CE 3161: Civil Engineering Materials Laboratory
Spring 2016

Instructor: Mr. Reza Saeedzadeh

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Faculty Profile: http://www.uta.edu/profiles/reza-saeedzadeh

Office Hours: Tue. and Wed. 12:30PM - 2:00PM

Section Information: Sections 001, 002 and 003

Time and Place of Class Meetings: Tue., Wed., Thu. 2:00PM to 4:50PM in 124CELB

Course Website: https://mavspace.uta.edu/sroman/CE3161/

Description of Course Content: Various properties and behavior of civil engineering materials are investigated by laboratory experimentation.

Student Learning Outcomes: At the end of this course, students should be able to:

Student Outcomes Addressed:	**Extent of Coverage***
(a) An ability to apply knowledge of mathematics, science, and engineering	T_I
(b) An ability to design and conduct experiments, as well as to analyze and interpret data	T_I
(g) An ability to communicate effectively	T_I
(i) A recognition of the need for, and an ability to engage in life-long learning	C_I
(j) A knowledge of contemporary issues	C_I
(k) An ability to use the techniques, skills and modern engineering tools necessary for engineering practice	C_E

**Covered Implicitly (C_I): The outcome is implicitly covered*
Covered Explicitly (C_E): The outcome is explicitly covered
Tested Implicitly (T_I): The outcome is covered and implicitly assessed for by one or more means (assignments, test questions, essay questions, presentation evaluations, lab reports, etc.)

Specific Outcomes of Instruction: Students will demonstrate an understanding of engineering properties of materials generally used in the CE/Constructional applications. Due to the time restraint, only some laboratory tests will be performed on the following materials: Wood, Aggregates, Cement Concrete, Asphalt Concrete and Steel.

Required Textbooks: *Materials for Civil and Construction Engineering,* Third Edition, by Michael Mamlouk and John Zaniewski, Pearson Prentice Hall, 2011. ISBN 0-13-611058-4

LAB MANUAL: The electronic copy of the lab manual is posted on the Course Website (address above) and UTA Blackboard. You are required to print it out and have it with you in class.

Description of major assignments and examinations:

- Lab report for each experiment. One report is submitted per student group
- Final exam.

Attendance Policy: At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I expect all students to attend each lab session. If a student is to be absent, he/she must get approval from the instructor. Attendance will be taken every session.

Other requirements: ***Pre-requisites:*** CHEM 1442; CE 2313; CE 3261 or **concurrent** registration therein.

Grading Policy: Lab reports (50%), Final Exam (50%).

Scale:	*Percentage Points*	*Final Grade*
	90 - 100%	A
	80 - 90%	B
	70 - 80%	C
	60 - 70%	D
	< 60%	F

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 6(six) hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Make-up Exam Policy: No make-up exams are given except for medical or other similar hardships where advanced arrangements are made with the instructor; or in case of non-selective medical emergencies with appropriate physician's note or documentation. Other than circumstances described above, failure to take the exam at the scheduled time will constitute a grade of zero in the exam.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current undergraduate catalog.

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/).

Americans with Disabilities Act: The University of Texas at 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)*. 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX

Academic Integrity: Students enrolled in this course 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.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Lab Safety Training: **Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities.** Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August)

and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned. Please follow these steps to take the training:

1. Login to **Blackboard** at https://elearn.uta.edu with your NetID and password.
2. Under **My Blackboard** tab, click **Lab Safety Training.**
3. Click **Welcome** from the left pane to start and follow the instructions.

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.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be 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 enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

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. 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 handicapped individuals.

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Librarians to Contact: Sylvia George-Williams and Joshua Been, Science and Engineering Library.

Tentative Course Schedule: ***January 19, 2016***

DATE	LAB	TOPIC	TEST
Jan. 26, 27, 28	1	Steel & Timber	1.1 Tensile Strength of Steel (Strain-stress Curve) 1.2 Compressive Strength of Wood Parallel to the Grain 1.3 Flexural Strength/ Modulus Rupture of Timber
Feb. 2, 3, 4	2	Aggregates	2.1 Material <0.075mm Sieve by Washing (Decantation) 2.2 Specific Gravity and Absorption of Coarse Aggregates 2.3 Percent Solids and Voids in Concrete Aggregates 2.4 Sieve Analysis **(REPORT DUE: STEEL & TIMBER)**
Feb. 9, 10, 11	3	Aggregates	3.1 Sand Equivalent 3.2 LA Abrasion Test 3.3 Fine Aggregate Angularity 3.4 Specific Gravity and Absorption of Fine Aggregates
Feb. 16, 17, 18	4	Cement	4.1 Normal Consistency of Hydraulic Cement with the Vicat Apparatus 4.2 Time of Setting of Hydraulic Cement 4.3 Blaine Fineness Test
Feb. 23, 24, 25	5	Concrete	*Concrete Mix Design - Lecture* **(REPORT DUE: AGGREGATES & CEMENT)**
Mar. 1, 2, 3	6	Concrete	6.1 Mix Design-Batching, Making, Curing Concrete Specimens 6.2 Slump test 6.3 Air Content by the Pressure Method 6.4 Measuring Temperature of Freshly Mixed Concrete
Mar. 8, 9, 10	7	Concrete Mortar & Brick	7.1 7-Day Flexural Strength by Simple Beam 3rd Point Loading 7.2 Mixing of Mortar and Building of Brick Prism
Mar. 22, 23, 24	8	Mortar & Brick	8.1 Compressive Strength of Hydraulic Cement Mortars 8.2 Compressive Strength of Brick Prism *HMA Mix Design - Lecture*
Mar. 29, 30, 31	9	Concrete	9.1 28-Day Compressive Strength of Concrete + ANOVA analysis 9.2 28-Day Splitting Tensile Strength **(REPORT DUE: MORTAR & BRICK)**
Apr. 5, 6, 7	10	HMAC	10.1 HMA Specimen Preparation-TX Gyratory Compaction 10.2 Superpave Gyratory Compaction 10.3 Viscosity of Binders with the Rotational Viscometer 10.4 Shear Modulus and Phase Angle of Binders (DSR) **(REPORT DUE: CONCRETE)**
Apr. 12, 13, 14	11	HMAC	11.1 Theoretical Maximum Specific Gravity or Density of HMA 11.2 Bulk Specific Gravity of Compacted HMA
Apr. 19, 20, 21		Make Up	**(REPORT DUE: HMAC)**
May 3, 4, 5		**Final Exam**	

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – Reza Saeedzadeh