

**CE 2331-001: Engineering Measurement & Computer Modeling
Fall 2017**

Instructor(s): Sirwan Shahooei

Office Number: Nedderman Hall B24

Lab Number: Nedderman Hall B05

Office Telephone Number: 817-272-0251

Faculty Profile: <https://mentis.uta.edu/explore/profile/sirwan-shahooei>

Email Address: sirwan.shahooei@uta.edu

Office Hours: Mo. We. 10:00 AM – 12:00 PM, or by appointment

Section Information: CE 2331- 001 (Lecture)
CE 2331- 101 (Lab sec.101) or
CE 2331- 102 (Lab sec.102)

Time and Place of Class Meetings: Lecture: Mon Wed 1:00 PM – 1:50 PM, WH 308
Lab sec.101: Mon 2:00 PM – 4:50 PM, NH B05 or NH 239
Lab sec.102: Wed 2:00 PM – 4:50 PM, NH B05 or NH 239

GTA: The GTA for this course is Jobaidul Alam. He can be contacted at jobaidulalam.boni@mavs.uta.edu, His office hours at Civil Engineering Learning Center (CELC) will be announced at the first day of classes.

Description of Course Content: Principles and theories of physical measurements of spatial quantities; the use of surveying instruments; introduction to engineering using computer modeling programs; and organization and programming for computer solutions.

Student Learning Outcomes: Students will demonstrate current practices and procedures for acquiring field measurements. They will read, interpret and create computer models using these field measurements. Also, they will understand the interrelationship between the land surveying and engineering professions. At the end of this course, you should be able to achieve the outcomes shown in the following:

Student Outcomes	Extent of Coverage*
An ability to apply knowledge of mathematics, science and engineering	T ₁
An ability to analyze and interpret data	C ₁
An ability to design a system, component or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability	T ₁
An ability to identify, formulate and solve engineering problems	C ₁
An ability to use techniques, skills and modern engineering	T ₁

tools necessary for engineering practice	
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*Covered Implicitly (C_i): The outcome is implicitly covered.
 Tested Implicitly (T_i): The outcome is covered and implicitly assessed for by one or more means (assignments, test questions, essay questions, presentation evaluations, lab reports, etc.)

Required Textbooks and Other Course Materials: Charles D. Ghilani and Paul R. Wolf, Elementary Surveying: An Introduction to Geomatics, 14th edition, Pearson, 2015.

Descriptions of major assignments and examinations:

Exam	Date	Time	Room
Exam I	10/18	1:00 PM – 1:50 PM	WH 308
Exam II	11/29	1:00 PM – 1:50 PM	WH 308
Lab Exam	11/27 or 11/29	2:00 PM – 4:50 PM	NH B05
Final Exam	12/11	11-1:30 PM	WH 308

Attendance: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients. In this course, attendance in the lecture session is recommended since the class covers some material that is not included in the text. Attendance is compulsory in the labs. If a scheduled lab is missed due to unforeseen circumstances, it is the student’s responsibility to contact the TA/Instructor and make up the missed lab. If all lab assignments are not completed, the student may be awarded a grade of I (incomplete) for the course. If 3 or more labs are missed, the student may be awarded a grade of F.

Grading: Based on the weighted averages listed, the letter grades are:

Composite Grade, X	Course grade
X≥90	A
80≥X<90	B
70≥X<80	C
50≥X<70	D
X<50	F

Grade Distribution:

Homework	10%	Lab	10%
Exam 1	20%	Lab Final	10%
Exam 2	20%	Final Exam	30%

Make-up Exams: There will be no make up or re-examination. If a scheduled examination is missed due to a documented medical problem, the weight of other exams may be increased to compensate for the missed exam. If more than one examination is missed, a grade of F may be awarded.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/faol/>).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a **letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.*

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred

to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](#), [major-based learning centers](#), developmental education, [advising and mentoring](#), personal counseling, and [federally funded programs](#). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

Lab Safety Training: Many of the labs throughout the semester will be conducted in an outside environment. Please take precautions according to the expected weather such as staying hydrated in the heat and wearing additional clothing in the cold.

Homework and Lab Format: All field lab work must be recorded and reported in a surveying Field Book. All Homework must be done on "Engineering Paper or Graph Paper", or done on a PC and printed on a standard 8.5x11 inch sheet.

Homework Policy: Unless allowed by the instructor, homework sets must be turned in on the due date before class begins. No late homework will be accepted. It is the student's responsibility to keep track of any changes made to the homework schedule. It is the student's responsibility to develop expertise in the subject matter. The primary method for doing this is by solving problems.

Course Schedule:

Lecture:

Date	Topic	Reading
8/28	History - Introduction	Chapter 1
8/30	Units and Theory of Error	Chapters 2 & 3
9/6	Taping	Chapter 6
9/11	Taping	Chapter 6
9/13	Leveling	Chapters 4&5
9/18	Leveling - Lab 1 instruction	Chapters 4&5
9/20	Earth Work (Area)	Chapter 12
9/25	Earth Work (Volume) - lab 2 instruction	Chapter 26
9/27	Traverse	Chapters 9&10
10/2	AutoCAD Civil 3D - lab 3 instruction	
10/4	Traverse (Bearing and Azimuth)	Chapters 9&10
10/9	Traverse (Latitude and Departure)	Chapters 9&10
10/11	Topographic Survey - Data Collection	Chapters 17&18
10/16	Total Station - lab 4 instruction	
10/18	Exam I	
10/23	Exam review	
10/25	Topographic Survey and Mapping	Chapters 17&18
10/30	Horizontal Curves - Lab 5 instructions	Chapter 24
11/1	Horizontal Curves	Chapter 24
11/6	Horizontal Curves	Chapter 24
11/8	Spiral Curves	Chapter 24
11/13	Spiral Curves - Lab 6 instructions	Chapter 24
11/15	Vertical Curves	Chapter 25
11/20	Vertical Curves	Chapter 25
11/22	Vertical Curves	Chapter 25
11/27	Global Positioning System	Chapter 13
11/29	Exam II	
12/4	Exam review	
12/6	Final review	

Lab:

Section 101	Section 102	Lab	Report	Room
9/18	9/20	Lab 1 - Leveling Loop	Field Book	NH B05
9/25	9/27	Lab 2 - Volume Calculation	Field Book	NH B05
10/2	10/4	Lab 3 - Determining Volume with AutoCAD Civil 3D		NH 239
10/9	10/11	Lab 3 - Determining Volume with AutoCAD Civil 3D	AutoCAD Map	NH 239
10/16	10/18	Lab 4 - Total Station Practice		NH B05
10/23	10/25	Lab 4 - Topographic Survey using TS	Field Book	NH B05
10/30	11/1	Lab 5 - Drawing Map using AutoCAD Civil 3D		NH 239
11/6	11/8	Lab 5 - Drawing Map using AutoCAD Civil 3D	AutoCAD Map	NH 239
11/13	11/15	Lab 6 - Determining Watershed	AutoCAD Map	NH 239
11/20	11/22	Total Station practice		NH B05
11/27	11/29	Lab Exam		NH B05

Homework:

Due Date	Homework	Topic
9/18	1	Taping
9/25	2	Leveling
10/2	3	Earthwork
10/16	4	Travers
11/1	5	Topographic Map
11/13	6	Horizontal Curves
11/20	7	Spiral Curves
11/27	8	Vertical Curves

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – Sirwan Shahooei