



# Syllabus: CGN 2324C-01 Surveying and Geomatics

## Course Information

- **Course Number and Title:** CGN 2323C – Surveying and Geomatics
- **Credit Hours:** 3
  - 2 Lectures – Tuesdays 8-9:50 am
  - 1 Lab – Thursdays 8-9:50 am
- **Academic Term:** Spring 2026
- **Classroom:** CGW 1006

## Instructor Information

- **Instructor:** Dr. Edward Kim
- **Office Location:** CGW 1017
- **Office Hours:** T/H 10-11 am, F 1-2 pm or by appointment
- **Email address:** ekim@floridapoly.edu

## Course Delivery and Course Description

- **Delivery Mode:** In-Person.
- **Course Website:** [https://catalog.floridapoly.edu/preview\\_program.php?catoid=35&poid=1595](https://catalog.floridapoly.edu/preview_program.php?catoid=35&poid=1595)
- **Official Catalog Course Description:**  
Introduction to surveying principles and methods used in the construction industry. Students will learn surveying techniques for mapping, construction layout, and earthwork computations by analyzing and interpreting survey data for civil engineering projects. Conventional and electronic surveying equipment will be used to collect data and interpret them using modern software tools like Civil 3D and GIS.
- **Course Pre and/or Co-Requisites:** EGN 3311 Statics, CGN 2002 Intro. to Civil Engineering
  - **Communication/Computation Skills Requirement (6A-10.030):** None
- **Required Texts and Materials:**
  - Surveying with Construction Applications, 8<sup>th</sup> edition, Kavanagh, Slattery, Pearson
- **Grading Policy:**
  - Attendance (10%), Homework (10%), Mini Exams (10% each), Project (10%), Midterm (15%), Final Exam (20%), Instrument Test (15%)

## Course Description and Outcomes

- **Course Description:**  
Introduction to surveying principles and skills applied in civil and construction engineering. Emphasis is placed on mapping, construction staking, and earthwork quantity computations through the analysis and interpretation of survey data. Students gain hands-on experience using conventional and electronic surveying equipment, with collected data processed using modern surveying and design software such as AutoCAD Civil 3D.
- **Student Learning Outcomes:** Upon the completion of this course,
  1. Student will possess an ability to function effectively in a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives, and
  2. Student will have an ability to develop and conduct appropriate experimentation, analyze and interpret

data, and use engineering judgment to draw conclusions.

- **Course Learning Outcomes:**

By the end of this course, students will be able to:

1. Apply differential leveling and stadia methods to determine elevations and distances and evaluate measurement errors and misclosure in surveying operations.
2. Operate total station and data collection equipment to measure distances, angles, and coordinates, and assess accuracy and precision of field data.
3. Perform construction layout and stakeout operations, including horizontal and vertical curve applications, using survey computations and total station methods.
4. Compute earthwork quantities, areas, and volumes from survey data for final surveys and construction-related applications.
5. Collaborate effectively in teams to collect and analyze survey data and to produce and present surveying project deliverables.

## Course Schedule

Week	Date	Schedule (tentative)	HW
1	1/13/2026	Introduction - Surveying Fundamentals Surveying Mathematics	HW 1
	1/15/2026	Leveling	HW 2
2	1/20/2026	Intro + Differential Leveling (Lab)	
	1/22/2026	Distance Measurement (Tape) Theodolite & Total Station (EDM)	HW 3 HW 4
3	1/27/2026	Profile Leveling (Lab)	
	1/29/2026	Contours (Lab)	
4	2/3/2026	Angle (5.1) Traverse Survey (5.1 & 5.2)	HW 5
	2/5/2026	Traverse Surveying (5.3)	HW 6
5	2/10/2026	<b>Mini Exam 1</b> Lab 4 3-Wire Leveling	
	2/12/2026	<b>Team Project - Leveling</b>	
6	2/17/2026	Inclined Stadia + Errors (5.4)	
	2/19/2026	Total Station - Distance (Lab)	
7	2/24/2026	Total Station - Angle (Lab)	
	2/26/2026	Total Station - Coordinate (Lab)	
8	3/3/2026	<b>Midterm</b>	
	3/5/2026	Total Station - Stake Out Basics (Lab)	
9	3/10/2026	Horizontal Curve	HW 7
	3/12/2026	Total Station - Stake Out w/ Horizontal Curve (Lab)	
10	3/17/2026	Spring Break	
	3/19/2026	Spring Break	
11	3/24/2026	Civil 3D - Horizontal Alignment	
	3/26/2026	Civil 3D - Horizontal Alignment (Lab)	
12	3/31/2026	Vertical Curve Quantity and Final Survey (Area & Volume)	HW 8
	4/2/2026	<b>Mini Exam 2</b> Civil 3D - Basics & Import Survey Data	

13	4/7/2026	Civil 3D - Basics & Import Survey Data (Lab) Data Collector (Lab)
	4/9/2026	Civil 3D - Create Surface & Topological Map
14	4/14/2026	Civil 3D - Create Surface & Topological Map (Lab)
	4/16/2026	Civil 3D Project Discussion
15	4/21/2026	<b><i>Lab Field Test - Total Station (Angle, Distance, Misclosure)</i></b>
	4/23/2026	<b><i>Team Project - Inaccessible Point</i></b>
16	4/28/2026	<b><i>Project Presentation</i></b>

- Important Dates: <https://floridapoly.edu/academics/academic-calendar/index.php>
- Assessment Dates (e.g., homework assignments, quizzes, or exams) will be communicated in class and Canvas.

## Course Policies

### Attendance

1. Students in **face-to-face** courses are expected “to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor” (University Policy, FPU-5.0010AP).
2. **A+ Attendance** will be used to track attendance or traditional roll call per preference of instructor.
3. Students are expected to regularly attend class and are responsible for notes, homework assignments, projects, laboratories, and any exams/quizzes missed if absent. Medical or family emergencies need to be communicated to the instructor as soon as possible, preferably before assignments or exams are due.
4. Note: Falsifying attendance for yourself or for another student is an act of academic dishonesty and is considered a violation of the university’s academic integrity policy.

### Participation

Students are expected to participate in the classroom experience. The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be asked to leave the class for the day (noting exceptions for authorized accommodations). In addition, students who routinely do not bring materials to class that are required for participation, will not be given credit for class attendance, and if this becomes a pattern of behavior, may be asked to leave the class for the day. Persistent problems with participation may result in a [code of conduct](#) referral.

### Late Work/Make-up work

5. A LATE PENALTY of 10% will be assessed for assignments turned in after the deadline. The Assignment in Canvas will stay open until 11:59 PM of the following day should the ‘due date’ be missed.
6. ALL HOMEWORK AND PROJECT DELIVERABLES MUST BE TURNED IN AND POSTED IN CANVAS ASSIGNMENTS TO EARN CREDIT AND RECEIVE A GRADE. IF THE ASSIGNMENT IS NOT POSTED IN CANVAS, A ZERO WILL BE RECORDED FOR THAT ASSIGNMENT.
7. Should you have extenuating circumstances, CONTACT YOUR INSTRUCTOR. Your instructor will work with you and others, as needed, in the university community to make the appropriate adjustments. They may, at their discretion, accept a ‘past due’ assignment, however, YOU must email your instructor and ask them to open the Canvas assignment for you. The instructor retains the right to ask for documentation of your ‘extenuating circumstance’ before they reopen the assignment. The Canvas Assignment will remain open for 24 hours, after the request has been accepted with a confirmation email from the instructor to the student.

## Grading Scale

8. Grades for will be posted to Canvas for reference only, and students should make sure they are recorded correctly. However, there is no guarantee that the percentages or projected grades provided there are correct. The instructor will calculate final percentages and will determine final grades regardless of Canvas calculations.

A	$\geq 93\%$	B+	$\geq 87\%$	C+	$\geq 77\%$	C-	$\geq 70\%$
A-	$\geq 90\%$	B	$\geq 83\%$	C	$\geq 73\%$	D	$\geq 60\%$
		B-	$\geq 80\%$			F	< 60%

## Assignment/Evaluation Methods

9. All assignments should be turned in by the due date. Homework will be assigned after every class and is due on Canvas per the specified due date. Usually, you will have one week to complete homework assignments. Be sure check your Assignments in Canvas, and set your reminders as necessary, for the dates and times that correspond your class period. Homework will usually be submitted electronically as a Word/PDF file on Canvas.
10. It is the student's responsible for planning their schedules accordingly and ensuring sufficient time to complete the weekly tasks.

## University Policies

### Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The University, through the Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations.

If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the [ODS student portal](#) and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive.

If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible.

The Office of Disability Services (ODS):  
[DisabilityServices@floridapoly.edu](mailto:DisabilityServices@floridapoly.edu)  
(863) 874-8770  
The Access Point  
[ODS website: www.floridapoly.edu/disability](http://ODS website: www.floridapoly.edu/disability)

### Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See [University Policy](#).)

## Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. You may speak to your professor, but your professors have an obligation to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University [Ombuds Office](#), BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at [Peace River Center](#), 863-413-

2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The [Title IX Coordinator](#) is available for any questions to discussion [resources and options](#) available.

## Academic Integrity

The faculty and administration take academic integrity very seriously. Violations of [academic integrity regulation](#) include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties.

Any “special” instructions that are appropriate for academic integrity and the course should go here.

*(It is essential that a heading and a statement on what constitutes, includes, academic integrity be included in the syllabus, and that the students be made aware of academic integrity at the beginning of a course.)*

## Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action).

*Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is prohibited.*

## Academic Support Resources

- **Library:** Students can access the Florida Polytechnic University Library through the University website and [Canvas](#), on and off campus. Students may direct questions to [library@floridapoly.edu](mailto:library@floridapoly.edu).
- **Tutoring and Learning Center:** The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
  - **Knack Tutoring:** Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit [floridapoly.joinknack.com](http://floridapoly.joinknack.com) and sign in with your student account.
- **Academic Success Coaches:** All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center:** Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit [floridapoly.edu/writing](http://floridapoly.edu/writing) center.

## Civility and Collegiality

Faculty and students come to the university for the same reason, which is to participate in a highly professional educational environment. To that end, both students and faculty are expected to treat each other with mutual regard and civility. Communication, written, oral and behavioral, between faculty and students must remain respectful. Within and outside of the classroom, students must refrain from derogatory comments toward the faculty member and their fellow students, and faculty as well must refrain from derogatory comments toward their students. Faculty and students should address each other with respect, in accordance with the wishes of the faculty and the students: for example, no one should be addressed by their last name alone.

Faculty from the outset of a course can and should specify what constitutes activities and behavior that take away from, that diminish, the educational environment. An individual student's distracting behavior impedes the education of fellow students, which itself is a form of disrespect. Civility and collegiality also include respecting each other's time: for example, neither students nor faculty should arrive late to class (unless unforeseen, pressing circumstances prevail); faculty should be present at the posted office hours; and students and faculty should be punctual when meeting times are scheduled. In more general terms, collegiality means respecting the right of both faculty and students to participate fully and fairly in the educational enterprise.