

Course Information

Course Number: COSC 301

Course Title: Construction Surveying

Credit Hours: 3

Delivery: One 50-minute Lecture and two 2-hour Laboratory Sessions

Section	Lecture Time	Location	Lab Time	Location
501	Monday 8:00am -8:50am	FRAN 102	Wednesday/Friday 8:00am – 10:00am	FRAN 113*
502	Monday 8:00am -8:50am	FRAN 102	Tuesday/Thursday 11:10am – 1:10pm	FRAN 113*
503	Monday 8:00am -8:50am	FRAN 102	Tuesday/Thursday 2:20pm – 4:20pm	FRAN 113*
504	Monday 12:40pm -1:30pm	FRAN 102	Tuesday/Thursday 8:00am – 10:00am	FRAN 113*
505	Monday 12:40pm -1:30pm	FRAN 102	Wednesday/Friday 11:30pm – 1:30pm	FRAN 113*
506	Monday 12:40pm -1:30pm	FRAN 102	Wednesday/Friday 1:50pm – 3:50pm	FRAN 113*

*FRAN 113 is the Surveying Equipment room. Space is limited in the hallway and we kindly request not to congregate in front of the room. Therefore, groups can wait outside at the concrete mall next to the back entrance of Francis Hall. From there, the TA will be instructing teams for equipment pick-up and drop-off.

Instructor Details

Instructor: Dr. Julie Ann Hartell

Office: 306 Francis Hall

E-Mail: julie.hartell@tamu.edu

Office Hours: MWF 9:00am to 11:00am and by appointment (send e-mail request)

Teaching Assistants

Name:	Abhit Borkar	Sagar Ranabhat	Aagam Paras Gopani
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Office Hours:	TBD	TBD	TBD

Course Description

Practical applications of surveying to the practice of construction project management; distance, grade and angular measurement; surveying equipment and its application to construction layout and control; surveying documentation and field work; introduction to other three-dimensional measurement and positioning systems.

Course Prerequisites

COSC Majors Only: Admission to upper-level Construction Science

Course Learning Outcomes

Course Level	COSC/ACCE Level
<ul style="list-style-type: none"> Site identification, surveying nomenclature, and data record keeping Horizontal, vertical, and angular measurements, survey calculations Surveying equipment use, instrument calibration, and maintenance Use three-dimensional measurement, and positioning systems Survey circuit and traverse computations Coordinate geometry; site layout and control 	<p>Assessed: SLO #11: Apply basic surveying techniques for construction layout and control</p> <p>Assessment: Exam 2</p>

Textbook and/or Resource Materials

All course notes and assigned learning material are made available via CANVAS course site.

Required Textbook or e-pub.: Wesley G. Crawford, "Construction Surveying and Layout: A Field Engineering Methods Manual", 3rd Ed. Creative Construction Pub., 2003, 840p. ISBN 978-0-9647421-1-6

Required Supplies: Surveyors Field Book, Elan (E64-8x4); drawing supplies and straight edge.

Required Software: Microsoft Word and Excel. DroneDeploy, instructions for its use will be provided during the UAV Module.

Grading Policy

The grading scale for this course is as follows:

- A = 90% - 100%
- B = 80% - <90%
- C = 70% - <80%
- D = 60% - <70%
- F < 60%

Points are distributed across module assignments and quizzes as well as practice and written exams. Each are worth a percentage of the total grade. The course grade will be determined by the grade distribution listed in Table 1. 40% of the grade is distributed via group work and 60% via individual work. A group (crew) consists of 4 to 5 students (members) to be formed the first week of class. Groups are to remain the same throughout the semester.

Table 1: Grade Distribution

Assignment / Examination	Qty	Value	Percent
*Assignment 0 - Group Rules Group Submission	1	1%	1%
*4 Low Stakes Lab Assignments Group Submission	4	2%	8%
*4 Lab Assignments Group Submission	4	4%	16%
14 Weekly Quizzes Individual	12	2.5%	30%
2 Lab Exams Group Submission	2	7.5%	15%
2 Written Exams Individual	2	15%	30%
Course Total	-	-	100%

Assignment 0, Group Rules - All group members are to equally participate in lab activities and share assignment workload. Successful groups generally demonstrate good planning prior to the lab session as well as good communication skills, organization, leadership, and teamwork. It is expected that all group members foster an inclusive work environment based on respect towards all team members. Therefore, in addition to course policy stated in the present syllabus, students enrolled in COSC 301 have the opportunity to collectively formulate a Group Rules charter to facilitate group governance and ensure accountability of each team member. Guidelines for the elaboration of this charter will be provided in-class during the first lecture of week 1.

The first week of class (Week 1) each group must meet and elaborate a set of Group Rules. Next, each team must schedule an in-person meeting with the course instructor and assigned TA where all team members must present their written suggestions to the course instructor and TA. The instructor will collect all suggestions and formulate a collective charter that is fair and realistic, which all groups must abide by for the semester.

The charter will be posted on Canvas course site for review and comment. Students will have 24 hours to review and recommend changes to the proposed charter. Thereafter, each team must submit a copy signed by all members, demonstrating agreement of the charter's rules. A copy of the signed charter must be uploaded via its corresponding Canvas dropbox.

If a group member violates a clause in the established Group Rules charter, other group members may unanimously elect to sanction the student as described in the Group Rules charter. For example, a sanction can be a grade penalty on graded work submitted by the group (i.e. assignments and lab exams). In this case, the sanction cannot be more severe than assigning a grade of 0 to the violator for the respective work for which the violation was made.

To sanction a team member, a written request signed by all team members must be sent to the instructor by email. Only then will the instructor directly contact the student in question by email and intervene in group affairs. The instructor will confirm receipt by notifying the entire group by email of the Notice of Group Rules Violation. Next, the team will have 48-hours to respond and schedule a

meeting between the instructor, one group member representative and the sanctioned member. The meeting must be scheduled within 5 working days of email notification of the Group Rules violation. Failure to do so will result in nullification of the violation and no further action will be taken by the instructor. During the meeting evidence of Group Rules violation and arguments can be presented and discussed to resolve the issue. After hearing the arguments, the instructor will decide whether the sanction is applied or not.

Lab Assignments - A total of 8 assignments will be assigned. 4 low stakes assignments are worth 2% each and 4 assignments are worth 4% each. Each assignment will be posted in its corresponding Module on Canvas (See Table 2). All assignments are group submissions and are due by the stated due date on Canvas course site. Each assignment is to be submitted by uploading a single file per group via its corresponding dropbox on Canvas site. Only one file per group is graded and all crew members receive the same grade.

Laboratory assignments should be completed in a neat, professional manner in accordance with assignment guidelines, which will be posted on Canvas course site. Assignments are to be prepared and submitted using **MS Word only** unless instructed otherwise in assignment guidelines. The student group may use course material to aid in the preparation of the lab assignment.

Use of content from websites and other references that is not part of course material provided or assigned will be considered as plagiarism (if not appropriate reference or paraphrased). Work submitted that is not original is considered cheating. This will be considered as academic misconduct and the allegation will be reported to the Aggie Honor System Office. The proposed penalty will be a grade of 0 for the assignment. The allegation will be reported for all team members.

Quizzes - 14 individual weekly quizzes will be given via the Online Canvas Quiz platform. Each quiz is worth 2.5%. The lowest 2 grades will be dropped for a total of 12 quizzes worth 30% of the total grade. Each quiz will be posted in its corresponding Module on Canvas (see Table 2). Quizzes will be made available at the beginning of the week. Each quiz covers the respective weekly lectures and assigned learning material; this includes the assigned readings, videos, lecture material and practice problems. The intent of a learning quiz is to evaluate whether the student has assimilated the content of weekly learning activities.

Quizzes will be made available on Mondays 8:00am in Canvas and will close the Following Monday 8:00am. Once the student starts the quiz on canvas, the student will have 3 hours to complete the quiz. Quiz questions will be presented one at a time and once the answer is submitted, it cannot be changed. Only one attempt to take the quiz is provided.

If there are any technology problems, send a “print screen” image by email along with a brief description of the problem to the course instructor and your assigned TA. Either of the latter will attempt to resolve the issue within 24 hours.

Quizzes are “open book”; therefore, the student may use course material to aid in answering the questions. Use of content from websites and other references that is not part of course material provided or assigned is prohibited. This will be considered as plagiarism and/or cheating. Work submitted that is not original is considered cheating. This will be considered as academic misconduct

and the allegation will be reported to the Aggie Honor System Office. The proposed penalty will be a grade of 0 for the assignment.

Lab Exams - During laboratory sessions, two practical exams worth 7.5% each will be given and all group members receive the same grade. Lab Exam 1 covers all lab assignments and course material for Modules 1 to 4, and Lab Exam 2 covers that for Modules 6 to 8. Lab Exam Instructions will be posted in the respective Exam Module on Canvas (see Table 2). The intent of a lab exam is to assess whether the student has learned course material at a level that will allow practical demonstration of understanding and application of construction surveying and layout methods commonly performed during the construction process.

Class material, textbooks, cellphones, and other computer devices are not allowed during the lab exam session. The field book will be verified for supplementary information that is not relevant to past lab assignments. If found, this will be considered as academic misconduct and the allegation will be reported to the Aggie Honor System Office. The proposed penalty will be an F* in the course and Honor Violation Probation. The allegation will be reported for all team members. Only the following are allowed: one field book per team, one paper copy of the “Task Procedure” per person, non-programmable calculators, blue/black pens and straight edges.

Written Exams – 2 written exams worth 15% each will be given. Exam 1 covers course material for Modules 1 to 4, and Exam 2 covers that for Modules 5 to 8. Each exam covers the respective modules’ activities and course materials; this includes the assigned readings, videos, lecture material, practice problems, lab activities and assignments. The exams will be posted in the respective Exam Module on Canvas (see Table 2). The intent of exams 1 and 2 is to determine whether the student as successfully met the modules’ **Learning Objectives** and the Construction Science Curriculum’s **Student Learning Outcomes** (SLO) #11 as well as measure the level of proficiency of the newly acquired competency. Exam 2 is used to assess SLO 11.

Exam 1 will be made available at the start of the student’s respective lab session, and will close at the end of the lab session. Exam 2 will be made available at the start of the respective Final Examination Schedule based on the Monday Lecture time, and will close at the end of the examination session. Therefore, the student will have 2 hours to complete the exam. See Table 2 for tentative exam dates.

The student must be present via ZOOM with the camera turned ON during the entire examination period. Failure to do so will result in a grade of 0. Exam questions will be presented one at a time. The student will be able to revise their work prior to submission. Only one attempt to take the exam is provided. If there are any technology problems, send a “print screen” image by email along with a brief description of the problem to the course instructor and your assigned TA. Either of the latter will attempt to resolve the issue within the exam period.

Exams are “open book”; therefore, the student may use course material to aid in answering the questions. Use of content from websites and other references that is not part of course material provided or assigned is prohibited. This will be considered as plagiarism and/or cheating. Work submitted that is not original is considered cheating. If found, it will be considered as academic misconduct and the allegation will be reported to the Aggie Honor System Office. The proposed penalty will be an F* in the course and Honor Violation Probation.

Late Work Policy

Assignments - Late submission of assignment (1 second past deadline) will be assigned an initial grade penalty of 25%. Thereafter, a penalty of 10% per 24-hours late will be applied. Paper or e-mail submissions are not accepted and will be considered as late submission. In case of faulty technology, contact the instructor, before the deadline, by e-mail or phone for submittal instruction. Failure to do so, will result in the application of the grade penalty.

If a group member is absent during a lab session, official university documentation for excuse of absence is required to be able to participate in another lab section if offered. If not, the instructor will work with the student to provide a complementary exercise as well as a fair individual make-up assignment if the student cannot participate, in a meaningful way, in the group submission. It is the responsibility of the student to schedule make-up lab activities with the instructor within 48-hours upon return of absence. Failure to do so will result in a grade of 0 for the assignment pertaining to the missed activity. In the case of an unjustified absence, a grade of 0 will be applied for the assignment pertaining to the missed activity.

Quizzes – The student has five days to take the online quiz, therefore it is the student’s responsibility to effectively manage their academic schedule. However, if a student is absent for multiple days, and missed the quiz submission deadline, official university documentation for excuse of absence is required to be able to take the quiz. It is the responsibility of the student to schedule make-up quiz with the instructor within 48-hours upon return of absence. Further delay will result in a grade of 0 for the quiz. In the case of an unjustified absence, a grade of 0 will be awarded for the missed quiz.

Exams - In the case of missed lab or written exam due to absence, official university documentation for excuse of absence is required to be able to make-up an exam. It is the responsibility of the student to schedule make-up exam with the instructor within 48-hours upon return of absence. Further delay will result in a grade of 0 for the exam. Due to the group practical nature of lab exams, an alternative format will be provided by the instructor. In the case of an unjustified absence, a grade of 0 will be awarded for the missed exam.

Course Schedule

This course is a laboratory course offering that requires the student to attend 1 lecture hour and 4 laboratory hours weekly. This course is designed using principals of “active” learning; therefore, it is expected that students engage in classroom activities and fully participate during laboratory sessions.

Outside of the classroom, it is expected that students **independently** complement classroom learning through assigned study material, readings, videos as well as taking weekly quizzes and completing group assignments. **It is the responsibility of the student to have learned all necessary material prior to attending a lab session.** Also, it is the responsibility of each group member to effectively plan (as a team) required field activities prior to attending the lab session. Being ready and having a plan will ensure a group’s success within the allotted lab time. There shall be no time extensions allowed for completing laboratory work. If a group as not completed all required field activities due to poor planning and preparation, the consequence will be the group’s inability to complete the assignment resulting in point penalty.

Table 2 provides a tentative course schedule for a 15-week semester. Since lab sessions are held outdoors, inclement weather may affect the schedule. Make-up Lab sessions are planned accordingly in the course schedule. In the case of lab session cancellation, a revised schedule will be provided (see Inclement Weather Policy).

Table 2: Tentative Course Schedule

Week	Date	Modules (Canvas)	Lecture	Lab Session 1 T/W	Lab Session 2 TH/F	Quizzes #Due Friday	Assignments ##Due Dates	
1	01/17	Intro	No Lecture	Gr. Meetings	Gr. Meetings	Q0	-	
2	01/24	1	Surveying Basics	Activity 1	Activity 1	Q1	A0 - T/W	
3	01/31	2	Chaining	Activity 2	Activity 2	Q2	A1 - T/W	
4	02/07	3	Leveling	Activity 3	Activity 3	Q3-A	A2 - T/W	
5	02/14			Activity 3	<i>*No Labs</i>	Q3-B	-	
6	02/21	4	Angles	Activity 4	Activity 4	Q4-A	A3 - T/W	
7	02/28			Activity 4	<i>Make-Up Lab</i>	Q4-B	A4 - TH/F	
8	03/07	Exam 1	Review	Exam Prep.	Lab Exam 1	QR1	-	
	03/14	Spring Break – No Classes						
9	03/21	5	UAV	Activity 5 / Exam 1		Q5	-	
10	03/28	6	Traverse Computations	<i>**No Labs</i>	Activity 6	Q6-A	A5 – TH/F	
11	04/04			Activity 6	Activity 7	Q6-B	A6 – TH/F	
12	04/11	7	Coordinate Geometry	Activity 7	<i>***No Labs</i>	Q7	-	
13	04/18	8	Layout & Control Methods	Activity 8	Activity 8	Q8	A7 – T/W	
14	04/25	Exam 2	Exam Prep.	Lab Exam 2	<i>Make-Up Lab</i>	QR2	A8 – T/W	
	05/02		<i>Review</i>	<i>No Labs</i>	<i>No Labs</i>	-	-	
15	05/05		<i>Exam 2</i>	<i>Sections 501, 502, 503</i>			<i>10:00 am to 12:00pm</i>	
	05/06		<i>Exam 2</i>	<i>Sections 504, 505, 506</i>			<i>10:30 am to 12:30pm</i>	

There are a total of 8 Learning Modules. Each module comprises of videos, notes, assigned learning material, lab session activities, one lab group assignment, and weekly individual quizzes. Please note that (Table 2):

- # Quizzes are due on Fridays at 11:59:59pm (Midnight).
- ## Assignments are due on Tuesdays or Thursdays before start of Lab Session for sections 502, 503 and 504, and on Wednesdays or Fridays before start of Lab Session for sections 501, 505 and 506. Assignment due dates will be posted on Canvas when activity is assigned.
- *Thursday and Friday Labs are cancelled because Thursday February 17th is the CIAC Career Fair.
- **Tuesday and Wednesday Lab sessions are cancelled because Wednesday March 30th is COSC Field Trip.
- ***Thursday and Friday Labs are cancelled because Friday April 15th is a Reading day, no classes.

Course Announcements

All course communications and relevant information will be sent via **Announcements in Canvas**. It is the responsibility of the student to verify course announcements made by the instructor or the TAs. Canvas can also make available other types of notifications such as grade changes and assignment comments. It is recommended to setup desired notification method to make sure that all course information is received promptly.

Inclement Weather Policy

All laboratory sessions are held outdoors and may be affected by weather conditions. It is the responsibility of the student to verify weather conditions prior to attending their lab session, and prepare with appropriate lab attire to remain dry and cool/warm. In the event of heavy rain, the laboratory session may not necessarily be cancelled, and an alternative activity may be given by the TA. In the event of lab session cancellation, the TA will send an Announcement via Canvas site 10 minutes prior to start of lab session.

In the case of lab session cancellation, a revised schedule will be provided. The revised course schedule will be posted in the Syllabus Module on Canvas site.

University Closure Updates - In the event that Texas A&M University is closed due to inclement weather or other emergencies, watch for updates on the Campus Emergency site, alerts from Code Maroon, or on the Texas A&M homepage.

Copyright

Dr. Julie Ann Hartell reserves copyright to all materials used in this course. This means all materials generated for this class, which includes but is not limited to syllabi, quizzes, exams, assignments, course notes materials and videos. Because these materials are copyrighted, you do not have the right to copy any material, unless expressly granted written permission.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

“The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence” ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

“An Aggie does not lie, cheat or steal, or tolerate those who do.”

“Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one’s work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case” ([Section 20.1.2.3, Student Rule 20](#)).

Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Texas A&M at Galveston

You can learn more about the Honor Council Rules and Procedures as well as your rights and responsibilities at tamuq.edu/HonorSystem.

Texas A&M at Qatar

You can learn more about academic integrity and your rights and responsibilities at Texas A&M University at Qatar by visiting the [Aggie Honor System](#) website.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below) Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Texas A&M at Galveston

Disability Resources is located in the Student Services Building or at (409) 740-4587 or visit tamuq.edu/counsel/Disabilities.

Texas A&M at Qatar

Disability Services is located in the Engineering Building, room 318C or at +974.4423.0316 or visit <https://www.qatar.tamu.edu/students/student-affairs/disability-services>.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Texas A&M at College Station

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Texas A&M at Galveston

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with the Counseling Office in the Seibel Student Center, or call (409)740-4587. For additional information, visit tamug.edu/counsel.

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the Galveston Campus' [Title IX webpage](#).

Texas A&M at Qatar

Texas A&M University at Qatar students wishing to discuss concerns in a confidential setting are encouraged to visit the [Health and Wellness](#) website for more information.

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus

Texas A&M College Station

Students who need someone to talk to can contact Counseling & Psychological Services (CAPS) or call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Texas A&M at Galveston

Students who need someone to talk to can call (409) 740-4736 from 8:00 a.m. to 5:00 p.m. weekdays or visit tamug.edu/counsel for more information. For 24-hour emergency assistance during nights and weekends, contact the TAMUG Police Dept at (409) 740-4545. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Texas A&M at Qatar

Texas A&M University at Qatar students wishing to discuss concerns in a confidential setting are encouraged to visit the [Health and Wellness](#) website for more information.

Campus-Specific Policies

Texas A&M at Galveston

Classroom Access and Inclusion Statement

Texas A&M University is committed to engaged student participation in all of its programs and courses and provides an accessible academic environment for all students. This means that our classrooms, our virtual spaces, our practices and our interactions are as inclusive as possible and we work to provide a welcoming instructional climate and equal learning opportunities for everyone. If you have an instructional need, please notify me as soon as possible.

The Aggie Core values of respect, excellence, leadership, loyalty, integrity and selfless service in addition to civility, and the ability to listen and to observe others are the foundation of a welcoming instructional climate. Active, thoughtful and respectful participation in all aspects of the course supports a more inclusive classroom environment as well as [our mutual](#) responsibilities to the campus community.