CE381 Construction Management

Fall 2017

Catalog Description: (3 units) Provide an opportunity to develop an enhanced understanding of construction industry and practices in preparation to contribute to construction firms, project management consultants, and owners upon graduation and to improve project delivery by understanding linkages between design and construction.

Prerequisite(s): Advanced Standing.

Learning outcomes:
Students should be able to:

1. Describe the design and construction planning process
2. Interpret construction documents
3. Determine resource needs and costs from construction documents
4. Identify key construction contract elements and legal and regulatory issues, and describe strategies for issue resolution
5. Interpret and assemble a project schedule
6. Identify and describe important issues impacting project oversight and management such as safety, quality control, change orders, and requests for information
7. Track and forecast costs and quantities and evaluate their alignment with and impact on the project schedule
8. Evaluate construction sites for impacts on constructability and safety

Learning outcomes support ABET program outcomes:
Primary

A. Apply mathematics, science and engineering principles
K. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Secondary

E. Ability to identify, formulate, and solve engineering problems
F. Understanding of professional and ethical responsibility
G. Ability to communicate effectively

Instructor:	Dean Papajohn
Class time & place:	TuTh 3:30-4:45 @ Mines & Met., Room 213; F 1:00-3:50 @ Site visits TBA
Office Hours:	TuTh 4:45-5:15 and by appointment
Office:	CE 214B
e-mail:	dpapajohn@email.arizona.edu

Textbook: Construction Management, 4th Edition, Daniel W. Halpin and Bolivar A. Senior, Wiley, 2011. (ISBN 978-0-470-44723-9).

Other materials will be supplied through the course D2L website.

Evaluation

Homework, quizzes, and participation	17%
Construction Site Observation Reports (5@3%) & Presentation (4%)	19%
Design-Build RFQ/SOQ Project	16%
Tests (2)	32%
Final Exam	16%

Homework assignments will be announced in class and must be submitted **at the start of class** on the assigned due date. No late assignments will be accepted, including assignments turned in during or at the end of the class, unless special arrangements have been made.

Semester grades are determined as follows:

90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; 0-59% = F.

Attendance

Students are expected to attend all class meetings and site visits. If a late arrival or an early departure is anticipated, check with the instructor to be sure that it is done without disturbing the class. The instructor, at his discretion, may decide to consider late arrivals or early departures as full absences. A two week absence may result in administrative withdrawal. If a student misses a class, he/she is responsible for all announcements and subjects covered in that class. If in doubt, contact the instructor.

•All holidays or special events observed by organized religions will be honored for those students who show affiliation with that particular religion,

•Absences pre-approved by the UA Dean of Students (or Dean's designee) will be honored.

ADA compliance

The University of Arizona strives to comply with the provisions of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Students with disabilities must notify the instructor at the beginning of the semester and must contact the Disability Resource Center.

Academic Integrity

Principle Integrity and ethical behavior are expected of every student in all academic work. This Academic Integrity principle stands for honesty in all class work, and ethical conduct in all labs and clinical assignments. This principle is furthered by the student Code of Conduct and disciplinary procedures established by ABOR Policies 5-308 through 5-404, all provisions of which apply to all University of Arizona students.

This Code of Academic Integrity (hereinafter "this Code") is intended to fulfill the requirement imposed by ABOR Policy 5-403.A.4 and otherwise to supplement the Student Code of Conduct as permitted by ABOR Policy 5-308.C.1.

Failure to follow this code of academic integrity will result in failing the course and be reported to the Dean of Students' office.

Prohibited Conduct
Conduct prohibited by this Code consists of all forms of academic dishonesty, including, but not limited to:

1. Cheating, fabrication, facilitating academic dishonesty, and plagiarism as set out and defined in the Student Code of Conduct, ABOR Policy 5-308-E.6, E.10, and F.1
2. Submitting an item of academic work that has previously been submitted without fair citation of the original work or authorization by the faculty member supervising the work.
3. Violating required professional ethics rules contained or referenced in the student handbooks (hardcopy or online) of undergraduate or graduate programs, or professional colleges.
4. Violating health, safety or ethical requirements to gain any unfair advantage in lab(s) or clinical assignments.
5. Failing to observe rules of academic integrity established by a faculty member for a particular course.
6. Attempting to commit an act prohibited by this Code. Any attempt to commit an act prohibited by these rules shall be subject to sanctions to the same extent as completed acts.

Student Responsibility
Students engaging in academic dishonesty diminish their education and bring discredit to the academic community. Students shall not violate the Code of Academic Integrity and shall avoid situations likely to compromise academic integrity. Students shall observe the generally applicable provisions of this Code whether or not faculty members establish special rules of academic integrity for particular classes. Students are not excused from complying with this Code because of faculty members' failure to prevent cheating.

Prohibited Behavior

A. **Threatening Behavior is Prohibited**. "Threatening behavior" means any statement communication, conduct or gesture, including those in written form, directed toward any member of the University community that causes a reasonable apprehension of physical harm to a person or property. A student can be guilty of threatening behavior even if the person who is the object of the threat does not observe or receive it, so long as a reasonable person would interpret the maker's statement, communication, conduct or gesture as a serious expression of intent to physically harm.

B. Procedures for Mandatory Reporting of Threatening Behavior If threatened by any student's conduct to the point of reasonable fear of immediate physical harm to self, others or property:

1. Leave the area immediately.
2. Call the Police by dialing 9-1-1 to request that an officer come to the location. Inform the Police if it is a repeat occurrence.
3. Anyone who observes what appears to be threatening behavior must report it to The Dean of Students Office and in the appropriate case file a Student Code of Conduct Complaint (see ABOR 5-403).

TENTATIVE SCHEDULE

(The instructor may change this schedule to accommodate class needs.)

Date	Topics	Presenter	Readings due (from Halpin & Senior unless otherwise noted)	Homework due
8/22/17	Introduction to construction management		Ch.1	Obtain textbook
8/24/17	Reading construction drawings & specifications			Log into D2L; HW 1.2 (choose 1, not 3 projects), 1.3; Select a project site to observe during the semester
8/25/17	Site visit: HSIB 2:15	Josh Kwapich, Kitchell		Kitchell Trailer, 1502 E. Mabel St.
8/29/17	Construction in the Project life cycle; Project delivery methods		Ch. 2, App. B, C, D, F Look at CIG.	Ch. 1 Quiz (D2L)
8/31/17	DB RFQ and RFP	Ralph Banks (UA Design, Planning & Construction) and Kris Kreutz (UA Campus Health)	Ch. 4	Ch. 4 Quiz (D2L)
9/1/17	Labor Day Weekend			
9/5/17	Construction planning		Ch. 7	HW 2.1, 2.10 (estimate), 2.16, 2.18
	9/6/17 DBIA RFQ registration due			
9/7/17	Design-Build	Travis McCarthy (Sundt)		S.O.#1 HW 7.1, 7.3, 7.4
9/8/17	Site Visit: Ina Road Interchange (CM/GC) 2:30	Dan Casmer (ADOT)		5157 N. Casa Grande Hwy, 85743 (South of Sunset Rd.)
9/12/17	Construction Scheduling DBIA Letter of Intent due		Ch. 8	
	9/13/17 DBIA RFQ issued			
9/14/17	Construction Scheduling			HW 8.1, 8.2, 8.3HW

	9/14/17 DBIA RFQ meeting			
9/15/17	Site visit: Raytheon Building-structural steel 2:30	Tim Kozain, Trey Beckham (Brasfield & Gorrie)		
9/19/17	QA/QC, inspections and materials management	Scott Sayles (Parsons)		HW 8.5, 8.6, 8.7
9/21/17	Estimating Process		Ch. 16	SO#2 Ch. 16 Quiz (D2L)
9/22/17				HW Bid prep HW Bid
	9/25/17 DBIA RFQ due			
9/26/17	Student presentations 1 Review for Exam 1			
9/28/17	Exam 1			
9/29/17	TBD			
10/4/17	Lean Construction	Ray McCoy (Hensel Phelps)		
10/6/17	Equipment Ownership		Ch. 13	S.O.#3
10/7/17	Site Visit: Borderland equipment yard 2:30	Morgan North, Andy North, Joel Harris (Borderland)		Borderland, 400 E. 38th Street, Tucson, AZ 85726
10/10/17	Equipment Productivity		Ch. 14	HW 13.3, 13.4, 13.5
10/12/17	Erosion Control			HW 14,1-14.5
10/13/17	Alumni Industry Council – no site visit			
10/17/17	Quantity Take Off Bid preparation	Rob Presuhn, Arnold Neave (Granite)		HW Cost Est
10/19/17	Cost Estimating	Rob Presuhn, Arnold Neave (Granite)		HW Qty takeoff S.O.#4
10/20/17				
10/24/17	Cost Estimating	Rob Presuhn, Arnold Neave (Granite)		Cost Est
10/26/17	ATB-Southern Arizona Construction Career Days (volunteers needed No Class			Tucson Rodeo Grounds
10/27/17	Homecoming			

	No site visit			
10/31/17	Bid preparation	Rob Presuhn, Arnold Neave (Granite)		SO#5
11/2/17	Project Risk	Josh Marks (Rider Levett Bucknall)	Ch. 8	
11/3/17	Mock Bid at Granite Construction 2:00-4:00	Rob Presuhn, Arnold Neave (Granite)		Granite Construction Office 4115 E. Illinois St., Tucson, AZ 85714
11/7/17	Virtual Design & Construction	Eric Cylwik (Sundt)		
11/9/17	DBIA Conference (Philadelphia)			
11/10/17	Veteran's Day – No Class			
11/14/17	Student presentations 2 Review for Exam 2			
11/16/17	Exam 2			
11/17/17	Site visit: Site visit: Raytheon Building- Precast walls 2:30			
11/21/17	Safety	Jessie Attencio, Joe Ornelas (ADOSH)	Ch. 19	Ch. 19 Quiz (D2L) S.O.#6
11/23/17	Thanksgiving - No Class			
11/24/17	Thanksgiving - No Site Visit			
11/28/17	Cash Flow		Ch. 11	
11/30/17	Project Funding		Ch. 12	HW 11.1, 11.3, 11.4
12/1/17				
12/5/17	Student presentations 3 Review for Exam 3			HW 12.2, 12.4, 12.5
12/11/17 3:30-5:30 PM	Final: Exam 3			

S.O. = Site Observation
HW = Homework problems from Halpin and Senior
CIG = Construction Institute Glossary;
https://www.construction-institute.org/scriptcontent/glossary.cfm?section=aboutcii

Site visits require appropriate attire, including a hard hat and safety vest which can be checked out the day of the site visit from ASCE or CEEM. Also required are boots and pants (preferably jeans). It is recommended to use sunscreen, bring water, and use safety glasses.