

CRN 24808

Spring 2017

Course Syllabus for SUR-2640 Advanced Surveying

Course Description: *From the Valencia Catalog:*

Prerequisite: SUR 1101C Recommended: ETD 1320 Advanced surveying office computations; traverse, horizontal curve, and vertical curve review; coordinates areas by D.M.D. and coordinates; partitioning-problems; intersection problems (line-line, line-curve, curve-curve); missing traverse parts; compound and reverse curve computations; spirals; principles of significant figures and solution analysis. 4 credits/ 4 contact hours

Class Meetings: Building 9 Room 207, 9:00 AM – 12:00 PM, Saturday mornings, 16 weeks - Hybrid

Text: Required: Elementary Surveying, An Introduction to Geomatics, C. Ghilani and P. Wolf – any edition.

Materials Required: Field Book, 2H-3H pencil, scientific calculator, protractor, engineering scale and 3-ring binder.

Instructor Information:

Name: Sandra Bowling

Office: Building 9, Room 223; Mailbox in 9-140F; Mail Code 4-41

Phone: (407) 582-1302

Email: sbowling6@valenciacollege.edu

Office Hours: Specific hours posted on office door. Appointments may be made at mutually convenient times.

Virtual Hours: **Contact me via Blackboard/ Email**

Instructional

Methods: Knowledge of BlackBoard is necessary to be successful in this course; if you need assistance, please contact me. This course is a combined lecture and lab course; individual, as well as group work, is required.

Student Performance Assessment:

Grading Evaluation and Performance Assessment:

Your final average will be valued according to the following grading scale:

| Evaluation / Assessments | | |
|--------------------------|-------|----------------|
| Homework | 60% | 90 - 100 % = A |
| Quizzes (3) | 20% | 80 - 89 % = B |
| Final | 20% | 60 - 69 % = D |
| Total | 100 % | 59 - 0 % = F |

Class Room Policies, Absences and Make -up Work:

Special Rules: Use of cell phones or laptops is not allowed once class has started. Cell phones will not be allowed on Quizzes or Test.

Field Exercises and Field Book:

Field exercises will reinforce course topics during the semester; participation will be graded. Some activities involve expensive equipment and proper care of equipment is critical. Proper clothing attire required- no sandals are allowed in the field.

Topographic Survey Project:

Each field crew will be required to complete a Topographic Survey Project. The project will require each group to complete the field work by capturing ground features and elevations using the total station with a data collector. Each student will be assigned to collect a number of data points (e.g., 100 data points or as required by the instructor); the data points will be properly numbered and coded - consistent with the college code library, and a field note sketch will record the position of some or all numbered shots.

Students will transfer all the collected data to their own field data files (copied to disk). Each student will have their field notes and data files checked by the instructor. Students will work as a group to bring all their field data files into one project file. Students will work in crews, utilizing total stations for the fieldwork, and Autodesk – Civil 3D and plotters for the field data processing and plotting. Each student will create a topographic map with contours and ground features labeled. Select and execute the TIN and contour processing - select the scale the same as for the plan (above) utilizing Autodesk – Civil 3D. Perform whatever editing interventions are required to complete the plan - e.g., labels, title block, border, missing lines and points, etc. utilizing Autodesk – Civil 3D. When the electronic plan has been completed, plot the work at a scale approved by the instructor.

Disclaimer: Changes in the syllabus and/or schedule may be made at any time by announcement from the instructor.

No-Show Procedure:

Any student who does not attend class **prior to the start of the no-show reporting period for the part of term of this course** will be withdrawn by the instructor as a no-show. This will count as an attempt in the class, and students will be liable for tuition. If your plans have changed and you will not be attending this class, please withdraw yourself through your Atlas account during the drop period for this part of term.

Classroom Policies Attendance:

Classroom attendance and punctuality is vital to academic success. If you miss a class, you need to contact a classmate to get the notes you missed. Students who do not maintain regular attendance will be withdrawn by the professor, unless other arrangements have been made with the professor. Missing the equivalent of more than 3 weeks of classes for any reason, other **than absences excused in accordance with Valencia's policies, is excessive and a basis for withdrawal**. Being 15 minutes late for class or leaving prior to the end of class will count as an absence. It is the responsibility of the student to find out what was covered if you miss class.

Withdrawal:

Per Valencia Policy 4-07 (Academic Progress, Course Attendance and Grades, and Withdrawals), a student who withdraws from class before the established deadline for a particular term will receive a grade of "W". A student is not permitted to withdraw after the withdrawal deadline. **See Important Dates below for the Withdrawal Deadline for your part of term** A student who is withdrawn by faculty for violation of the class attendance policy will receive a grade of "W". Any student who withdraws or is withdrawn from a class during a third or subsequent attempt in the same course will be assigned a grade of "F". For a complete policy and procedure overview on Valencia Policy 6Hx28:4-07, please go to: <http://valenciacollege.edu/generalcounsel/policy/> .

Important Dates:

Spring Term: Classes begin January 9. Drop/Refund Deadline 11:59 p.m January 17. No Show reporting period January 18-27. **Withdrawal deadline for W grade is 11:59 p.m. March 31.** See final exam schedule at <http://valenciacollege.edu/calendar/FinalExam.cfm> for exam date and time.

Credit Classes Do Not Meet: Jan 16, Feb 10 and March 13-19

Make-up Policy:

Assignments, quizzes and exams will be allowed in cases of documented student emergencies and will be graded with a lower percentage every week that passes and is overdue (-10% weekly). For student emergencies, it is the student's responsibility to contact the instructor and provide documentation within one week unless special arrangements have been made previously.

| Date | Topic | Field Exercise and Assignments | Chapter |
|---|---|---|--|
| 1/14 Module 1 <i>In Class – F2F</i> | Review : Azimuths, Bearings, Coordinates Traverse Calculations , Benchmarks -NGS Datasheets, Control (Horizontal and Vertical), Leveling, Set Up of Instrument, | Review - Syllabus Homework #1 Due 1/21 Homework #2 Due 1/28 | Chapter 7: Sections 7.1 – 7.10 Chapter 9: Sections - 9.1 to 9.5 and 9.7 to 9.10 Chapter 10: Sections - 10.1 to 10.17 Chapter 4: Sections 4.5 |
| 1/21 Module 2 <i>Online - Blackboard</i> | | | |
| 1/28 Module 3 <i>In Class F2F</i> | Quiz 1 Covers topics in Class 1 and 2 Auto Desk Civil 3D Introduction to Civil 3D Traverse | Homework #3 Due 2/4 Civil 3D Assignment # 1 Due 2/11 | Handouts Video Lectures |
| 2/4 Module 4 <i>Online - Blackboard</i> | Electronic Distance Measurement, Electronic Data Collection with Computer Applications, Valencia Field Exercise: Traverse and Topographic Survey - Data Collection | | Chapter 6: Section – 6.19 to 6.25 Chapter 8: Sections - 8.4 , 8.5, 8.7 to 8.14 Handout on Topcon Model & Ranger Data Collector Chapter 17: Sections 17.1 to 17.6 and 17.8-17.11 |
| 2/11 Module 5 <i>In Class – F2F</i> | | | |
| 2/18 Module 6 <i>On Line - Blackboard</i> | Develop Topographic Site Maps of Valencia Data | Autodesk Civil 3D – Fieldbook and Topographic Survey Map Due 2/25 | Handouts Video Lectures |
| 2/25 Module 7 <i>In Class – F2F</i> | COGO - Coordinate Geometry - Intersection problems (line-line, line-curve, curve-curve), Three Dimensional Two Point Resection, Coordinate Geometry, Area by Coordinates and Double Meridian Distance Method and Partitioning of Lands | Homework 4 Due: 3/4 Homework 5 Due: 3/11 | Chapter 11: Sections 11.1 to 11.10 Chapter 12: Sections 12.1 to 12.12 Video Lectures |
| 3/4 Module 8 <i>On Line - Blackboard</i> | | | |
| 3/11 Module 9 <i>In Class – F2F</i> | Quiz 2 –Covers topics in Class 7 and 8 | | |
| 3/18 | Spring Break | | |
| 3/25 Module 10 <i>On Line - Blackboard</i> | Theory of Errors in Observations, Matrix Methods, Three-Wire Leveling Valencia Field Exercise: Three-Wire Leveling and | Homework 6 Due: 4/1 | Chapter 3:Sections: 3.1 to 3.16 Chapter 5:Section 5.8 Appendix E : “Introduction to Matrix” Video Lecture |
| 4/1 Module 11 <i>In Class – F2F</i> | | | |
| 4/8 Module 12 <i>On Line - Blackboard</i> | Least-Square Adjustments | Homework 7 Field Project and Calculations to include for Least-Square Adjustments on Exercise Due 4/15 | Chapter 16:Sections 16.1 to 16.6 Video Lecture |
| 4/15 Module 13 <i>In Class – F2F</i> | Quiz 3 –Covers topics in Class 9, 10 and 11 State Plane Coordinates Calculations | Homework 8 Due: 4/22 | Chapter 19: Sections – 19.7 through 19.12 Chapter 20: Section 20.1 to 20.14 Handout for SPC to Grid Coordinates |
| 4/22 Module 14 <i>On Line - Blackboard</i> | | | |
| 4/29 Module 15 <i>In Class – F2F</i> | FINAL | | |

Course Learning Outcomes:

This lecture/field exercise course is designed for Civil/Surveying Engineering Tech. and Drafting and Design Tech majors.

The major learning outcomes for this class include:

1. Students will sharpen their awareness of the errors involved in measurements and the procedures to minimize and balance these errors.
2. Student will learn how to determine methods and procedures for establishing survey control.
3. Student will learn methods and procedures to establish horizontal control for topographical mapping, and for the surveys required for the design and construction of public and private works of large extent.
4. The student will learn special techniques that may be required to complete a traverse.

Online Student Assessment of Instruction

As part of our continuing goal to provide the best possible instruction for Valencia College students, the student evaluation of instructor form is now available **online**. On a completely anonymous basis, all students are invited to complete this online form. To do so, go into Atlas, select "My Courses" then select the box at the right that says 'Assessment Survey'. You will be able to submit one assessment form per class. After that, the form will no longer be available to you. To ensure that this process does not affect your grade, the **results are not shown to the instructor until after grades are submitted**. Please set aside some time toward the end of the semester to complete the assessment. By doing so, you will assist the instructor in assessing the effectiveness of his/her teaching methods and techniques for subsequent semesters. Thank you for your feedback.

Student Core Competencies

The faculty of Valencia College have established four Core Competencies that describe the learning outcomes for a Valencia graduate. They are: THINK, VALUE, COMMUNICATE, ACT. These general competencies can be applied in many contexts and must be developed over a lifetime. They specify how learning can be expressed and assessed in practice. They enable students and faculty to set learning goals and assess learning within and across the many disciplines of human inquiry. Use the descriptions and examples of academic work for each to measure your own learning outcomes. Samples of the academic work are great additions to your Learning Portfolio. For further information on student core competencies please go to www.valenciacollege.edu/competencies

Valencia College Core Competencies

"The faculty of Valencia College has identified four core competencies that define the learning outcomes for a successful Valencia graduate. These competencies are at the heart of the Valencia experience and provide the context for learning and assessment at Valencia College. You will be given opportunities to develop and practice these competencies in this class. The four competencies are:

THINK = Think clearly, critically, creatively; analyze, synthesize, integrate and evaluate in many domains of human inquiry.

- a) you will analyze data and scientific principles as they pertain to technical applications
- b) you will employ facts, formulas and procedures in lecture
- c) you will discover and understand how mathematics is important in various fields and in disciplines other than in engineering, drafting, construction management and surveying.
- d) you will be able to draw well supported conclusions about the importance of survey in your daily life and in your career
- e) you will be able to revise conclusions in light of new observations and interpretations

VALUE = Make reasoned judgments and responsible commitments.

- a) you will be able to compare personal, ethical, and scientific values in
- b) you will be able to see the value of the time commitment needed to succeed.

COMMUNICATE = Communicate with different audiences using varied means.

- a) you will be able to practice written communication skills
- b) you will be able to verbally communicate to fellow students and teachers using professional, scientific language during lectures

ACT = Act purposefully, effectively and responsibly.

- a) you will be able to manage your time and activities to achieve your academic goals
- b) you will meet deadlines
- c) you will apply the knowledge you learn to your career goals

Expected Student Conduct

Valencia College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia's rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook.

Students with disabilities who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).

Disclaimer

"The course outline and syllabus are subject to change as needed; changes will be announced in class by using ATLAS email or BlackBoard, etc. Your continued participation in this course after the drop-add deadline period constitutes an agreement with and an acceptance of the conditions presented in this syllabus."

Attendance and Tardy Policy and Expectations

During each lecture, a roster will be provided for you to sign; if you are late to class, it is your responsibility to add your signature to the roster. Missing signatures are viewed as absences; leaving early from class, without professor approval, will be counted as an absence. More than one absence has proven, in the past, to be a sign that your grade will be substantially less than you may have hoped for and will result in the loss of field exercise points.

Additional Information on the Withdrawal Deadline and Policy

Per Valencia Policy 4-07 (Academic Progress, Course Attendance and Grades, and Withdrawals) a student who withdraws from class before the **withdrawal deadline** will receive a grade of "W." A student is not permitted to withdraw from this class after the withdrawal deadline; if you remain in the class after the withdrawal deadline, you can only receive a grade of A, B, C, D, F or I. An I grade will only be assigned under extraordinary circumstances that occur near the end of the semester. If you receive an I, the work missed must be made up during the following semester, at which time you will get an A, B,C,D or F. Failure to make up the work during the following semester will result in you getting a grade of F in the course. The professor will not withdraw any student for any reason; it is the responsibility of the student to withdraw themselves before the withdrawal

deadline and to be aware of the date of the withdrawal deadline. Any student who withdraws from this class during a third or subsequent attempt in this course will be assigned a grade of "F."

Students on financial aid should consult an advisor or a counselor before withdrawing from a course; there may be financial aid implications to the student which he or she must know about to make an informed decision before withdrawing from a course. Students with some scholarships who withdraw or are withdrawn from a class must pay the college for the cost of the class. Other scholarship sponsors may also require repayment.

For a complete policy and procedure overview on Valencia Policy 4-07 please go to:

http://valenciacollege.edu/generalcounsel/policy/default.cfm?policyID=75&volumeID_1=4&navst=0

ADDITIONAL CLASSROOM INFORMATION

Security Statement

We want to reassure you that our security officers are here around the clock to ensure the safety and security of the campus community. It's important to remain alert and aware of your surroundings, especially during the early morning or evening hours. Remember that you can always call security for an escort if you feel uncomfortable walking alone on campus. White security phones can also be found in many of our buildings; simply pick up the phone and security will answer.

Finally, report any suspicious persons to West Campus Security at 407-582-1000, 407-582-1030 (after-hours number) or by using the yellow emergency call boxes located on light poles in the parking lots and along walkways.

Faculty/Student Communication

"Valencia College is committed to providing each student a quality educational experience. Faculty members have set high standards of instruction for themselves and for you. If you have a problem in a class, your first step is to talk to your instructor. If you are still dissatisfied, you may talk with the academic dean of the division for your class. We will work together to resolve any issues that arise."

- During non-classroom hours, you can talk to me one half hour before and after class or I can be reached by email at sbowling6@valenciacollege.edu.
- I read my email every day and you will receive a response to your emails within 24-36 hours.

Academic Honesty Statement

"Each student is required to follow Valencia policy regarding academic honesty. All work submitted by students is expected to be the result of the student's individual thoughts, research, and self-expression unless the assignment specifically states 'group project.'"

Any student discovered to be cheating on an exam will receive an F for that exam.

No VC property may be removed from the lab.

Classroom Rules of Student Behavior

College policy prohibits children from attending lectures or labs; please, do not violate this policy.

Proper classroom etiquette is required for you to attend this class; please do not create distractions while the professor is lecturing. More than one warning for improper classroom behavior, following a referral to the academic dean or the calling of security, will be grounds to be dropped from the course without a refund.

Additional Classroom Policies

Beepers or cell phones which emit audible tones should be **turned off or to vibrate** during periods when lectures are given in the lecture or the lab. Please, do not use your phone for text messaging during lectures; text messaging and phone calls can be completed outside the lecture room. The second time a student fails to comply with this policy will result in a referral to the academic dean; a warning after your meeting with the academic dean will be grounds to be dropped from the course without a refund.

Under no circumstances will your test scores, total points or final grades be discussed on the telephone. FERPA rights to privacy prevent the divulging of scores or related materials by that means. Scores will only be given face-to-face with each student or by accessing your Atlas account.

Baycare Behavioral Health's Student Assistance Program

*"Valencia is committed to making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help that may assist them with psychological issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. Students have 24 hour unlimited access to the **Baycare Behavioral Health's confidential student assistance program** phone counseling services by calling **(800) 878-5470**. Three free confidential face-to-face counseling sessions are also available to students."*

Students with Disabilities Information:

"Students with disabilities who qualify for academic accommodations must provide a Notification to Instructor (NTI) form from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class; accommodations will not be applied retroactively. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities."

West Campus SSB, Rm. 102 Phone: 407-582-1523 Fax: 407-582-1326

College Catalog/Student Handbook/Policy Manual

- A full description of all College policies can be found in the College Catalog at <http://www.valenciacollege.edu/catalog/>
- The Student Handbook can be found at: <http://valenciacollege.edu/studentdev/CampusInformationServices.cfm>
- The Policy Manual can be found at <http://www.valenciacollege.edu/generalcounsel/>
- The college calendar can be found at <http://valenciacollege.edu/calendar/> for important dates.

Support Services

- Valencia College offers a variety of SkillShops: short seminars covering a variety of topics which deal with student success, goals and purpose. To check out Valencia's Skillshop offerings, go to: <http://valenciacollege.edu/studentervices/skillshops.cfm>

Study tips:

*"LEARNING IS AN ACTION VERB!! Most students need to do more than just sit through lectures and reread their notes. **Spend 1-2 hour blocks of time EVERY DAY** actively writing or discussing concepts to make them a part of your memory.*

Use the words you learn often, they will sink in better 😊

Here are some study and classroom management tips that have assisted former students:

- *Attend class daily and don't be tardy. The introduction to each lecture explains the purpose of the entire lecture. Students who follow this rule won't miss important information.*
- *REWRITE YOUR NOTES soon after the lecture; if the instructor permits, tape record lectures and replay to refresh your memory when you rewrite your notes.*
- *Create flash cards with questions you make up from the lecture and lab with answers on the back.*
- *Use mnemonic devices and other games to remember concepts; go to Google images, YouTube and Khan Academy for additional pictures and videos to clarify concepts.*
- *Make lists of confusing topics from your studying and ask questions.*

- *Take advantage of the professor's office hours.*
- *JOIN A STUDY GROUP and predict what questions the professor could ask on the test.*
- *Get the telephone number of one or more buddies in case you are absent from a class.*