SYLLABUS
Geographic Information Systems in Agriculture

Fall Semester 2010

Course Number SOCR 377
3 Credit Hours

I.
A. Instructor: Raj Khosla

Soil and Crop Sciences
Office: C013 Plant Science Building
Phone office: 491-1920

Email: raj.khosla@colostate.edu Email is one of the most convenient ways of communicating with me. I usually check my email several times a day.

Office Hours: Any time the door is open or the light is on. Alternatively, you can schedule a time with me and I will be there.

B. Teaching Assistant: Louis Longchamps

W010 Plant Sciences Building
Soil & Crop Sciences
Phone office: 491-6237
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Office Hours: Monday and Wednesdays 10am to 12 noon
II. Course Schedule:

A. **Lecture**: Tues. and Thurs. **12:30 pm through 1:45pm**. Room #105 Military Science Bldg. (Alternate arrangements: lecture time may be re-scheduled as per class requirements)

B. **Laboratory**: Scheduled for Thursdays 2:00 through 4:40pm. Room W-10 Precision Agriculture - GIS Lab in Plant Sciences Bldg and/or room B302 CSMATE Studio in NSEB Building [You will informed promptly where we will meet for which lab.]

For your lab project and home-works, you may work in my Precision Ag/ GIS Lab located in W-10 Plant Sciences Building. It is open from 9am to 5:00pm and you may complete your homework on the computers on the East Wall of the lab.

(Alternate arrangements: Lab time and place may be re-scheduled as per class requirements)

C. **Field trip**: August 26th, September 2nd and October 7th.

D. **Midterm Exams**: September 14th and October 7th.

E. **Final Examination**: Tuesday November 2nd (Time: 12:30pm to 1:45pm)

III. Course Objectives:

Upon completion of this course, students will be able to:

1. Understand the principles and elements of Global Positioning systems (GPS)
2. Identify the errors associated with GPS systems
3. Understand the concepts and functioning of Differential Global Positioning Systems (DGPS)
4. Understand the concept of spatial variability
5. Realize the scope of precision farming and the know the precision farming cycle
6. Understand the potential benefits of Precision Agriculture
7. Do real-time field mapping and grid soil sampling
8. Prepare variable rate nutrient and other agri-chemical digital application maps.
9. Monitor and map yield data and post processing of the yield maps
10. Work with precision farming software (i.e.) SGIS suite of software (Farm GPS, Grid Sampler, Farm Lab, SGIS, and Farm HMS)
IV. Course Grading:

A. Midterm examination: 25 percent (10 + 15)
B. Home work Problems 15 percent
C. In class and take home lab assignments: 30 percent
D. Final lab project: 20 percent
E. Final Exam: 10 percent

V. Text book:

The Precision-Farming Guide for Agriculturists: Editor John E. Kuhar. Published by Deere & Company, Moline, IL.

Other books, research papers and reading material will be reserved in the library or my lab for you to check out and do the assignments.