

ARCH 3323/5323: Construction Materials and Methods Fall 2018

Instructor: Madan Mehta, B.Arch. Ph.D., P.E.
Email: mmehta@uta.edu Tel: 817.272.2801
Faculty Profile:
<https://www.uta.edu/profiles/dr-madan-mehta>

Classroom: Room 401, CAPP A

Meeting Times: M, W & F---10:00–10:50 AM

Instructor's Office Hours: M, W, F 12:20 to 12:40 PM, CAPP A Library

Important Dates

Tests and Final Exam.		Sketchbook and Homework Assignments	
Test 1.....	Sep. 17	Sketchbook submission 1	Sep. 17
Test 2.....	Oct. 8	Sketchbook submission 2	Oct. 8
Test 3.....	Oct. 29	Sketchbook submission 3	Oct. 29
Test 4.....	Nov. 19	Sketchbook submission 4	Nov. 19

Homework assignment submissions as announced during the semester.

Graduate project—submissions **Nov. 26**

Grad. project—presentations **Dec. 3**

Final examination: Dec. 12, 2018 (9:00 AM – 10:30 AM)

Course Objectives and Learning Outcomes

After completing the course, a student should:

- Understand the processes that lead to the design and construction of buildings including the commonly used project delivery systems.
- Understand the constraints imposed by building codes on the use of materials and assemblies in architecture, and to understand the architects' responsibilities with respect to public health, safety, and welfare.
- Grasp the principles of construction and materials and their interaction with building assemblies.
- Grasp the fundamental physical and chemical characteristics of commonly used building materials, such as wood, steel, concrete, gypsum board, etc.
- Understand the manufacturing processes and the behavior of major construction assemblies, particularly with respect to sustainability and how they affect contemporary architectural practice and the changes that might occur in this rapidly evolving field.
- Become reasonably proficient with the construction methods and systems pertaining to light frame buildings in wood and steel.

Description of Course Content

The nature of materials and structural concepts to be used in the construction process. Prerequisite: ARCH 2552. Junior standing in program. Restricted to Architecture majors.

Required Texts and Other Course Material

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 CAPP A Library.

2. Rob Thallon: *Graphic Guide to Frame Construction*, Taunton Press (Fourth edition, 2008)—UTA Book Store and Amazon.

Instructor Notes, Library and Web References

Schedule

Wk.	Dates	Topic and Reference
1-2	Aug. 22 – 29	Introduction—How Buildings Come Into Being..... Ch. 1, Ref. 1 Roles of Architect, Consultants and Contractors in Building Construction. Building Project Delivery Systems.
2-8	Aug. 31- Sep. 5	Governmental Constraints on Construction Building Codes Ch. 2, Ref. 1. Model building codes in the United States. The International Code Council. Construction Standards—UL, ASTM, ANSI, FM, and HUD.
	Sep. 7 - Oct. 3	Properties of Materials Loads on Buildings Ch. 3, Ref. 1. Structural Properties Ch. 4, Ref. 1 Thermal Properties Ch. 5, Ref. 1 Air Leakage and Water Vapor Control Ch. 6, Ref. 1 Fire-Related Properties Ch. 7, Ref. 1 Acoustical Properties* Ch. 8, Ref. 1 Sustainable Construction* Ch. 10, Ref. 1
8-16	Oct. 5 - Dec. 4	Materials and Construction Systems Guest Lecture on International Green Construction Code, October 11. Soils and Foundations Chs. 11 & 12, Ref. 1 Lumber Ch. 13, Ref. 1 Engineered Wood Ch. 14, Ref. 1 Wood Light Frame Construction-I Ch. 15, Ref. 1 Wood Light Frame Construction-I I Ch. 16, Ref. 1 Structural Steel Construction Ch. 18 Ref. 1 Lime, Portland Cement and Concrete Ch. 21, Ref. 1

- These two chapters are to be read by the students but they will be tested on their contents.

Breakdown of Grades

Tests (3 out of 4)	75
Homework Assignments	15
Sketchbook Assignments (4 x 10)	40
Quizzes (unspecified number)	8
Attendance (Aug. 22–Dec. 1)	10
Attendance (Nov. 30 & Dec. 3)	2
Final Examination	25
Graduate Project	15

Maximum points (undergraduates) 175 (Graduates) **190**

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%.

Tests

Out of four tests, only three tests will count toward the final grade. Each test, of 50-minute duration, will be in two parts. Part (A) will consist of approximately 40 multiple-choice questions (Practice quizzes from Required Text 1). 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 Required Text 1).

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 8 1/2 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.

A student repeating the course is exempt from redoing the sketchbook assignments and his/her grades in all the four sketchbook assignments from the previous semester will be carried forward to the current semester. However, this exemption is only available for the entire sketchbook, not for a part of the sketchbook. In other words, a student wishing to repeat one or two assignments (because of a low grade in those assignments) must redo all four sketchbook assignments.

Graduate Project

Graduate students enrolled in the course will work on a project (undergraduate students are exempt from this requirement). The topic of the project will be decided in consultation with the instructor. The project will consist of two components: (a) written component which has a preliminary and a final submission, and (b) presentation to the entire class. No additional work should be done on the project between its final submission and its presentation.

Laptop or Digital Device Policy

The students will not use a laptop computer or any digital device 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, quizzes, 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.

Quizzes

Surprise quizzes will be given to further ensure regular and timely attendance. Each quiz will be of 5-minute duration, given at any time during the class period. Grades for all quizzes will count toward the final grade.

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 links:

Undergraduate students: <http://catalog.uta.edu/academicregulations/grades/#undergraduatetext>

Graduate students: <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>.

Emergency Exit Procedures

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, [which is located on the right-hand side of the entrance door to Room 401](#). When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Campus Safety

As an extremely professional organization that provides 24-hour assistance to the entire UT-Arlington Campus of which we should all be proud and thankful, the UT-Arlington Police Department seeks your help in ensuring a campus that is safe from “an active aggressor, a tornado or even a train derailment”. It is important that all of you go to the following link and read the information titled “Your Options to an active Threat”.

police.uta.edu/activeshooter