

Instructor: Francisco Gomes  
fgomes@utexas.edu  
office hours: TH 5-6pm (by appointment) - GOL 2.310

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(please begin subject line of all class related emails with "Const I:")

Course Schedule: T/TH 8:00 - 9:30 am (lecture) GOL 3.120  
F 9:00 am - 12:00 pm (lab) GOL 3.120

### **COURSE SUMMARY:**

Construction One is a broad survey of construction, including materials, trades, systems, and methods of fabrication and installation. For students of architecture, interior design, and historic preservation, Construction One is the first course in a series of four required building construction/building structures courses.

### **OBJECTIVES:**

The material, assembly, and detailing determinations an architect makes in authoring a project are vital design decisions. Developing a familiarity with the physical characteristics of materials, functions of assemblies and systems, means and methods of building, legal and cultural conditions affecting the work of the building trades, and ecological ramifications of both the production and operation of projects is a fundamental goal of this class. Upon this foundation of information and experience, the student of architecture can begin to construct a deeper knowledge of how architectural propositions engage the physical world. Construction and materiality can be a rich source of architectural argument, and building understanding of this subject enables invention and deployment of material and assembly strategies that reinforce, as well as generate, architectural concepts.

### **FORMAT:**

Two lecture and discussion sessions each week will include instructor presentations prefaced by a brief quiz on the assigned reading material and followed by a brief question period. The course is structured as two sequential phases. The first half of the class (weeks 1-8) is a 'Construction Systems' sequence examining significant building trades and materials, including sources, physical properties, uses in construction, means of fabrication, and methods of installation. In the second half of the class, the lecture topics cover a series of influential issues which impact material and building system decisions but are not tied to a single material category.

In addition, students are required to attend a laboratory once a week where you will participate in field trips to manufacturing plants and/or construction sites, work with quantitative methods related to building performance, and present and work on your class projects. Please report to the assigned classroom for lab unless an alternate meeting location has been announced in the prior lecture session.

Students are expected to approach the required reading as research to be completed prior to each lecture. The content of the lectures and the reading will be complementary, and successful completion of the course will require knowledge acquired from both sources.

**TEXTS:**

Required: Allen/Iano, *Fundamentals of Building Construction: Materials and Methods* 6<sup>th</sup> edition (available as an electronic resource via UT library catalog)

Recommend.: Ching, *Building Construction Illustrated* - 5<sup>th</sup> edition

Allen/Rand, *Architectural Detailing: Function, Constructability, Aesthetics* – 3<sup>rd</sup> ed.

Lib. Reserve: Ford, *The Details of Modern Architecture* – Vols. I & II

Frampton, *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture*

Elliott, *Technics and Architecture*

Deplazes, *Constructing Architecture: Materials, Processes, Structures*

Addis, *Building: 3000 Years of Design Engineering and Construction*

Ramsey/Sleeper, *Architectural Graphic Standards*

Ballard Bell/Rand, *Materials for Design*

Mostafavi/Leatherbarrow, *On Weathering: The Life of Building in Time*

Allen/Iano, *The Architect's Studio Companion*

*2012 International Building Code*

Additional required and recommended readings will be announced in class and posted on the class Canvas site as the semester progresses.

**ASSESSMENT:**

**EXAMS – 50% OF YOUR GRADE**

Closed book exams, scheduled following the completion of approximately each third of the class sequence, will test each student's ability to recall factual material and apply construction knowledge. Comprised of 15-25 questions, exams will require short answer, drawing and diagramming. Except as required by University policies, make up exams will not be offered.

**UNIT REVIEWS – 17% OF YOUR GRADE**

Open book, take home research modules are packets of 15-20 questions approached as an examination of course content. Unit Reviews will challenge each student to deploy material and construction fact and theory through short answer, essay, drawing and diagramming. Unit Reviews shall be completed individually. Two Unit Reviews are scheduled during the fifteen week semester and will be distributed after a Thursday lecture to be returned at the beginning of the following Thursday lecture. The final third of the class material will not have a Unit Review. Late work will not be accepted.

LAB EXERCISES, PROJECTS, AND PARTICIPATION; QUIZZES – 33% OF YOUR GRADE  
Lab exercises and projects will be assigned during the semester.

**COURSE POLICIES:**

**GROUP WORK:**

Group work requires equal participation from all members. Any individual not performing a commensurate share of the work may be eliminated from the group but is still responsible for satisfaction of the assignment requirements.

**ATTENDANCE:**

Attendance is expected, and may be recorded at all lectures and labs at the instructor's discretion. Any student with more than two documented absences may be dropped from the class or the student's final grade will be adjusted a letter grade less for each additional absence.

**GRADING:**

Final grades are derived from problem sets, pop quizzes, exams, unit reviews and the research project. Final grading is based on a 100 point scale in a plus/minus system.

A	93 – 100	B-	80 – 82	D+	67 – 69
A-	90 – 92	C+	77 – 79	D	63 – 66
B+	87 – 89	C	73 – 76	D-	60 – 62
B	83 – 86	C-	70 – 72	F	59 or lower

The grades accumulated over the semester are averaged to a final grade as follows:

EXAMS (1, 2, 3 : in-class)	50%
UNIT REVIEWS (1, 2 : take home)	17%
LAB EXERCISES/PROJECTS/PARTICIPATION; QUIZZES	33%

The Office of Graduate Studies requires a grade of at least C (73-76) for a course to be included in a graduate student's program of work.

**Observance of Religious Holidays:**

A student who is absent from a class or other required activities, including examinations, for the observance of a religious holy day may complete the work missed within a reasonable time after the absence, if proper notice has been given. Students should deliver written notice to the instructor, in person, as far in advance of the class absence as possible, but not less than seven days prior to the classes scheduled on the dates the student will be absent. A student who fails to complete missed work within the time allowed will be subject to the normal academic penalties.

**Students with Disabilities:**

The University of Texas at Austin provides, upon request, appropriate academic accommodations for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-6441 TTY.

**Scholastic Dishonesty:**

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the integrity of University, policies on scholastic dishonesty will be strictly enforced. For further information please visit the Student Judicial Services Web site: <http://deanofstudents.utexas.edu/sjs>.

**Field Trip Conduct:**

Field trips to visit construction sites and building material manufacturing operations will occur during both lecture and lab sessions. For these field trips, you must wear long pants, closed toe shoes, and bring hard hats and safety glasses (which will be provided by the school). Promptness and professional on-site conduct is essential to the continued success of the visits.

**ARC 415L/385L****Construction I****Fall 2018**

Instructor: Francisco Gomes, AIA

schedule is preliminary and subject to change, with exception of exam dates

Allen/Iano chapters refer to 6th edition.

Week	T		TH		Lab
1			30-Aug	Course Introduction	- no lab -
2	4-Sep	Masonry I <i>Allen/Iano Ch. 8 + 9</i> [assign Masonry d/b project]	6-Sep	Masonry II <i>Allen/Iano Ch. 10</i>	Texas Quarries site visit (pending)
3	11-Sep	Concrete I <i>Allen/Iano Ch. 13</i>	13-Sep	Concrete II <i>Allen/Iano Ch. 14</i>	<b>Masonry DB pinup</b>
4	18-Sep	Concrete III <i>Canvas reading A</i>	20-Sep	Steel I [assign Unit Review 1] <i>Allen/Iano Ch. 11</i>	Masonry/Conc: MatLab & Wall Section
5	25-Sep	<i>team presentations: masonry project design</i>	27-Sep	Steel II <i>Canvas reading B</i> [Unit Review 1 due]	Steel: MatLab & Wall Section
6	2-Oct	<i>workday: team prep for masonry project build</i> [Cisco out: Adv Bldg Skins Conf]	4-Oct	<b>EXAM 1</b>	<b>Masonry project build</b>
7	9-Oct	Wood I <i>Allen/Iano Ch. 3 + 5</i>	11-Oct	Wood II <i>Canvas reading C</i>	Wood: MatLab & Wall Section
8	16-Oct	Glass <i>Allen/Iano Ch. 17</i>	18-Oct	Building Envelopes I [assign Unit Review 2] <i>Allen/Rand pp. 5-48</i>	field trip (pending)
9	23-Oct	Building Envelopes II <i>Allen/Rand pp. 49-72</i>	25-Oct	<i>envelope workshop</i> [Cisco out: ACSA conf] <i>Canvas reading D</i> [Unit Review 2 due]	Hygrothermal performance: quantitative exercise
10	30-Oct	Insulation/Sealants/Coatings <i>Canvas reading E</i>	1-Nov	<b>EXAM 2</b>	field trip (pending)
11	6-Nov	Codes and Regulation <i>Canvas reading F</i>	8-Nov	Movement and its Accommodation <i>Allen/Rand pp. 81-102</i>	Building code: quantitative exercise
12	13-Nov	Foundations <i>Allen/Iano Ch. 2</i>	15-Nov	Roofs/Membranes <i>Canvas reading G</i>	field trip (pending)
13	20-Nov	Systems Integration <i>Canvas reading H</i>	22-Nov	<b>THANKSGIVING HOLIDAY</b>	- no lab -
14	27-Nov	Structures I <i>Canvas reading I</i>	29-Nov	Structures II <i>Canvas reading J</i>	Statics: quantitative exercise
15	4-Dec	Constructors/Relationships <i>Canvas reading K</i>	6-Dec	<i>Final Studio Reviews (no class)</i>	- no lab - <b>14 Dec: EXAM 3</b>