

# Three Rivers Community College

## Survey I – CIV K 150 Syllabus

Fall 2014

Instructor; Donald W. Gerwick, P.E., L.S.

Class Location – B 107;  
Times: Wednesday (Lecture) 5:00 pm – 7:45

Office: 205W – 205.5  
Office Hours: M 3:20 – 4:50, T 4:00 – 5:30  
Additional Times and Day by Appointment

Text; **Elementary Surveying, An Introduction to Geomatics**, 14<sup>th</sup> edition  
Charles Ghilani & Paul R. Wolf

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This course introduces the student to the proper use of surveying equipment used in making linear and angular measurements, including tapes, transits, theodolites, levels and total stations. This leads to the development of the basic principles of traversing as it relates to boundary and other forms of surveying. Course outcomes will include the ability for students to use levels for differential leveling, and using a Total Station for measuring distances and angles of a traverse, as well as trigonometric leveling. Students will be able to complete mathematical calculations for traverse closures and adjustment as well as a variety of other mathematical calculations as well as leveling.

**Required for Course**, text listed above and a basic calculator with trigonometric functions, and an engineering scale.

Homework is outlined below; the instructor reserves the right to assign additional or alternate problems.

Chap. 1 – Introduction and overview of Surveying/Geomatics. Additional material will be covered in lecture to give a slightly more in depth review of surveying history than covered in the text.

H.W. Prob. 1.2, 1.4, 1.10, 1.19

Chap. 2 – Units, Significant Figures and Field Notes – All sections

Homework Chap 2: 2.1 - 2.1, 2.2, 2.4, 2.5, 2.6, 2.8, 2.9, 2.10, 2.11

Use the “long hand” method of converting the angles of 2.16 a. to decimals degrees. And 2.17, 2.19

Chap. 3 – Theory of Errors in Observations – Sections 3.1 through 3.10

Homework Chap. 3 – 3.1, 3.2, 3.3, 3.4, 3.5

**Quiz 1-** Chap. 1, 2 & 3; All lecture material and all assigned sections of the noted chapters.

Chap. 4 - Leveling –Theory, Methods, and Equipment – Sections 4.1 through 4.5; Brief overview of remaining sections

HW Chap. 4 – 4.4, 4.5, 4.8, 4.12, 4.18, 4.29, 4.30

Chap. 5 – Leveling – Field Procedures and Computation – All sections

HW Chap. 5 – 5.1, 5.2, 5.6, 5.9, 5.12, 5.23, 5.35

**Quiz 2** – Chap. 4 & 5 all lecture material and all noted sections of your text.

Chap. 6 – Distance Measurements: Sections 6.1 through 6.16

H.W. Prob. 6.2, 6.6, 6.7, 6.8, 6.19

Chap. 6 – Distance Measurement – All remaining sections

HW Chap. 6 – 6.5, 6.6, 6.25, 6.31, 6.32, 6.35

Chap. 7 – Angles, Azimuths and Bearings – Sections 12.1 to 12.12 and 7.15 & 7.16

HW Chap. 7 - 7.3, 7.6, 7.8, 7.10, 7.13, 7.16, 7.30, 7.33

Chap. 8 - Total Station Instruments; Angle Measurements – Sections; 8.7 to 8.14 with brief discussion of other selected sections in lecture

Chap. 8 - Total Station Instruments; Angle Measurements – Sections 8.1 to 8.5

HW Chap. 8 – 8.4, 8.9, 8.12, 8.21

HW Chap. 8 – Neatly, sketch and identify all elements of a Total Station, requires 2 views;

**Paper** - Describe how the role of Surveying over the last 300 years in the U.S., the role it has played in the development of the country and what its role will be into the 21<sup>st</sup> century. Due date to be assigned.

**Quiz 3** – Chap. 6, 7, & 8 all lecture material and all noted sections of your text.

Chap. 9 - Traversing – All sections

HW Chap 9 – 9.2, 9.3, 9.9, 9.11, 9.15,

Chap. 10 - Traverse Computations – All sections

HW Chap 10 – Group 1; 10.1, 10.2, 10.6  
Group 2; 10.7, 10.8,  
Group 3; 10.25, 10.28, 10.29

Chap. 11 - Coordinate Geometry in Surveying Calculations – 11.1 to 11.5

HW Chap 11 – 11.1, 11.5, 11.7, 11.9

**Quiz 4** - Chap. 9, 10 & 11, All lecture material and all noted sections of your text.

Chap. 12 - Area – 12.1 – 12.7; 12.9 – 12.11

HW Chap. 12 – 12.1, 12.3, 12.5, 12.8\*, 12.11\*,  
\* Students will be given coordinate values for these problems, 12.11 should be solved  
by DMD Method

Chap. 23 – Construction Surveys – All Sections

HW Chap. 23 – 23.2, 23.8, 23.10, 23.15, 23.17, 23.27

Chap. 13 - GPS- the Global Positioning System – Introduction and Principles of  
Operation – 13.1 – 13.3; 13.5-13.8, 13.10 – 3.11

HW Chap 13 – 13.1, 13.3, 13.4, 13.7, 13.8, 13.34, 13.37

**Final Quiz** Chap 12, 13, & 23 All lecture material and all noted sections of your text.

**Final Grade** – The students final grade will be based on the weighted average of 5 quizzes (and 1 paper) taken during the semester which will account for 85% of your grade. Assigned homework and class participation will make up the remaining 10 and 5% respectively.

**Home Work (HW)** – Home work assigned on a Wednesday will be due on the following Wednesday unless otherwise modified in class; Homework will be turned in at the beginning of class. Students must **SHOW ALL WORK FOR MATH RELATED PROBLEMS**. HW will be graded and returned at the following class. Home work will receive a grade of 0, 1, 2, 3, or 4. As homework is a learning process grading will be based largely on effort, with correct answers counting only as a secondary measure.

None turned in = 0

Minimal Attempt = 1

Moderate Attempt and Poor Results = 2

Moderate Attempt and Fair results = 3

Good Attempt and Largely Correct results = 4

Late home works, unless otherwise excused will be marked at 25% off (drop of one numeric grade).

**Quizzes** – Students will allowed one side of one 8 1/2 x 11 sheet of paper for formulas and conversion factors only (no definitions or other written notes).

Students must have their **calculators, cell phones will not be allowed** as a substitute; failure to bring a calculator may result in lost points as many questions will be impossible to answer without one. Quizzes will be based on lecture material and all assigned sections of the text, and homework.

Quizzes will be assigned a value by the instructor; quiz grades will be the number of points earned on the quiz divided by the total value of the quiz.

**Class Attendance** is expected, although, while students will not be penalized for non-attendance they will be responsible for material covered in their absence. It will be the student's responsibility to determine what assignments that may have been missed.

**Class Room Policies** - Cell phones brought to class shall be off and out of site (no texting). Language and behavior that is disrespectful or disruptive to others is unacceptable; Students should refer to their Student Handbook for examples of such behavior as well additional school policies.

**Academic Integrity** – Unless indicated by specific assignments, or by the instructor for group projects, all work for assignments shall be that of the individual student. Cheating on quizzes or using the work of others without proper credit (plagiarism) for assignments, or other forms of academic dishonesty, as defined by the Student Handbook, is unacceptable. If, after evaluation of the potential infraction(s), consistent with the Student Handbook, a grade of "0" for the assignment may be assigned.

**Disabilities** – If you have a visible or hidden disability that may require classroom or test taking modifications you are encouraged to contact Student Services for assessment.

## **Digication**

All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool students will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her learning portfolio and may continue to use the Digication account after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the college experience for all. Student work reviewed for assessment purposes will not include names and all student work will remain private and anonymous for college improvement purposes. Students will have the ability to integrate learning from the classroom, college, and life in general, which will provide additional learning opportunities. If desired, students will have the option to create multiple portfolios.