



THE UNIVERSITY OF ARIZONA
COLLEGE OF ENGINEERING

Civil & Architectural
Engineering & Mechanics

CE343 Soil Mechanics Spring 2019 - 84601

Class Times & Location: MoWeFr - 11:00AM - 11:50AM. Saguaro Hall, Rm 225

Description of Course:

(3 Units) In this course, we will discuss the fundamental physical and mechanical properties of soils and use them in the design of simple foundation and earth retaining systems. We will use certain fundamental principles of solid mechanics and fluid mechanics to describe the mechanical behavior of soils.

Course Prerequisite(s):

CE215: Mechanics of Solids or permission of the instructor. If the instructor has waived the prerequisite(s), you still take full responsibility for your performance in this course.

Instructor and Contact Information:

Instructor Name: Cac M. Dao, Ph.D.
Office Location: Civil Engineering Bldg. Rm 324E
Telephone Number: (520) 621-4114
E-mail Address: cmd@email.arizona.edu
Office Hours: Mon&Wed 2:00pm - 3:00pm

Preceptors: Xueting Chen (xuetingchen@email.arizona.edu)
Joe Millick (jmillick@email.arizona.edu)

Grader: David Araiza (daraiza2@email.arizona.edu)

Web Information: <https://d2l.arizona.edu/d2l/home/738186>

Course Format and Teaching Methods:

Web-delivered content, lecture, and in-class discussion with small-group activities.

Course Objectives:

To educate students on the fundamental physical and mechanical properties of soils and on the analysis and design of simple foundation and earth retaining systems.

Expected Learning Outcomes:

An ability to design a system, component, or process to meet desired needs. Be proficient in the major areas of civil engineering.

Absence and Class Participation Policy:

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact me as soon as possible. *To request a disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu.* If you are experiencing unexpected barriers to your success in your courses, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, <http://policy.arizona.edu/human-resources/religious-accommodation-policy>.

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored. See: <https://deanofstudents.arizona.edu/absences>

Required Texts or Readings:

Geotechnical Engineering: Principles and Practices, by D. Coduto, M. Yeung & W. Kitch, Pearson, 2011, 2nd Edition.

Required Software:

Flownets sketching software.

Assignments and Examinations:

You will be required to take two midterm examinations during the semester and a final examination. All exams are closed book; calculators are permitted.

Examinations are regarded as an engineering report. Procedures and presentation of solutions should be precise and legible. Penalties are assessed for: (1) algebra and arithmetic errors; (2) answers presented without proper units, sign or direction; (3) incomplete free body diagram; and (4) illegible presentation. No credit will be given for correct answers obtained by incorrect reasoning or compensation errors. Partial credit may be given for work that pertains to the correct solution.

Times for the midterm exams will be announced in the class. Calculators that can be used for exams are given in the following link. These are the approved calculators for FE (Fundamentals of Engineering) certification exam also <http://ncees.org/about-ncees/news/2013-approved-calculator-list-announced/>

Final Examination:

The date and time of the final exam or project, along with links to the Final Exam Regulations, <https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information>, and Final Exam Schedule, <http://www.registrar.arizona.edu/schedules/finals.htm>

Home Work

Homework problems will be posted on d2l. Homework due date and cutoff time will be announced every time a homework is assigned. The homework submitted after the due date will be marked late but will be graded and returned as long as it is submitted before the cutoff time. Homework submitted after the cutoff time will not be graded and a grade of zero will be assigned.

Grading Scale and Policies:

Attendance/Quiz	10%
Midterm Exams	40%
Final Exam	30%
Homework	20%

Assignment of the final grade will be based on the following scale:

A	90 - 100
B	80 < 90
C	70 < 80
D	60 < 70
E	< 60

Benefit for submitting homework on time: Students who submit their homework on time will be given the higher grade if their total points are near the borderline between two grades. University policy regarding grades and grading systems is available at <http://catalog.arizona.edu/policy/grades-and-grading-system>

Scheduled Topics/Activities:

Week	Topics	Book Sections
1	Course objectives, policies, expectations. Introduction	1.1 - 1.5
1	Engineering Geology	2.1 - 2.4
2	Engineering Geology	2.5 - 2.7
2	Site Exploration and Characterization part 1	3.1 - 3.4
2	Site Exploration and Characterization part 2	3.5 - 3.9
3	Martin Luther King, Jr. – no school	
3	Site Exploration and Characterization part 3	3.10 - 3.13
3	Soil Composition part 1	4.1 - 4.4
4	Soil Composition part 2	4.5 - 4.8

4	Soil Classification part 1	5.1 - 5.3
4	Soil Classification part 2	5.4 - 5.6
5	Excavation, Grading, and Compacted Fill part 1	6.1 - 6.3
5	Excavation, Grading, and Compacted Fill part 2	6.4 - 6.6
5	Excavation, Grading, and Compacted Fill part 3	6.7 - 6.9
6	Review for Midterm Exam #1	
6	Midterm Exam #1 (Chapters 1, 2, 3, 4, 5, 6)	
6	Groundwater - Fundamentals and One-D Flow part 1	7.1 - 7.2
7	Groundwater - Fundamentals and One-D Flow part 2	7.3
7	Groundwater - Fundamentals and One-D Flow part 3	7.4
7	Groundwater - Multidimensional Flow part 1	8.1 - 8.3
8	Groundwater - Multidimensional Flow part 2	8.4 - 8.6
8	Groundwater - Multidimensional Flow part 3	8.7 - 8.8
8	Stress part 1	9.1 - 9.3
9	Spring Recess - No school	
10	Stress part 2	9.4 - 9.6
10	Stress part 3	9.7 - 9.8
10	Stress part 4	9.9 - 9.10
11	Compressibility and Settlement part 1	10.1 - 10.4
11	Compressibility and Settlement part 2	10.5 - 10.7
11	Compressibility and Settlement part 3	10.8 - 10.10
12	Compressibility and Settlement part 4	10.11 - 10.13
12	Rate of Consolidation part 1	11.1 - 11.3
12	Rate of Consolidation part 2	11.4 - 11.5
13	Rate of Consolidation part 3	11.6 - 11.7
13	Review for Midterm Exam #2	
13	Midterm Exam #2 (Chapters 7, 8, 9, 10, 11)	
14	Soil Strength part 1	12.1 - 12.2
14	Soil Strength part 2	12.3 - 12.4
14	Soil Strength part 3	12.5 - 12.6
15	Soil Strength part 4	12.7 - 12.8
15	Soil Strength part 5	12.9
15	Soil Strength part 6	12.10
16	Soil Strength part 7	12.11
16	Optional Subject	

16	Optional Subject	
17	Review for final exam (TCE Evaluation)	
17	Review for final exam	
	Final Exam	

Classroom Behavior Policy:

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

Some learning styles are best served by using personal electronics, such as laptops and iPads. These devices can be distracting to other learners. Therefore, students who prefer to use electronic devices for note-taking during lecture should use one side of the classroom.

The use of personal electronics such as laptops, iPads, and other such mobile devices is distracting to the other students and the instructor. Their use can degrade the learning environment. Therefore, students are not permitted to use these devices during the class period.

Threatening Behavior Policy:

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Accessibility and Accommodations:

At the University of Arizona we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu/>) to establish reasonable accommodations.

Code of Academic Integrity:

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

Class Note Copyright:

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Providing student email addresses to a third party is not permitted. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA email to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of electronic resources provided by The University of Arizona. This conduct may also constitute copyright infringement.

UA Nondiscrimination and Anti-harassment Policy:

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>

Subject to Change Statement:

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.

THESE POLICIES WILL BE STRICTLY ENFORCED WITHOUT EXCEPTION.