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## **ERE 553 – INTRODUCTION TO SPATIAL INFORMATION COURSE SYLLABUS – FALL 2016**

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### **INSTRUCTOR**

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### **CLASS MEETING TIMES**

Lecture: Monday/Wednesday 9:30–10:25 AM (through 26 Oct)

### **TEXTS AND EQUIPMENT**

Required:

*Elementary Surveying* by Ghilani and Wolf (Thirteenth edition)  
A scientific calculator

### **COURSE PURPOSE**

An introduction to spatial terminology and methods for determining and expressing position. Examination of accuracy and precision in the context of horizontal measurements. Issues with subsequent use of measurements for producing maps and performing analysis.

### **COURSE LEARNING OUTCOMES**

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.

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 half 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 exams, in-class exercises, and homework assignments contribute more substantially to the grade. The assessment components are presented on the next page of this syllabus.

### **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, preparing laboratory exercises, writing and grading exams, and supervising the teaching assistant(s). The TAs are responsible for grading homework exercises, 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.

### LECTURE SCHEDULE

DATE	LECTURE TOPIC	READINGS
29 Aug	Introduction to Surveying	Ch 1; Ch 2: sec 6-11; Ch 3: sec 1-7
31 Aug	Introduction to Surveying and Measurements	Ch 6: sec 1-16
5 Sep	<b>NO CLASS – LABOR DAY</b>	
7 Sep	Horizontal Distance Measurement	Ch 6: sec 17-24;
12 Sep	Horizontal Distance and Angle Measurement	Ch 7: sec 1-16
14 Sep	Horizontal Angle Measurement	Ch 8: sec 1-5, 20, 22
19 Sep	Measurements and Measurement Science	Ch 2: sec 1-5
21 Sep	Measurement Science	Ch 3: sec 1-21
26 Sep	Measurement Science	
28 Sep	Measurement Science and Traversing	Ch 9: sec 1-7, 10, 11;
3 Oct	<b>EXAM 1 – Through Measurement Science</b>	
5 Oct	Traverse Computations	Ch 10 sec 1-8
10 Oct	Traverse Adjustment	Ch 10: sec 10-11, 16-17
12 Oct	Traverse Adjustment	Ch 16: Sec 1-3
17 Oct	Position Determination	Ch 19: sec 1, 2, 6-10
19 Oct	Coordinate Systems	Ch 20: sec 1-5, 8-12
24 Oct	Coordinate Systems/Independent review	
26 Oct	<b>EXAM 2 – Through Coordinate Systems</b>	

### HOMEWORK PROBLEMS

Homework problems are intended to support understanding the lecture topics and are available through the ERE 553 Blackboard site. The due dates for each exercise are listed below. Assignments may be submitted electronically (through Blackboard) 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.

SET	TOPIC	DUE DATE
1	Introduction to Surveying	7 Sept
2	Horizontal Distance Measurement	14 Sept
3	Horizontal Angle Measurement	21 Sept
4	Measurement Science	28 Sept
5	Traversing	17 Oct
6	Position and Coordinate Systems	24 Oct

**COMPUTER USE**

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

**GRADING**

Assessment in this class will be based on three components: two exams (30% each), many in-class exercises (10%), and six homework problem sets (5% each).

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

**ATTENDANCE POLICY:**

Participation in lectures is essential to success in this course. As shown on the grading schedule above, in-class exercises count toward the overall grade and inherently track attendance.

**ACADEMIC DISHONESTY**

Academic dishonesty is a breach of trust between a student, one's fellow students, or the instructor(s). By registering for courses at ESF you acknowledge your awareness of the ESF Code of Student Conduct (<http://www.esf.edu/students/handbook/StudentHB.05.pdf>), in particular academic dishonesty includes but is not limited to plagiarism and cheating, and other forms of academic misconduct. The Academic Integrity Handbook contains further information and guidance (<http://www.esf.edu/students/integrity/>). Infractions of the academic integrity code may lead to academic penalties as per the ESF Grading Policy (<http://www.esf.edu/provost/policies/documents/GradingPolicy.11.12.2013.pdf>).

**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 LEARNING AND PHYSICAL DISABILITIES:**

SUNY-ESF works with the Office of Disability Services (ODS) at Syracuse University, who is responsible for coordinating disability-related accommodations. Students can contact ODS at 804 University Avenue- Room 309, 315-443-4498 to schedule an appointment and discuss their needs and the process for requesting accommodations. Students may also contact the ESF Office of Student Affairs, 110 Bray Hall, 315-470-6660 for assistance with the process. To learn more about ODS, visit <http://disabilityservices.syr.edu>. Authorized accommodation forms must be in the instructor's possession one week prior to any anticipated accommodation. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

**INCLUSIVE EXCELLENCE STATEMENT**

As an institution, we embrace inclusive excellence and the strengths of a diverse and inclusive community. During classroom discussions, we may be challenged by different ideas. Understanding individual differences and broader social differences will deepen our understanding of each other and the world around us. In this course, all people are strongly encouraged to respectfully share their unique perspectives and experiences. This statement is intended to help cultivate a respectful environment, and it should not be used in a way that limits expression or restricts academic freedom at ESF.

**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.