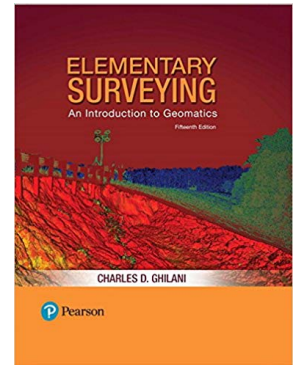


**SUR 3103C - Geomatics
Course Syllabus
Fall 2020**

INSTRUCTOR Dr. Bon A. Dewitt (Dr., Mr., He, Him)
Room 305 Reed Laboratory
352-392-6010
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Office hours: 7th period Monday, Wednesday, Friday
(other times by appointment)

TEXT Elementary Surveying – An Introduction to Geomatics,
C. Ghilani 15th Edition, Pearson Education, 2017
(Other editions from 12th through 14th are also okay.)



COURSE OVERVIEW: This course primarily covers plane surveying techniques, including measurement of angles, distances, and elevation differences. Also covered are the related techniques of data reduction for these fundamental measurements, the Global Positioning System, Topographic mapping, Earth-based coordinate systems, Boundary surveys, and Horizontal curves.

COURSE OBJECTIVES:

Students must demonstrate knowledge and ability in the following:

- Significant figures
- Accuracy and precision; systematic and random errors
- Measurement of accurate horizontal distances, and horizontal and vertical angles
- Computation of horizontal coordinates by traverse adjustment
- Making vertical measurements by differential leveling
- Computation of elevations by level loop adjustment
- Bearing and azimuth calculation
- Computation of area of a parcel of land
- Production of a large-scale topographic map

Student should have gained general (introductory) knowledge in:

- Coordinate systems and Datums
- The Global Positioning System
- Boundary Surveys
- The US public land survey
- Horizontal circular curves

COVID-19 SAFETY PLAN FOR ON CAMPUS STUDENTS

Lectures for this course will be delivered **online via Zoom** at the scheduled lecture times (Period 7, 1:55-2:45pm Tuesday and Thursday). The lectures will be recorded to accommodate students who work during the day and the links to the recordings will be posted on the Canvas site.

Labs for this course will be **in-person** as they involve field operations with standard surveying equipment. Exceptions are for Lectures 7, 9, & 12, which will be delivered via Zoom. Students in the Gainesville sections will attend on-campus at Reed Lab under the following protocol.

Requirements for Students and Instructors: Face masks properly covering the nose and mouth shall be worn at all times. Everyone is expected to follow proper hand hygiene and social distancing (6 feet) guidelines to the fullest extent possible. The following procedure approved by UF administration and copied verbatim will be followed for students who do not wear a proper face covering in the classroom.

“What if a student in my face-to-face classroom is not wearing a mask?”

Ask the student to put on a mask. If the student declines, ask the student to leave the room. If the student declines to leave, it is within your discretion to adjourn the class for the day on health grounds. You must report the student to the Student Affairs COVID-19 Education Office by filling out the online form at <https://bit.ly/COVIDconcern>. A student who refuses to leave class is not permitted to return to class without Student Affairs COVID-19 Education Office permission. Faculty will receive documentation that the student is permitted to return to class.

If the student returns to class a second time without a mask, ask the student to put on a mask or leave the class immediately. If the student refuses, call UPD (352-392-1111) and refer the student to the Office of Student Conduct and Conflict Resolution for conduct charges by filling out the online form at <https://bit.ly/COVIDconcern>.

All students must wear masks in classrooms. Accommodations will not be granted for disability-related requests to not wear a face covering.”

Ingress/egress process for the teaching space to maintain physical distance: Maintaining a 6-foot physical distance in a classroom with one door will be a challenge. People entering the classroom shall take an available seat that is furthest from the door. That way, people will not have to pass near others as they take their seats. In the event that somebody needs to exit the room before the end of class he or she is expected to maintain as large of a separation distance from others as possible. If you need to get a drink or use the restroom, please do so before entering the classroom.

Cleaning procedures: Surveying equipment will be used by multiple students and will be cleaned prior to use with sprayed-on isopropyl alcohol and allowed to air-dry. This also includes items such as instrument cases, tripods, and tapes. Liberal use of hand sanitizer is strongly encouraged.

Seating in Room 302 Reed Lab: Students attending labs in Gainesville will meet in the classroom on the first lab day, before heading out to the North Lawn for field work. Chairs have been removed so that the remaining seats meet the 6-foot separation guideline. After the first lab day, students will access equipment from the Reed Lab equipment room (Room 206) from the outside door one lab group at a time and then proceed directly to the North Lawn area. Prior to lab, a recorded video on the lab procedures will be posted and students are expected to watch the video in preparation for the lab. A short online quiz on the day's lab procedures will be administered to ensure proper preparation.

Contingency plans for student or instructor illness: Students are expected to take proper precautions if they become ill during the semester. Missed lectures can be made up by watching the corresponding recorded video. Students who are too sick to attend lab should contact their lab partners so that they will know to proceed without them. Documentation from an appropriate medical professional will be required for an illness causing a missed lab in order for the lab work to be completed late. Late lab work will need to be rescheduled with the instructor.

In case of instructor illness, arrangements will be made for a substitute.

Contingency plans for inclement weather: As most labs throughout the semester will be conducted outdoors, inclement weather is something that will be encountered. When not working with electronic equipment, in the event of light rain and no lightning you are expected to continue working through the lab. When working with electronic equipment or in the event of lightning or heavy rain, we will stop work, bring the equipment back to the equipment room, and determine whether the conditions will improve in order to proceed with the lab or if the lab will need to be rescheduled.

Contingency plans for meeting course objectives if the university has to cancel in-person instruction: All of the course objectives except for those requiring hands-on measurement with surveying equipment can be met through distance education. If students are able to complete the first five labs, they will have enough instrument work to minimally achieve those objectives. If Labs 6-12 (or some subset) must be missed due to cancellation, data sets will be provided that simulate the measurements so that the non-measurement aspects of the learning exercises can be completed.

GRADING Final grades for the course will be assigned based on the following point system

ITEM	POINTS
Quizzes: 4 quizzes @ 30 points each	120
Homework: 5 assignments @ 10 pts each	50
Trigonometry Review (Lab 1)	10
Station descriptions (Lab 1)	10
General Lab Work Grade: 9 @ 25 pts each	225
Lab attendance: 12 sessions @ 5 pts each	60
General Lab Prep Quizzes: 9 @ 5 pts each	45
Topographic Mapping Project (Lab 12)	60
Field Book: best note keeping grade*	20
Comprehensive Final Exam	150
TOTAL POSSIBLE POINTS	750

* each student is required to take field notes for at least one session

Final class grades will be curved, but will be roughly based on 90=A, 80=B, 70=C, 60=D. Plus (+) and minus (-) will be included as appropriate. For an explanation of the UF letter grade scale, see: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

FINAL EXAM The final exam for the course will be held at 3:00PM – 5:00PM on Thursday, December 17, 2020. The final exam is cumulative, covering the entire semester's topics. **Be sure to plan accordingly because there will be no provision for an early exam.**

QUIZZES Four quizzes will be given during the semester. Each quiz will cover the subject material of the lectures corresponding to the following list. The quiz may also cover the reading assignment associated with that lecture. There is no provision for making up a missed quiz. Exceptions will be made only for extreme circumstances.

Quiz 1 – Lectures 1-6

Quiz 2 – Lectures 7-11

Quiz 3 – Lectures 12-18

Quiz 4 – Lectures 19-25

ATTENDANCE Attendance of all labs is mandatory. Absence will result in zeros for the attendance and general lab work grade for that day. Excuses will rarely be accepted, and if so, at the sole discretion of the instructor. Your lab partners are counting on you!

LAB EQUIPMENT Most of the equipment you will use is expensive (particularly the total stations). Handle with extreme care!!

Academic Honesty

In 1995 the UF student body enacted an honor code (see link below) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

Preamble: In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. Student and faculty support are crucial to the success of the Honor Code. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Student Responsibility. Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council or Student Conduct and Conflict Resolution in the Dean of Students Office.

Faculty Responsibility. Faculty members have a duty to promote honest behavior and to avoid practices and environments that foster cheating in their classes. Teachers should encourage students to bring negative conditions or incidents of dishonesty to their attention. In their own work, teachers should practice the same high standards they expect from their students.

Administration Responsibility. As highly visible members of our academic community, administrators should be ever vigilant to promote academic honesty and conduct their lives in an ethically exemplary manner.

(Source: 2011-2012 Undergraduate Catalog)

Homework submissions for this course may not be copied in part or in whole. While students are allowed to discuss concepts from the assignments with other students, all work must be independently produced.

This policy, along with the principles of the Student Honor Code, will be vigorously upheld at all times in this course.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, <https://counseling.ufl.edu/>*

Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

- *Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/*

Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues.

0001 Reid Hall, 352-392-8565, <https://drc.dso.ufl.edu/>

SUR 3103C - Lecture syllabus and reading assignments

- Lec 1: Course introduction. Written field notes. Read: Chap 1 (all), Chap 2, sec 6-11.
- Lec 2: Units and significant figures. Chap 2, sec 1-5.
- Lec 3: Theory of errors in observations. Chap 3: Read sec. 1-8, Browse sec. 9-21
- Lec 4: Distance measurement - taping. Read: Chap 6, sec. 1-13
- Lec 5: Intro to Leveling. Read: Chap 4 (all).
- Lec 6: Leveling procedures and computations. Read: Chap 5 (all).
- Lec 7: Taping corrections. Read: Chap 6, sec. 14-16
- Lec 8: Electronic distance measurement. Read: Chap 6, sec. 17-25.
- Lec 9: Angles, Azimuths, and Bearings. Read: Chap 7, sec. 1-9.
- Lec 10: Compass readings. Total Stations. Read: Chap 7, sec. 10-16; Read Chap 8, sec. 1-6.
- Lec 11: Horizontal and vertical angle measurement. Read: Chap 8: sec. 7-22
- Lec 12: Traversing. Read: Chap 9 (all).
- Lec 13: Traverse computations. Read : Chap 10, sec. 1-6.
- Lec 14-15: Traverse adjustment. Read: Chap 10: sec. 7-17.
- Lec 16: Area: coordinate and DMD methods. Read: Chap 12 (all).
- Lec 17: The Global Positioning System (GPS) Intro and Principles. Read: Chap 13 (all).
- Lec 18: GPS operations. Read: Chap 14, sec. 1-2; Browse: Chap 14 sec. 3-7. Browse Chap 15.
- Lec 19: Data collectors. Read Chap 2, sec. 12-15.
- Lec 20: Mapping surveys. Read Chap 17, sec. 1-10, 12-13.
- Lec 21: Interpreting and drawing contours. (Review 17.5-17.8, 17.9.2)
- Lec 22: Mapping and AutoCAD intro. Read Chap 18 (all).
- Lec 23: Control surveys and Geodetic datums. Read: Chap 19 sec. 1-12, Browse sec. 13-14
- Lec 24: State plane coordinates. Read: Chap 20 sec. 1-5, 8-8.1, 9-11; Browse rest of chapter.
- Lec 25: Boundary surveys. Read: Chap 21 (all).
- Lec 26: United States Public Land Survey System. Read: Chap 22 (all).
- Lec 27: United States Public Land Survey System (continued)
- Lec 28: Horizontal curves. Read: Chap 24: sec 1-4.

SUR 3103C – Lab activities

- Lab 1 Introduction and station descriptions – **Meet in-person**
- Lab 2 Distances – taping and pacing (general lab work grade) – **Meet in-person**
- Lab 3 Leveling (general lab work grade) – **Meet in-person**
- Lab 4 Distances – EDM (Total station) (general lab work grade) – **Meet in-person**
- Lab 5 Angle measurement, Day 1 (general lab work grade) – **Meet in-person**
- Lab 6 Angle measurement, Day 2 if needed – **Meet in-person**
- Lab 7 Traverse adjustment (general lab work grade) – **Meet via Zoom*****
- Lab 8 GPS exercise (general lab work grade) – **Meet in-person**
- Lab 9 CAD exercise (general lab work grade) – **Meet via Zoom*****
- Lab 10 Planimetric mapping (general lab work grade) – **Meet in-person**
- Lab 11 Contour mapping (general lab work grade) – **Meet in-person**
- Lab 12 Map drafting – **Meet via Zoom*****

Fall 2020

Monday	Tuesday	Wednesday	Thursday	Friday
8/31 Lab 1	9/1 Lec. 1 Lab 1	9/2	9/3 Lec. 2	9/4
9/7 Labor Day	9/8 Lec. 3 No Lab	9/9	9/10 Lec. 4	9/11
9/14 Lab 2	9/15 Lec. 5 Lab 2	9/16	9/17 Lec. 6	9/18
9/21 Lab 3	9/22 Lec. 7 Lab 3	9/23	9/24 Lec. 8 (Q1)	9/25
9/28 Lab 4	9/29 Lec. 9 Lab 4	9/30	10/1 Lec. 10	10/2
10/5 Lab 5	10/6 Lec. 11 Lab 5	10/7	10/8 Lec. 12	10/9
10/12 Lab 6	10/13 Lec. 13 (Q2) Lab 6	10/14	10/15 Lec. 14	10/16
10/19 Lab 7	10/20 Lec. 15 Lab 7	10/21	10/22 Lec. 16	10/23
10/26 Lab 8	10/27 Lec. 17 Lab 8	10/28	10/29 Lec. 18	10/30
11/2 Lab 9	11/3 Lec. 19 Lab 9	11/4	11/5 Lec. 20 (Q3)	11/6
11/9 Lab 10	11/10 Lec. 21 Lab 10	11/11 Veterans Day	11/12 Lec. 22	11/13
11/16 Lab 11	11/17 Lec. 23 Lab 11	11/18	11/19 Lec. 24	11/20
11/23 Lab 12	11/24 Lec. 25 Lab 12	11/25 Thanksgiving Break	11/26 Thanksgiving	11/27 Thanksgiving Break
11/30	12/1 Lec. 26	12/2	12/3 Lec. 27 (Q4)	12/4
12/7	12/8 Lec. 28	12/9	12/10 Reading Day	12/11 Reading Day
12/14	12/15	12/16	12/17 Final Exam 3:00-5:00pm	12/18