

SYLLABUS - PLANT SCIENCES 455
Cropping Systems: An Integrated Approach
Spring 2012

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Office Hours: Appointments or Drop-Ins welcome 8:00-5:00 Mon-Fri
Class Time and Place: Walster 221 or 380, MWF, 10:00 to 10:50

Text: No Text is required; Specific materials will be provided in class or on Blackboard.

I. Course Description

This course is designed as an integrative cap-stone course for students majoring in the various areas of crop management. The course focuses on the scientific, professional, personal, and ethical issues associated with crop production and management practices. The course emphasizes relevant and real-life problems that encourage the students to integrate related disciplines involved in food production and uses a problem based learning approach.

II. Objectives

Upon completion of PLSC 455, students will be able to:

1. Advance and strengthen problem solving skills utilizing a multidisciplinary approach that considers professional, societal, economic, and ethical aspects.
2. Locate and evaluate new knowledge obtained from diverse sources, as well as synthesize new knowledge through discussions with others.
3. Comprehend that learning is a life-long process, and ambiguity must be tolerated.
4. Act responsibly when action must be taken under conditions of limited knowledge.
5. Develop improved skills for working effectively in a team by practicing interpersonal and teamwork skills associated with successful team approaches.
6. Reason logically, defend problem analysis and decisions, and refine written and oral communications.

III. Beliefs that Guide This Course

Critical Thinking and Problem-solving Skills - I believe critical or higher order thinking skills can be learned, which help us to become skeptics and cause us to question our assumptions and "facts" versus information or data. To help us learn these skills, we will use current problems that represent real-life situations, integrate many disciplines, and represent actual dilemmas that require a decision - That is, these problems require us to develop skills that are critical for professional success.

Learning - I believe that each of us must foster an attitude that our thoughts and ideas are offered for critical examination, that even our ideas with errors and flawed reasoning are integral parts of learning. We almost always get things wrong before we get them right. We learn better as a result. Fostering such an attitude does not put any individual at risk, but does produce a classroom atmosphere where many thoughts and ideas worth listening to are presented.

Teams & Individuals - I believe that there are several effective ways to teach and learn. Thus, I may sometimes use the lecture/discussion process and bring the material to you. Most of the time, however, I will assist you or your teams in finding your own way to the information. At these times, the subject matter of the course will define the boundary of the learning, but the path taken will be shaped by your individual or collective personalities, learning styles, intellects, fears, and aspirations.

Change - I believe that aspects of the food production discipline constantly change, but that there is a constant and increasing body of knowledge that these changes are based on. Thus, we must learn the basic concepts of this knowledge as well as critical thinking skills that we can use to keep up with the changes and, more importantly, play an active role in causing these changes. I believe that while I can take responsibility for drawing the initial map of where this course goes, the journey will change and detours will occur, depending on what happens along the way. This syllabus can be changed to take account of both your responses and mine.

IV. Evaluation

Written Assignments (individual)	about 60 points
Cropping System: Sustainable?	100 points
Decision Problems (group)	300 points
Reflection Journal (individual)	50 points
Problem Writing & Presentation (group)	100 points
Final Exam - Tuesday, May 8 (1:00 to 3:50 p.m.)	50 points

V. Grading

90% or greater of total points guarantees an A

80% to < 90% of total points guarantees a B

70% to < 80% of total points guarantees a C

60% to < 70% of total points guarantees a D

VI. Teams

Much of your professional career will involve team efforts. Thus, one of the objectives of this course is to improve our interpersonal and teamwork skills. Furthermore, I believe that supportive team learning is important to making the most of your education. An effective team can outperform even an outstanding individual, and make better decisions for most outcomes. For example, teams provide: a) a broader perspective and knowledge/experience base, b) an opportunity for synergism among individuals, c) an opportunity to subdivide responsibilities, and d) an opportunity to learn from each other.

Although team projects will be handed in for evaluation, every team member may not receive the same evaluation. This will depend upon the contributions of each team member to the project. (The goal is to have near-equal participation by all team members.) If a team member has not contributed to the team project, that member may be allowed to complete the project as an individual, if requested and completed prior to the whole class discussion of the project.

In addition to the team-assignments, I encourage you to use your team in other aspects of the course as well, such as studying together or critiquing each person's individual assignment. Each person's work must be his/her own, but there is nothing wrong with having another team member(s) help you do your best.

I will establish the various teams early in the semester. We will discuss certain fundamental principles of effective teams and each team will develop a set of ground rules for the function of their team. These ground rules will provide a basis for resolution of any conflicts among team members that may arise during the semester. Please don't hesitate to ask if I can assist you in organizing and managing your team or in making the experience more productive and rewarding.

Each team will use written evaluation forms to monitor each team members' contributions to the various activities. Getting spontaneous feedback about yourself and supplying it in a thoughtful way to others is a reality check, and is often a first step in making progress in the types of content and process skills identified in the course objectives.

VII. Tentative Schedule

- A. Introduction (1 class period)
- B. Learning, Critical Thinking, and Problem Solving (4 class periods)
 - 1. Group Work
 - 2. Procedures and Guidelines for Promoting Optimal Group Function
 - 3. Critical Thinking and Problem Solving
- C. Selected Problems - Possible Examples Below (30 class periods)
 - 1. Problems include diverse topics with a focus on plants
 - 2. Problems range from one to three class periods each
 - 3. Students will have some input into the problems used
- D. Presentations of Student Problem Writing Projects (6 class periods)
- E. Wrap-up

VIII. Examples of Problems

Although the actual problems used in the class will be determined by problems that are currently being discussed by professionals in the field, as well as goals, interests, and needs of the class participants, some possible examples are:

- "Cropping System: Sustainable?"
- "Bill's Challenge"
- "The Dilemma with Chemical Drift"
- "VanDerPol Farm: Crossroads in Sustainable Agriculture"
- "Jim and Nancy's Hail Injury Problem"
- "Anybody's Dream"
- "Gene's Time for Thinking about Genetically Modified Crops, Part 1-3"
- "Precision Ag Pays Off"
- "New Genetic Technologies"
- "Record Pumpkins versus Record Soybean Yields"
- "Salem Parks Advisory Board Meeting"
- "An Unfamiliar View in N.D.: Rows of Grape Vines"
- "Agricultural Ethics"

Academic Honesty: All work in this course must be completed in a manner consistent with NDSU University Senate Policy, Section 335: Code of Academic Responsibility and Conduct (<http://www.ndsu.nodak.edu/policy/335.htm>). All students in this course are governed by the College of Agriculture's Honor System. It is the responsibility of the students to report any violations of the honor pledge to the instructor, honor commission, or the Dean of the College of Agriculture.

STUDENTS WHO HAVE ANY DISABILITY WHICH MIGHT AFFECT THEIR PERFORMANCE IN THIS CLASS ARE ENCOURAGED TO SPEAK WITH THE INSTRUCTOR AT THE BEGINNING OF THE SEMESTER