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## ERE 553 – INTRODUCTION TO SPATIAL INFORMATION COURSE SYLLABUS

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### INSTRUCTOR

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### REQUIRED TEXT

Required:

*Elementary Surveying* by Ghilani and Wolf (Thirteenth edition)

A scientific calculator

### COURSE PURPOSE

Many courses at ESF require a fundamental background in spatial information. This course introduces basic spatial terminology and methods for determining and expressing position. The course also considers accuracy and precision in the context of horizontal measurements and explores issues with subsequent use of these measurements for producing maps and performing analysis.

### COURSE OBJECTIVES

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

- Evaluate sources of systematic and random errors for horizontal measurements
- Compare the potential accuracy and precision of measurement techniques
- Determine the suitability for calculating derived quantities from measurements
- Describe the fundamental requirements in preparing topographic maps

### COURSE STRUCTURE

The lectures for this course are taught concurrently with those for ERE 371 Surveying for Engineers during approximately the first third of the semester. While the lecture content is the same for the two courses, there are distinct differences. In particular, this course does not include any laboratory exercises, so the single exam 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**

<b>DATE</b>	<b>LECTURE TOPIC</b>	<b>READINGS</b>
27 Aug	Introduction to Surveying	Ch 1; Ch 2: sec 6-11; Ch 3: sec 1-7
29 Aug	Horizontal Distance Measurement	Ch 6: sec 1-16
3 Sep	Horizontal Distance and Angle Measurement	Ch 6: sec 17-24; Ch 7: sec 1-9
5 Sep	Horizontal Measurement	Ch 7: sec 10-16; Ch 8: sec 1-5, 20-22
10 Sep	Surveying as a Measurement Science	Ch 2: sec 1-5; Ch 3: sec 1-14
12 Sep	Surveying as a Measurement Science	Ch 3: sec 15-21
17 Sep	Position Determination	Ch 19: sec 1, 2, 6-10
19 Sep	Coordinate Systems	Ch 20: sec 1-5, 12
24 Sep	Mapping	Ch 17: 1-6, 9; Ch 18: 1-12, 16-17
26 Sep	Mapping/Independent review time	
1 Oct	<b>** EXAM **</b>	

**HOMEWORK PROBLEMS**

There are a set of homework problems available through the ERE 553 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. Assignments may be submitted electronically (via email to [ljquack@esf.edu](mailto:ljquack@esf.edu) with subject ERE 553 Homework) or in hardcopy in class on the day designated. All submissions should be professionally prepared. Solutions to the problem sets will be posted on Blackboard after the due date.

<b>SET</b>	<b>TOPIC</b>	<b>DUE DATE</b>
1	Introduction to Surveying	3 Sept
2	Horizontal Distance Measurement	5 Sept
3	Angles and Directions	12 Sept
4	Measurement Science	19 Sept
5	Position and Coordinate Systems	26 Sept
6	Mapping	26 Sept

**GRADING**

Assessment in this class will be based on three components: one exam, several in-class exercises, and several homework problem sets.

Exam	50 %
In-class exercises	20 %
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 to the right. The grade cutoffs may be adjusted by a point when actually assigning final grades. Homework problem sets will be available via the course Blackboard site.

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 and Blackboard through the Syracuse University system. Computer clusters at ESF and 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.