ARCH 5333: Construction II Fall 2017

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Faculty Profile:
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Classroom: Materials and Assembly Suite, CAPPA Annex (CMPC 104)
Meeting Times: M, W & F---1:00–1:50 PM
Instructor's Office Hours: M, W, F 12:20 to 12:40 PM, CAPPA Library

Important Dates

Test 1	Sep. 18	Sketch book 1 submission Sep. 18
Test 2	Oct. 16	Sketch book 2 submission Oct. 16
Test 3	Nov. 13	Sketch book 3 submission Nov.13
Final Exam.	**Dec. 11, 2017 (12:00 – 1:30 PM)**	

Project submissions and presentations, and homework submissions as announced during the semester.

Texts and Reading Material
This is not a textbook course. Therefore, several sources must be referenced. Some sources are:

Reference 1 .....Mehta, Scarborough and Armpriest: *Building Construction—Principles, Materials, and Systems*, **Third Edition, 2018, Pearson**, available in UTA Book Store and Amazon. One copy on reserve in CAPPA Library
Reference 2 .....Patterson and Mehta: *Roofing Design and Practice (*Prentice Hall) CAPPA Library.
Reference 3 .....Patterson and Mehta: *Wind Loads on Low-Slope Roofs,* Roof Consultants Institute Foundation (RCIF), CAPPA Library.
Reference 4 .....Websites.
Reference 5 …….. .Lecture Notes

Suggestions for additional references will be provided by the Instructor during the semester.

Introduction
The course deals with advanced construction assemblies and builds on the first course on construction (ARCH 5323: Construction-I). It is a lecture-, project-, seminar-based course, and requires a certain amount of independent research by the student in completing the projects and preparing for the tests. The course deals with several different types of materials and construction assemblies with a focus on building envelope (facades and roofing). Important life-safety issues related to assemblies, sustainable materials and construction, outline specifications and cost control will be covered briefly.

Note that this is not a course on construction drawings. Therefore, some of your drawings will need to be three-dimensional (isometrics and axonometrics), and in some instances, well-drawn freehand sketches, will be required—in fact all that is typically needed to illustrate one's comprehension of construction systems and assemblies.

Course Topics

Movement Control
Control of expansion, contraction, and other types of movement in buildings and building components. Building codes and movement control.
(Reference 1, Chapter 9).

Cold-Formed Steel in Residential and Commercial Construction
Cold-formed steel (CFS) components. Use of CFS in load-bearing applications. Use of CFS in nonbearing applications—interior partitions and exterior cladding and curtain walls. Life safety issues in CFS construction.
Reference 1, Chapter 20, and Instructor's Notes.

Roofing
Both low-slope and steep roofing systems will be dealt with. With 4 lectures by the instructor and one by the guest instructor: Joel Lewallen (Roof Consultant), and some self reading, the students will be brought up-to-date with current roofing practices. Reference 1, Chs. 33, and References 2 and 3. Life safety issues (wind uplift and drainage) in roof design.

Masonry (Loadbearing and Nonbearing)
Clay and concrete masonry construction. Masonry mortar. Brick veneer for residential buildings. Concrete masonry units and joint reinforcement. Concrete masonry in load-bearing and nonbearing walls. Reinforced concrete masonry. Masonry structural details with concrete, wood and steel structures. Life safety issues in masonry construction systems.
Reference 1, Chs. 24 to 26.

Exterior Wall Cladding
Brick veneer curtain wall; precast concrete curtain wall, GFRC curtain wall, stucco, EIFS and stone cladding. Lofe safety issues with respect to wall cladding.
Reference 1, Chs. 27 to 29.

Windows and Curtain walls
Windows (wood, aluminum, steel and vinyl).
Glass-aluminum curtain walls.
Reference 1, Chs. 30 to 32.

Floor Coverings
Various types of floors—wood, terrazzo, vinyl and linoleum, carpet, marble and granite, brick paving, concrete paving. Life safety issues in flooring.
Reference 1, Ch. 36 and instructor notes.

Ceilings
Suspended ceilings in commercial buildings.
Reference, Ch. 37.

Breakdown of Grades
A student's grade in the course will be based on the following work.

• Tests (2 out of 3 tests)	50
• Sketchbooks (3)	45
• Student project	20
• Homeworks	15
• Attendance (Wks 1-13)	10
• Attendance (last 3 weeks)	5
• Final Exam.	25
Total	170

Letter grade A will be given to a student with a score of 90% or higher; Letter grade B to a student with a score of 80% to 89.5%; Letter grade C to a student with a score of 70% to 79.5%; Letter grade D to a student with a score of 60% to 69.5%; Letter grade F to a student with a score of less than 60%.

Lecture and Test Schedule

Week/Date	Topic
1 Aug. 25–30	Movement control in buildings; Joints and sealants.
2 Sep. 1–8	Thermal bridging in building envelopes. Continuous Insulation (CI)—a major code requirement. Use of cold-formed steel (CFS) in building construction. HSW issues in CFS construction (IECC code and fire resistance).

3 - 5	Introduction to Roofing. Roof membranes. Roof insulation.
Sep. 11–27	Roof decks; Life safety issues in roofing. Design for roof drainage; Design for fire; Design for wind and hail; Roof details.
	Test 1 Sep. 18 (1:00 – 2:00 PM)
(Date TBA)	**Guest lecture by Joel Lewallen, Johns Manville Roofing Systems**
6 - 8	Introduction to masonry; Concrete masonry and clay masonry units; Mortar; Grout; Joint reinforcement.
Sep. 29– Oct. 13	Load bearing masonry and load-bearing reinforced concrete construction; Tilt-up wall construction.
9 - 10	Brick veneer facades, Thermal bridging: Detailing of shelf angles.
Oct. 16–27	Precast concrete and glass-reinforced concrete.
	Test 2 Oct. 16 (1:00 – 2:00 PM)
11 - 13	Portland cement stucco; Exterior insulation and finish systems (EIFS)
Oct. 30–Nov. 22	Detailing of Portland cement stucco
	Material Glass; Glass-aluminum curtain walls; Doors and windows.
	Test 3 Nov. 13 (1:00 – 2:00 PM)
14 - 16	**Guest lecture/Visit to Curtain Wall Testing Facility, Carrollton, TX (TBA)**
Nov. 27–Dec. 6	Student Project Presentations
	Final Exam. Dec. 11 (12:00- 1:30 PM)

Tests

Out of three tests, only two tests will count toward the final grade. Each test, of 45-minute duration, will be in two parts. Part (A) will consist of approximately 40 multiple-choice questions (Practice quizzes from "Texts and Reading Material, Reference 1", see page 1 of this document). Part (A) test is to be answered on a (8.5 in. x 11 in.) General Purpose Scantron Sheet (to accommodate 200 questions) to be purchased by the student. After completing Part (A) test, the student will hand over the Scantron Sheet and collect Part (B), which will consist of several short-answer questions (from those provided to students by the Instructor) and review questions (from "Texts and Reading Material, Reference 1", see page 1 of this document).

Part (B) must be answered on question papers supplied by the Instructor. A 3 in. x 5 in. note card may be used as an aid-to-memory in answering Part (B) questions. Note card is not to be used for answering Part (A).

The word "note card" implies a (proper/regular) note card, not a paper of the same size as a note card. Note card may only have handwritten notes. Photocopied notes are not permitted. A student found not in compliance with this requirement will be asked to immediately surrender his/her aid-to-memory notes.

There will be no make-up test, quiz or final examination.

Sketchbook Assignments

Every student will maintain a hardbound sketchbook 81/2 in. x 11 in. size (no other size will be accepted), which will include construction sketches as required by the Instructor. All sketchbook assignments must be submitted on the due dates.

Project

A student may choose to work on one of the two types of projects in groups (number of students in a group to be announced):

- *Research project*, requiring an in-depth study of a construction system. The project's submission consists of two components: (a) a well-documented paper and (b) presentation to the class. The topic of research is to be decided between the student (group) and the Instructor.

- *Construction drawings and outline specifications of an assembly*. The choice of assembly and the extent of coverage is to be decided between the student (group) and the Instructor.

Laptop Policy
The students will not use a laptop computer to take notes during the class. When the use of a laptop computer is required in the classroom, the Instructor will advise the students a few days in advance.

Attendance Policy
It is not possible to fully assess a student's learning of the course material through conventional means (tests, sketchbook submissions, projects, homework, etc.). Therefore, regular attendance in the course is expected. Attendance will be recorded by the student signing the roll sheet posted near the classroom entrance. The roll sheet may or may not be removed from the wall, but a student coming more than 5-minutes late should not sign the sheet. For additional details, see "Breakdown of Grades" on page 2 of this document.

Grade Grievance
If a student has any grievance about the grade on a test, homework, or a project, he/she must contact the Instructor promptly—no later than the following class period. If the Instructor is satisfied that a genuine error was made, a change of grade will follow. If not, the Instructor will try to explain to the student the rationale behind the grade. If the student does not agree with the Instructor's decision, he/she must submit a written request to the Instructor outlining why he/she deserves a higher grade. This must be done within one week of the student receiving the grade on the test or other assignment, beyond which no grievance will be entertained. For additional details, refer to the following URL:
http://catalog.uta.edu/academicregulations/grades/#graduatetext

Drop Policy
Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Disability Accommodations
UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination

Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit* www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

Additional information is available at https://www.uta.edu/conduct/.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit http://www.uta.edu/sfs.