

Soil-Crop Management Systems
CS/SSC 462
Spring 2014
Tuesday and Thursday 8:30-9:45 am
SYLLABUS

Course description

CS/SSC 462 is a capstone course in soil-crop management that requires students to combine agronomic knowledge with analytical, managerial, and communication skills to address real-world problems in crop management.

Student Learning Outcomes

Students successfully completing this course will be able to:

- 1) Integrate the principles of soil and crop management into the environmentally sound management of cropping systems.
- 2) Utilize critical thinking principles for agronomic decision-making.
- 3) Apply current agronomic and farm management principles to crop production.

Prerequisites

CS (SSC) 462 is the capstone course for the Agronomy Curriculum. As such, we assume that students enrolled in this course have attained an appropriate agronomic knowledge base. Courses that should be completed prior to taking CS/SSC 462 include CS 213 Crops: Adaptation and Production, CS 414 Weed Science, SSC 341 Soil Fertility and Fertilizers, SSC 342 Soil Fertility Laboratory, and SSC 452 Soil Classification. Students lacking knowledge in these subject areas may encounter difficulties in this course.

Instructors

Dr. John Havlin
Department of Soil Science
3404E Williams Hall
Office phone: 513-4411
E-mail: John_Havlin@ncsu.edu
Office hours: By appointment

Dr. David Jordan
Department of Crop Science
4207 Williams Hall
Office phone: 515-4068
E-mail: David_Jordan@ncsu.edu
Office hours: By appointment

Attendance policy

The course will have many exercises that require your participation. Thus, attendance is expected. If you must miss a class, contact the instructors prior to your absence to make arrangements for completing any missed assignments. The NCSU Attendance Policy can be found at:

http://www.ncsu.edu/policies/academic-affairs/pols_regs/REG205.00.4.php

To encourage attendance, unannounced quizzes, most often associated with the previous lecture or subject, will be given periodically throughout the semester.

Required textbook

There is no known text suitable for this course. Instructors will provide supporting documentation and handouts.

Student conduct

The NCSU Code of Student Conduct describes the kind of student behavior that disrupts and inhibits the normal functioning of the University and the actions that the University will take to protect the community from such disruption. It is your duty as a member of the University community to read, understand, and adhere to the Code of Student Conduct found at.

http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php

Academic integrity

Any attempt at unfairly influencing the grade received for an academic exercise is considered academic dishonesty and will not be tolerated.

Standard of Classroom Behavior

In order to maintain a positive learning atmosphere in this class, it is important that you respect your classmates, the instructors, class guests, and yourself at all times. As a student, you have the right to expect an atmosphere that is conducive to learning. And, you also have the responsibility to make sure that a positive environment is maintained. Please refrain from the use of tobacco products, speaking in a disruptive manner, entering the classroom late, and any other activity that may disrupt the class.

Students with Special Needs

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with disabilities, please refer to information found at the following website:

http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.28.php.

Grading Procedures

You are expected to complete assignments on time. All assignments are due on the date provided in class. Considerations will be made for late completion of assignments, on a case by case basis, provided arrangements are made prior to the due date. Exams in this course are scheduled for a 75-minute time period. Make-up exams will be allowed only for illness, emergencies, or prescheduled reasons.

Grading Scale	C+ = 77 B 79%
A+ = 97 B 100%	C = 73 B 76%
A = 93 B 96%	C- = 70 B 72%
A- = 90 B 92%	D+ = 67 B 69%
B+ = 87 B 89%	D = 63 B 66%
B = 83 B 86%	D- = 60 B 62%
B- = 80 B 82%	F = <60%

Component	Date	Points
In-class exam (Soil and Crops)	Jordan and Havlin exams	200
Paper review and presentation	February 25 and 27	100
Extension presentation	March 25 and 27	100
Farm plan (written and oral)	April 15 and 22	300
Quiz and Homework	Each day	200
Total		900

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<u>Date</u>	<u>Topic</u>	<u>Instructor</u>
January 7	Course Overview - Farm Plan Assignment – Extension Presentation – Critical Review/Presentation – Presentation Expectations Article 1 assigned	Jordan/Havlin
January 9	Crops – interactions and risk management	Jordan
January 14	Crop overview	Jordan
January 16	Crop overview	Jordan
January 21	Example Farm Plan discussion	Jordan/Havlin
January 23	Soil management Article 2 assigned	Havlin
January 29	Soil management	Havlin
January 30	Soil management	Havlin
February 4	Soils (Farm plan soils exercise) <u>(Acreage and management units)</u>	Havlin
February 6	Soils (Farm plan soils exercise)	Havlin
February 11	Soils (Farm plan soils exercise)	Havlin
February 13	Statistical design and analysis for applied agriculture Article 3 assigned	Jordan
February 18	Data interpretation	Jordan
February 20	Precision Agriculture <u>(Rotation schedule and soil loss calculations)</u>	Havlin
February 25	Scientific paper presentations	Jordan/Havlin
February 27	Scientific paper presentations	Jordan/Havlin
March 4	Soil compaction	Havlin
March 6	In class exam (Jordan and Havlin topics) Article 4 assigned	Jordan/Havlin
March 11-12	Spring Break	-
March 18	Pest management in cropping systems	Jordan
March 20	Pest management in cropping systems/decision tools Article 5 assigned	Jordan
March 25	Crop management presentations	Havlin/Jordan
March 27	Crop management presentations <u>(Action and pest calendars complete)</u>	Havlin/Jordan
April 1	In class Farm Plan discussion	Havlin/Jordan
April 3	TBA Article 6 assigned <u>(Soil fertility and budgets complete)</u>	Havlin/Jordan
April 8	Trouble shooting and problem solving (discussion)	Jordan/Havlin
April 10	Trouble shooting and problem solving (student activity)	Jordan/Havlin
April 15	TBA <u>Written component of farm plan turned in</u>	Jordan/Havlin
April 17	Spring holiday	-
April 22	<u>Oral component of farm plan presented</u>	Havlin/Jordan

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Paper Review

Students will be required to review a paper published in the scientific literature that will be provided by the instructors. A brief written summary of the paper and a 10 minute oral presentation on the paper will be required. Consider the following when preparing both your written and oral review.

What are the major points drawn from the paper?

What is the significance of this paper to North Carolina agriculture?

What is the significance of the paper to North Carolina State University's land grant mission?

What is the significance for students graduating from North Carolina State University and moving into a career associated with agriculture?

The goal of this assignment is to increase your understanding of some of the key issues associated with agronomy and to give you greater experience at synthesizing information you read.

The assignment is due February 25 and 27.

Note that there is an expectation of professional dress during the presentation.

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Crop Management Presentations

Students will work in groups of three while in the process of preparing presentations designed for farmers and their advisors for major agronomic crops in North Carolina (cotton, peanut, tobacco, corn, wheat, and soybean.) Generally, topics at grower meetings include general agronomy, pest management, and budgeting. There will be three in your group, and you can decide exactly how to approach this. You will have a minimum of 30 minutes and a maximum of 45 minutes for each crop presentation, and all three students in the group will be expected to present a portion of the information. It will be important to present key issues that are pertinent to growers. I will contact the Extension Specialists involved with these crops and ask them NOT to give you a slide set for your presentation. You can discuss the project with them, as their schedule permits, but we do not want you to present a canned presentation. I can also visit with you about the “grower meeting concept.”

The purpose of this assignment is to give you greater exposure to how recommendations are developed and used to manage the major agronomic crops in North Carolina, to help you gain a greater appreciation for the process of taking research-based information and presenting it to growers and their advisors, and to give you an opportunity to speak before your peers. As you move into an agriculturally-related career, this type of interaction will be important. Also, the class will be expected to ask you pertinent questions about the information you present and this will help you gain experience “speaking on your feet.” Finally, as you prepare your farm plan, going through this assignment will help you be more accurate in your development of the plan and will certainly help you prepare your crop calendars.

80% of the grade will be determined by the instructors. 10% of the grade will be determined by members of the group for individuals and will be anonymous. 10% of the grade will be determined by members of the class not in the group and will be anonymous.

Presentations will be made March 25 and 27.

Note that there is an expectation of professional dress during the presentation.

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Farm Plan

Objective: To provide students with an appreciation of critical management decisions related to nutrient management, soil resources, cropping systems, pest management, and marketing of crops in the Coastal Plain and Piedmont of North Carolina. The project is also designed to help students gain a greater appreciation of the complexity modern farming and to give students experience at pulling many aspects of farming together into central plan.

Procedure: Students will be divided into groups of three and will be given example farms from across the state representing major geographical production areas. A series of topographical maps from Google Earth surveys will be provided representing multiple fields. Using appropriate resources, students will develop a comprehensive plan for implementing management strategies to protect soil and environmental resources and ensure a viable economic farming enterprise. Students will prepare a written report and present a thorough description to the class.

Criteria that should be considered include: soil loss, nutrient management, production and pest management strategies for each crop, and economic viability of each crop and the rotation scheme for each year and across all years. The plan must cover seven years with five scenarios of crop prices and crop yield including: 1) expected yields and high prices over (7 years); 2) low yields and low prices (7 years); and 3) average yields and average prices. Crop budgets should be considered in development of cropping systems and crop/acreage mix. A complete crop calendar needs to be developed (as discussed in class) for each crop including activities and pests. The group needs to provide a narrative that explains each of the major decisions and assumptions presented in the plan. More in-depth description will be provided during the semester. Each group will be expected to include no less than five crops/enterprises for the farming operation.

Progress throughout the semester will be expected with a specific timeline (see course schedule.) While the information provided the instructors will not be in the final version and significant changes can be made, 10% of the final grade for this project will be affected by promptness in turning in assignments. The goal is to make sure students are on track for a good presentation of the farm plan. The tendency to procrastinate is ever present, especially during the spring.

80% of the grade will be determined by the instructors. 10% of the grade will be determined by members of the group for individuals and will be anonymous. 10% of the grade will be determined by members of the class not in the group and will be anonymous.

Written form will be due on April 15. Oral form of the plan will be presented April 22.

Note that there is an expectation of professional dress during the presentation.

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Assigned Reading and Dailey Quiz

Participation in class is essential. A short quiz will be given almost every lecture based on discussions from the previous lecture or the assigned reading. The quiz will be given at the beginning of class. This requirement constitutes over 20% of the course grade. On some occasions attendance will be the quiz.