@jccmi.edu or visit the [Accommodations for Students with Disabilities](#) web page

Student Responsibilities

Requirements beyond scheduled classes or laboratories, e.g., clinicals, extra credit assignments, TBA sessions, field placement, special project instructions, contract learning conditions, study hours required outside class, unscheduled class meetings, attendance at concerts or other required events.

Attendance- Participation Policy

Regular class participation and keeping up on the reading and assignments is strongly correlated with survival in college. It is my recommendation that you plan to do your assignments and take your exams BEFORE the last day they are due. If problems occur, there is time to fix them before the deadline.

In compliance with Federal Title IV funding requirements, as well as college initiatives, I will be monitoring student participation on a regular basis and officially reporting student activity throughout the term to assure compliance with college policy and federal regulations. It is imperative that you log in to the

course and actively participate *within the first couple of days of the term* to validate your enrollment in the course. After that, not actively participating in class may result in you being withdrawn from the course. Being withdrawn from a course can have an impact on financial aid, billing, athletic eligibility, and housing status. As a college student you are responsible for how your participation impacts your academic progress; the accountability lies with you.

Caveat

Please note: The format and timing of this course may need to change due to unforeseen circumstances. In particular: school closings, instructor illness, weather, or other situations that may arise.

All COVID safety protocols in place are based on current guidelines and will be enforced while students are on campus.

Calendar

**Calendar timelines and assignments are an approximation and could be changed.*

WEEK #	DATE	TOPIC	ASSIGNMENTS
1	Week of 8/30/21	<ul style="list-style-type: none"> Precision Overview & Planting Technology Key Terms Career options 	<ul style="list-style-type: none"> Watch videos Read articles Create introduction video Complete online assignment Discussion participation
2	Week of 9/6/21	<ul style="list-style-type: none"> Collecting harvest data Soil Sampling 	<ul style="list-style-type: none"> Watch videos Read articles Create introduction video Complete online assignment Discussion participation (x2)
2	9/11/21 12-5pm Location TBA	<p><u>In person session</u></p> <ul style="list-style-type: none"> Soil sampling in the field Understanding a soil sample Precision Crop scouting Agribility sign on & log fields Tools & techniques 	Active participation

WEEK #	DATE	TOPIC	ASSIGNMENTS
3	Week of 9/13/21	<ul style="list-style-type: none"> • Weather Data • Irrigation • Imagery NDVI 	<ul style="list-style-type: none"> • Watch videos • Read articles • Complete online assignment • Discussion participation
4	Week of 9/20/21	<ul style="list-style-type: none"> • Managing & Using Data • Variable Rate Technology • Data management platforms 	<ul style="list-style-type: none"> • Watch videos • Read articles • Complete online assignment • Discussion participation
5	Week of 9/27/21	<ul style="list-style-type: none"> • Future of Farming • Vertical Farming, Vineyards & Orchards • Row crop, thora culture, orchard, vineyard 	<ul style="list-style-type: none"> • Watch videos • Read articles • Complete online assignment • Discussion participation
6	Week of 10/4/21	Planting technology Prescription planting	<ul style="list-style-type: none"> • Watch videos • Read articles • Complete online assignment • Discussion participation
6	10/9/21 12-5pm Location TBA	<u>In person session</u> <ul style="list-style-type: none"> • Growing degree days • Post planting evaluation • Field mapping • FieldX - Scouting recording • Drone flight (TBD) 	Active participation
7	Week of 10/11/21	<ul style="list-style-type: none"> • Food traceability • Field records 	<ul style="list-style-type: none"> • Watch videos • Read articles

WEEK #	DATE	TOPIC	ASSIGNMENTS
		<ul style="list-style-type: none">• Timely crop nutrition applications	<ul style="list-style-type: none">• Complete online assignment• Discussion participation <p>PRESENTATION WILL BE DELIVERED THIS WEEK - ENSURE TO SCHEDULE YOUR ZOOM DATE/TIME WITH ERIN/GABE ASAP</p>