
ERE 566 – INTRODUCTION TO GLOBAL POSITIONING SYSTEMS COURSE SYLLABUS

INSTRUCTOR

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RECOMMENDED TEXTS

GPS for Land Surveyors by Van Sickle (Third edition): on reserve in Moon Library

Elementary Surveying by Ghilani and Wolf (Thirteenth edition): available at Orange Book Store, Marshall Square Mall (also on reserve in Moon Library)

COURSE PURPOSE

Global positioning systems (GPS) provide a means to collect location information for a variety of applications. This course provides an introduction to the theory and practice of performing GPS measurements.

COURSE OBJECTIVES

At the conclusion of this course, the student will be able to:

- Describe the fundamentals of GPS measurements;
- Compare the potential accuracy of different GPS equipment and techniques;
- Explain the sources of error that contribute to reduced accuracy in GPS;
- Operate a mapping grade GPS unit.

COURSE STRUCTURE

The lectures for this course are taught concurrently with those for ERE 371 Surveying for Engineers during approximately the last third of the semester. While the lecture content will be the same for the two courses, there are distinct differences. In particular, this course does not include any laboratory exercises, so the single exam, project, and the in-class and homework exercises contribute more substantially to the grade. The assessment components are presented on the next page of this syllabus.

LECTURE SCHEDULE

Date	Topic	Readings from Ghilani and Wolf, 13th Edition
5 Nov	Overview of GPS	Ch 13: sec 1-4
7 Nov	Positioning and GPS errors	Ch 13: sec 5-6; Ch 14: sec 6-7
12 Nov	<i>GPS demonstration</i>	
14 Nov	GPS enhancement and GNSS	Ch 13: sec 7-11
19 Nov	<i>Guest Lecture</i>	
21 Nov	GPS Techniques and Project Planning	Ch 14: sec 1-7, Ch 15: sec 10
26 Nov	<i>NO CLASS – THANKSGIVING</i>	
28 Nov	<i>NO CLASS – THANKSGIVING</i>	
3 Dec	In-Class Exam	
5 Dec	Review	

HOMEWORK PROBLEMS

A set of homework problems will be available through the ERE 566 Blackboard site. These homework problems are intended to support understanding of each of the topics presented in the lectures. The due dates for each exercise are listed below. The first two assignments may be submitted electronically (via email to ljquack@esf.edu with subject ERE 566 Homework) or in hardcopy in class on the day designated; the third assignment must be submitted via e-mail. All submissions should be professionally prepared. Solutions to the problem sets will be posted on Blackboard after the due date.

SET	TOPIC	DUE DATE
1	GPS: Overview and Reference Systems	12 Nov
2	Position Determination and Errors	19 Nov
3	GPS: Augmentation Systems and Project Planning	22 Nov

GRADING

Assessment in this class will be based on four components: one exam, one project, in-class exercises and involvement, and several homework problem sets (available through Blackboard).

Exam	45 %
Project	10 %
In-class exercises/class participation	15 %
Homework problems	<u>30 %</u>
	100 %

The numerical scores you earn will average to a final numerical score for the course. Letter grades will be assigned based on the scale shown below. The grade cutoffs may be adjusted by a point when actually assigning final grades.

Letter Grade	Range of Numerical Grade
A	93 and above
A-	90 to just less than 93
B+	87 to just less than 90
B	84 to just less than 87
B-	80 to just less than 84
C+	77 to just less than 80
C	74 to just less than 77
C-	70 to just less than 74
F	Less than 70

RESPONSIBILITIES AND ATTITUDES

In order to be successful, everybody involved in this course must assume certain responsibilities. The professor's responsibilities include managing the overall course conduct, preparing and presenting instructional activities, writing and grading exams, and supervising the teaching assistant(s). The TA's are responsible for helping grade exams, helping to prepare materials, and providing help during class times and office hours. The student's responsibilities are to learn the material and apply it to their profession and career. This responsibility includes attending class, completing assigned work, preparing for exams, and doing whatever is necessary for truly understanding and retaining the subject. Academic dishonesty is unacceptable evidence of character and will be dealt with severely.

COMPUTER USE

Word processing and spreadsheet software packages are considered basic tools in modern life. These types of programs should be used for written and graphic communication and many types of quantitative analyses. E-mail will be used frequently for communicating outside class times. All full-time students have access to an e-mail account through the Syracuse University system. Computer clusters at ESF and at SU provide access to the Internet for those who do not have home access.

SOURCES OF SUPPORT AND CLASS ABSENCE:

If you experience academic or personal difficulties that affect your studies or life, there are people and resources that will help you. There is a website that serves to answer many student questions: <http://www.esf.edu/students/success>. In addition, the ESF Office of Student Life, 110 Bray Hall (470-6660) will provide academic support, career guidance, personal counseling, or direct you to the proper source of help. If you encounter a situation beyond your control in which you will be missing 3 or more days of classes, you should contact the Office of Student

Life and they will get in touch with all your instructors for you. Supportive documentation may be required.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES:

If you have a disability and will need accommodations, you should contact the Office of Student Life in 110 Bray Hall. Counselors will discuss the ESF process and work with you to access supportive services. If you have a learning disability, the College requires you to provide supportive documentation and will develop an approved accommodation sheet for you. Accommodations cannot be provided until this sheet is established and we meet to discuss its applicability to this course. Accommodations cannot be established retroactively.

RELIGIOUS OBSERVANCE:

ESF recognizes the diversity of faiths represented among the campus community and protects the rights of students to observe religious holy days according to their tradition. Students will be provided an opportunity to make up any exam or work requirements that may be missed due to a religious observance provided they give the instructor reasonable advance notification.