

**AGR 496W: GPS/GIS Applications in Ag and Construction  
Course Syllabus – Fall 2007**

**Instructor:** Douglas M. Kingman, Ph.D.

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**Office Hours:** TBA

**Text:** none, materials will be available on the web as necessary

**Lecture/Lab:** M & W 11:00 a.m. – 12:20 a.m. (Some classes will meet at the AMC)

**Location:** THOM 209

**Scope:**

**Objectives:** Students are expected to be capable of the following at the end of the semester:

1. Recognize the purposes, concepts, and terminology related to precision agriculture technologies and use of GPS for construction systems
2. Identify GIS/GPS software and equipment for monitoring yields, variable rate applications, and other data gathering activities and processing
3. Decipher maps that represent information collected with GIS/GPS technology
4. Interpret and discriminate information from GIS maps
5. Evaluate the costs and benefits of the utilization of GIS/GPS technologies in a production or construction system
6. Formulate site-specific farming recommendations based on information gathered from precision agriculture technology
7. Utilize GPS technology to layout a construction site
8. Description of careers, leadership opportunities and use of GPS and GIS in agriculture.

**Course Assignment Breakdown and Grade Ranges:**

Assignment	Points	Percentage
Quizzes	120	16.67%
Homework	150	20.83%
Labs	50	6.94%
Exams I	100	13.89%
Exam II	100	13.89%
Exam III	100	13.89%
Final Exam	100	13.89%
<b>Total</b>	<b>720</b>	<b>100%</b>

Grade	Points	Ranges by Percentage
A	648 or more	90-100%
B	576 - 647	80-89%
C	504 - 575	70-79%
D	432 - 503	60-69%
F	Less than 432	Under 60%

Week 1	20-Aug	1st Day - Introduction
	22-Aug	Syllabus and 1st Assignment
Week 2	27-Aug	GPS/GIS Terminology, GPS network of satellites, History of GPS and GIS
	29-Aug	Expected Accuracies, Improving Accuracy and Limitations of Data
Week 3	3-Sep	No Class - Labor Day
	5-Sep	Uses of GPS in Agriculture and Construction
Week 4	10-Sep	GPS components and GIS components, Radio Signal Theory
	12-Sep	GPS components and GIS components, Radio Signal Theory
Week 5	17-Sep	Signal Correction: Wide Area Augmentation System (WAAS) and DGPS
	19-Sep	<b>Review Exam I</b>
Week 6	24-Sep	<b>Exam I</b>
	26-Sep	Collecting Data with GPS receivers and equipment
Week 7	1-Oct	Surveying with GPS
	3-Oct	Data handling and processing, Discovering GIS, Computer programs and data storage/transfer devices
Week 8	8-Oct	Variable Rate Applications in agriculture, golf courses, and sports fields
	10-Oct	GPS as a tool to manage a jobsite for construction and project layouts
Week 9	15-Oct	RTK – Increasing accuracy but at a cost, System components and availability/affordability
	17-Oct	<b>Review Exam II</b>
Week 10	22-Oct	<b>Exam II</b>
	24-Oct	Mapping data points, profile and differential leveling vs. GPS data
Week 11	29-Oct	Remote sensing and use of aerial photography and digital data available on the WWW
	31-Oct	Remote sensing and use of aerial photography and digital data available on the WWW
Week 12	5-Nov	Remote sensing and use of aerial photography and digital data available on the WWW
	7-Nov	Types of GIS maps, data layering, Using data layering to plan farming operations
Week 13	12-Nov	Types of GIS maps, data layering, Using data layering to plan farming operations
	14-Nov	<b>Review Exam III</b>
Week 14	19-Nov	<b>Exam III</b>
	21-Nov	No Class - Thanksgiving
Week 15	26-Nov	GIS usage by cities, counties, and other local governments, Evaluating a consulting company that uses GPS/GIS
	28-Nov	Using GPS to improve landscape design and installation
Week 16	3-Dec	GPS usage to monitor trucking, shipping, and emerging applications such as golf carts
	5-Dec	Vehicle tracking
Week 17	8-Dec	Finals Week - TBA

**Study Tips:** A comprehensive set of class notes are recommended. Review sheets will be distributed and a review session will be conducted before each major exam.

**Academic Dishonesty:** All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

**Visitors in the Classroom:** Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the

class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom.

**Americans with Disabilities Act:** It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling 936.294.1720.

If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Counseling Center.

**Classroom Rules of Conduct:** Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular phones and pagers must be turned off before class begins. Students are prohibited from making offensive remarks, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engage in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

**Religious Holidays:** University policy states that a student who is absent from class for the observance of a religious holy day shall be permitted to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing the holy day(s) and the travel involved. The instructor should provide the student with a written description of the deadline for the completion of missed exams and/or assignments.