

BCN3281C: Construction Methods Lab

M.E. Rinker, Sr.

School of Construction Management

University of Florida

BCN 3281 – Construction Methods

2 Credits

Honor Code: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>
Students are expected to comply with the spirit and intent of the University of Florida Honor Code, which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

Instructors: Aaron Costin, Ph.D., aaron.costin@ufl.edu, RNK 323

TAs: TBD

Prerequisites: Senior 2 /Grad Student in good standing

Course Description: Develop student’s ability to operate up-to-date instruments such as total station, theodolite, automatic and laser levels along with traditional accessory equipment in the performance of routine building construction tasks requiring applications of plane surveying theories and technologies for vertical and horizontal control. Differential and laser leveling, traversing, slope staking, topographic mapping and building layout are examples of the tasks to be taught.

Department Objectives:

- Set-up and use of tapes/lines, auto-levels, and transit and level to establish and control horizontal and vertical placement of structures.
- Calculate field data/stadia for making topographic maps.
- Set-up the use of modern surveying equipment in construction industry (Total Station, GPS, etc.)
- Calculate basic geometry and trigonometry as they relate to field layout and measurement.

Delivery: Classroom lectures and field labs focusing on the fundamentals and typical applications of plane surveying to construction-oriented tasks utilizing current technology along with typical tools and practices of the trade.

Method: One hour lecture/discussion periods per week with corresponding reading assignments from the text and one two hour lab. Text assignments should be done before the class in which they are discussed. Students are responsible for the content of all reading materials whether or not the material is covered in class. STUDENTS are responsible for class preparation and performance.

Text Required:	Crawford, Wesley. <u>Construction Surveying and Layout</u> (Current). ISBN 978-0-9641421-1-6.
Homework:	Homework is due prior to each Lecture class. Homework assignments are individual. Most will be an online Canvas quiz. These will close at the start of the Lecture and will not be reopened. See Attendance, Absence, and Make-up policy.
Pre-Lab Assignments:	Pre-lab assignments are due prior to the start of the earliest lab section, or unless otherwise stated. Pre-lab assignments are individual. Most will be an online Canvas quiz. These will close at the start of the earliest lab section and will not be reopened. See Attendance, Absence, and Make-up policy
Labs:	Labs are group assignments (three per group depending on class enrollment). Lab assignments are due at either the end of lab or by no later than Friday at 11:59 pm. ALL members of lab groups must be present for lab to count. See Attendance, Absence, and Make-up policy.
Performance Exams:	Individual performance exams are lab based and require you to apply lessons learned in a real time scenario. They will be based on group labs; however, the performance lab will be based on individual ability without the help of others. The exam instructions will be posted at least one day prior. There will be no final exam.
Attendance:	Attendance is required and will be considered for the final grade. Attendance will be taken within the first 5 minutes of class and lab. Attendance may not always be taken. Late attendance for labs can result in a reduction of the lab grade. Being late for class counts as an absence at the discretion of the instructor. ALL members of lab groups must be present for lab to count.
Excused Absence:	Anticipated absence due to Rinker events, competition teams, job interviews, career fair, or any other UF related events, must receive written approval by the instructor to be considered as excused. The student must notify the instructor as early as possible prior to the anticipated excused absence to allow ample time for accommodations. Failure to do so, or any absences without prior approval, will not be considered excused, and the make up will not be allowed. When seeking approval from the instructor for an excused absence, the student must notify the team and propose an alternative date to make up the lab. The team must also consider the time of the TA for observation of the lab.
Make-Up Assignments:	Requirements for class attendance, make-up exams, assignments, and other work in this course are consistent with university policies that can be found at < https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx >. Late assignments may not be accepted at the discretion of the instructor. Proper documentation must be provided for make-up assignments.

Locker/Clean-up: Teams will receive a locker/equipment grade. This applies to how you care for equipment during lab and replace back in the lockers after labs. You are expected to treat the equipment in a professional manner and allow yourself time to place equipment correctly in lockers. There will be a 5-point deduction for the first occurrence and then each occurrence after that the deduction doubles.

Broken Equipment: In the event of a broken equipment while using, it is your responsibility to notify the instructor or TA as soon as possible. Failure to do so will result in a zero lab grade. Prior to lab, it is your responsibility to inspect all equipment prior to use. If a broken piece of equipment is found, it is your responsibility to notify the instructor or TA as soon as possible in order for it to be replaced to perform the lab. Failure to do so will result in an incomplete lab.

Final Project: Teams will be responsible for developing a survey plan and executing a plan for the final project. This will include an as-built drawing due after the performance evaluation.

Grade Makeup:	Description	% Final Grade
	Homework (Individual)	15
	Pre-Labs (Individual)	15
	Labs (Group)	25
	Performance exams (Individual)	20
	Attendance (Individual)	5
	Final Project (Group) Plan	10
	Final Project (Group) Final submittal	10

Grade Scale: Grades will be given according to the following scale. Divide the total points you earn by total possible points. **Decimal points will not be rounded.**

A	93.0-100
A-	90.0-92.99
B+	87.0-89.99
B	83.0-86.99
B-	80.0-82.99
C+	77.0-79.99
C	73.0-76.99
C-	70.0-72.99
D+	67.0-69.99
D	63.0-66.99
D-	60.0-62.99
E	Less than 60

Final Grade: Final grade stands as is. **Decimals will not be rounded.** There will be extra credit opportunities to gain a few points to enable a higher grade at the discretion of the instructor.

Quality:	It is expected that everything submitted for a grade will be professional with correct spelling and grammar. With regard to homework and pre-lab, and lab assignments that are turned in; the following grading system applies: – 10 points is for going above of what is asked, 8-9 points for meeting the minimum of what is expected, 5-7 points for quality work that may not be correct in scope. When available use software to produce your work. The goal is for all work to represent what you would fax/submit to your immediate boss in a job scenario. All work will be accepted via e-learning as an upload file/scanned. Please try to communicate with the instructors during office hours or before/after class periods. You are important to us as students - we are simply overwhelmed with electronic communication. Please feel free to keep us in the loop with regard to your situation but we are limited to respond. We will respond to e-mails/texts at our discretion. You are responsible for addressing grades/omissions within one week of the grade being posted on e-learning. After one week the grade/input stands for the class regardless of cause or circumstance.
Class Demeanor:	Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all. Rude and disrespectful behavior will not be tolerated.
Online Course Evaluations:	Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/ . Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/ . Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/ .
Lab Fees:	This course charges an additional lab. Please check the current fee on https://one.uf.edu/soc .
Reservations and Remedies:	The instructor reserves the right to modify the course schedule and modules as deemed fit. If any questions, issues, or concerns about the course (assessment, policies, schedule, etc.), please contact the instructor to remedy any issue.

Student Learning Outcomes:

SACS = Southern Association of Colleges and Schools

ACCE = American Council for Construction Education

SLO = Student Learning Outcome

SACS SLO	ACCE SLO	Course Learning Outcome (CLO)	Assignment(s)	Percent Students Passing with a minimum 70%
1	SLO 11 (DA)	Set-up basic equipment	Performance exams	90%
1	SLO 11 (DA)	Calculate topographic maps	Semester final project	90%
1	SLO 10/11 (I/DA)	Set-up total stations	Performance exams	90%
1	SLO 11	Calculate basic trigonometry	Homework and in-class assignments	90%

Upon graduation from an accredited ACCE 4-year program a graduate shall be able to:

1. Create written communications appropriate to the construction discipline.
2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.
6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply construction management skills as an effective member of a multi-disciplinary team.
10. Apply electronic-based technology to manage the construction process.
11. Apply basic surveying techniques for construction layout and control.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and plumbing systems