

Agronomy 356

Site-Specific Crop and Soil Management

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Prerequisites	Agronomy 114, Agronomy 354	
Course Description	Development of solutions to crop and soil management problems in consultation with a producer-client. Identification of client needs, gathering technical information, and use of geographic information systems as a tool for making crop and soil management decisions. Development and presentation of solutions for crop and soil management issues confronting the client. Emphasis will be placed on identifying and solving complex problems that require integration of biological, physical, chemical, and economic components within a crop and soil management system.	
Course Objectives	At the conclusion of this course, each student will have developed human and technical skills for solving complex crop and soil management problems. Students will possess and demonstrate the ability to: <ul style="list-style-type: none">• Collaborate with a producer-client to identify crop and management issues confronting the client.• Work in teams to research and evaluate solutions to crop and soil management issues and problems confronting the client.• Identify, obtain, evaluate, and utilize crop and soil management information from various sources.• Manage, interpret, and communicate temporal and spatial crop and soil management data using geographical information systems.• Propose solutions to the client by integrating biological, physical, chemical, and economic components using a systems approach.• Develop systems for monitoring and evaluating the success or failure of solutions proposed to the client.• Present recommendations to the client using oral, written, and visual communication.	
Students With Disabilities	If you have a disability and require accommodations, please contact me early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Iowa State University Disability Resources (DR) Office, main floor of the Students Services Building, Room 1076, 515-294-6624.	

- Attendance Policy** A major goal of AgPAQ is to bring a professional environment to the classroom. As a participant in these courses, you are ultimately responsible to the course clients. You should view your relationship with the course instructor as one between an employee and a supervisor working together to provide service to clients. In addition, you have responsibilities as a member of a team.
- In this professional atmosphere, it is your responsibility to attend all course activities unless you notify the instructor before any absences. **Notification must be in the form of an email to both Dr. Polito and Mr. Flynn stating the date(s) and time(s) of the absence and the reason you will be gone. All quizzes and homework must be completed within 24 hours of your return from an absence.** The course instructor reserves the right to administer penalties, ranging from grade reductions to course failure, for not adhering to this policy. Students will be notified of any penalties in writing and have the right to an appeal.
- Course drop policy** Because all three AgPAQ courses are integrated with each other, the work in one course is as important as the work in the other two. Therefore, it is not possible to drop just one of the AgPAQ courses. **You must remain enrolled in the other two AgPAQ courses to remain enrolled in Agronomy 356. i.e.**
- Learning Resources**
- USB Flash Drive –256 MB or larger for storing data. Bring it to each class and lab period.
- Ess D. and M.Morgan. 2003. The Precision-Farming Guide for Agriculturalists. An Agricultural Primer. John Deere Publishing, Moline, IL. Purchase at Bookstore.
- Course Web Site – www.agron.iastate.edu/courses/agpaq
- Publications from ISU Extension and Iowa DNR. Available through the course website.
- Site-Specific Management Guidelines. Potash and Phosphate Institute, Foundation For Agronomic Research, South Dakota State University, United Soybean Board. A link to these materials has been placed on the course web site.
- Precision Farming Software from SST Development Group, Inc. – SSToolbox, SST Summit and SST Stratus. SSToolbox User Guide and Reference Guide is available through the course web site.
- A Farmer’s Guide to Remote Sensing in Midwestern Agriculture. Iowa Soybean Association – Available from the course instructors.
- Precision Agriculture: Listening to the Story Told by Yield Maps. Extension Publication. Univ. of Nebraska Coop. Ext. Available through the course web site.
- Agronomy Department Computer Facility, Producer Client, ISU Extension, Parks Library, Natural Resources Conservation Service, AgPAQ faculty and students, World Wide Web.
- Students are expected to read on their own to strengthen their knowledge in areas of weakness.**

Important Dates

<i>Date</i>	<i>Event</i>
Oct. 16	Progress report (HEL, hydric soils, tillage, machinery economics) due to Engl 309 instructor at 4 p.m.
Oct. 21	Discuss progress reports with bosses in Engl 309.
Nov. 3	Draft of Nutrient Management, Harvest Loss, and Economics due in Agron 356 lecture
Nov. 21	Draft of Farm Plan due in Agron 356 lecture
Dec. 1	Draft Farm Plan returned with bosses comments
Dec. 3	Oral presentations to bosses in Agron 356 lab
Dec. 8	Final Farm Plan due in Agron 356
Dec. 10&11	Present Farm Plan to client

Performance Evaluation

<i>Activity</i>	<i>Percent of Grade</i>
Quizzes and final exam	40%
Laboratory exercises and homework	20%
Written recommendations report	20%
Oral and visual presentation	20%

This course is graded A,B,C, or F. **No Ds are given**

Important Considerations for Success in AgPAQ

When you are employed after graduation you will be in a pass-fail situation. You either keep clients or lose clients in your consulting business. It is not good enough to be 80% or 90% of your best. You must give 100%. Anything less and it is likely your client will select your competitor.

We expect a high degree of maturity and cooperation in this project. Each member of the team is expected to contribute equally to the team effort.

Past clients in 356 have sometimes criticized the tendency of students to simply recommend they continue doing what they have done before. Clients are looking for new ideas. Fear of rejection of an idea is no reason not to make it, but persuasive arguments will be required for your client to consider your recommendations.

All recommendations must be agronomically sound, environmentally responsible, economically feasible, and socially acceptable. This is the criteria we will use to judge your success when making recommendations to the clients.

**Laboratory
Topics**

<i>Week(s)</i>	<i>Date</i>	<i>Topic</i>
1	Aug. 27	Team building and expectations
2	Sept. 3	Client visit
3	Sept. 10	Introduction to GIS - Field boundaries and aerial imagery
4	Sept. 17	Digital Soil Survey –HEL, hydric soils, and yield goals
5	Sept. 24	Soil sampling
6	Oct. 1	GPS - Basics and accuracy
7	Oct. 8	Soil sampling (Field visit)
8	Oct. 15	Soil sampling (Field visit)
9	Oct. 22	Nutrient and lime recommendations
10	Oct. 29	Residue counts and harvest loss (Field visit)
11	Nov. 5	Inputting and cleaning yield data
12	Nov. 12	Feedback on nutrient management, harvest loss, and economics draft
13	Nov. 19	Interpolation and spatial analysis
14	Dec. 3	Oral presentation to bosses
15	Dec. 10	Oral report to client

Lecture Calendar

Monday	T	Wednesday	R	Friday
Aug 25 <i>Introduction</i>	26	27 <i>Precision management</i>	28	29 <i>GIS</i>
Sept 1 <i>Holiday</i>	2	3 <i>GIS</i>	4	5 <i>GIS</i>
Sept 8 <i>Client needs</i>	9	10 <i>Soil testing</i>	11	12 <i>Soil testing</i>
Sept 15 <i>Digital soil survey</i>	16	17 <i>USLE & HEL</i>	18	19 <i>USLE & HEL</i>
Sept 22 <i>Tillage</i>	23	24 <i>Tillage</i>	25	26 <i>Tillage</i>
Sept 29 <i>GPS</i>	30	Oct. 1 <i>GPS</i>	2	3 <i>GPS</i>
Oct 6 <i>Residue management</i>	7	8 <i>Drainage, hydric soils, & swamp buster</i>	9	10 <i>N recs & Soil test lab certification</i>
Oct 13 <i>Soil variability</i>	14	15 <i>Soil variability</i>	16	17 <i>Remote sensing</i>
Oct 20 <i>Remote sensing</i>	21	22 <i>Manure</i>	23	24 <i>Manure</i>
Oct 27 <i>Lime</i>	28	29 <i>Yield monitoring</i>	30	31 <i>Yield monitoring</i>
Nov. 3 <i>Yield monitoring</i>	4	5 <i>Nitrogen</i>	6	7 <i>Nitrogen</i>
Nov 10 <i>Phosphorus</i>	11	12 <i>Phosphorus</i>	13	14 <i>Spatial analysis</i>
Nov 17 <i>Spatial analysis</i>	18	19 <i>Spatial analysis</i>	20	21 <i>Potassium</i>
Nov 24-28 Thanksgiving Break				
Dec. 1 <i>Potassium</i>	2	3 <i>Fertilizer Application</i>	4	5 <i>Fertilizer Application</i>
Dec 8 <i>Consultation on Client Report</i>	9	10 <i>Consultation on Client Report</i>	11	12 <i>Consultation with Instructors</i>
Dec 15 <i>Finals Week</i>	16	17	18	19