

BCN3281: Construction Methods, Fall 2018

M.E. Rinker, Sr.

School of Building Construction

University of Florida

Semester Course Outline

BCN 3281 – Construction Methods

2 Credits

Honor 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.”

Students are required to bring a photo ID to all tests to be presented to the proctor upon completion of the exam.

Instructors: Aaron M Costin, Ph.D.

aaron.costin@ufl.edu

Junghoon Woo, TA

jhoon3037@ufl.edu

Peyman Rahgozar, TA

peymanrahgozar@ufl.edu

	Section(s)	Days	Period	Room
Meeting Periods:	All Sections	Tuesday - Lecture	3	140
		Thursday - Lab	TBD	140
		Thursday - Lab	TBD	140

Prerequisites: Senior 2 /Grad Student in good standing

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.

Course Description:

- 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.)

Department Objectives:

- 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. Construction Surveying and Layout(Current). ISBN 978-0-9641421-1-6.

Homework:

Homework is due prior to each Lecture class. Lecture attendance is based on completed homework submitted within the first three minutes of class start time. No exceptions. Homework will be graded on completeness and neatness/professionalism.

Pre-Lab
Assignments:

Pre-lab assignments are due prior to the start of your lab, or unless otherwise stated. Pre-lab assignments are individual.

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 5:00 pm. Any missed labs must be made up by the end of the following week. Coordinate make-up lab group with instructors in advance.

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.

Attendance:

Attendance is required and will be considered for the final grade, late attendance for labs will result in a 50% reduction of the lab grade. Being late for class counts as an absence at the discretion of the instructor. Showing up to class without an assignment counts as an absence.

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.

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.

Legal Case:

Students will be required to write 1,500 words in a paper describing a construction case in which an error in surveying resulted in damages to the job. Must include at least one sketch and 2 references. Paper is to have one-inch margins, single space, double space between paragraphs; APA format is required. References (and images) do not count towards the minimum three pages and must be included. Students are expected to be able to present a brief summary of this paper during the last few weeks of class.

Any late submission will result in 50-point reduction for the first 24hr and 100-point reduction after 24hr, of the final grading.

Final grades will be on a similar scale as follows depending on work covered during the semester:

	Description	Value
Grade Makeup:	Homework (Individual)	50
	Pre-Labs (Individual)	50

Labs (Group)	100
Performance exams (Individual)	100 pts each
Attendance (Individual)	200
Final Project (Group) Plan	100
Final Project (Group) Final submittal	100
Legal case (Individual)	25

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.

Grade Scale:	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

Class website:

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. There is no credit for submitting late work.

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 my 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.

Initial and Final plans grading rubric -

- Site selection including area around site (20 pts)
- North arrow (10 pts)
- Equipment needed (10 pts)
- Schedule of activities and responsibilities to meet time constraint (20 pts)
- Schedule or table noting angles/distance/layout (20 pts)
- Schedule or method showing field collection with correct survey techniques with drawings showing (20 pts)

Final projects grading rubric -

- 50 pts for final project submission (clarity/neatness/repeatable process) –
you must show how you determined the cut/fill and how your field
measurements differed from plan and tolerances
- 15 pts for time - you have 60 minutes to complete the task
- 10 pts for correct location of building relative to benchmark
- 10 pts for correct layout of column centers
- 15 pts for building being square

SACS = Southern Association of Colleges and Schools

ACCE = American Council for Construction Education

SLO= Student Learning Outcome

Student Learning Outcomes

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 (IDA)	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