

Advanced Soil Mechanics

CEG 6015, Class Number 11316, 27790, 27172, 27756

Class Periods: M, W, F - 4th Period (10:40 - 11:30)

Academic Term: Fall 2020

Instructor: M.C. McVay
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Office: Room 103, BLDG 226, 2320 Surge Area Drive
Telephone: (352) 273-1835
Office Hours: M, W, F – 3rd Period (9:40 - 10:30)

Course Description:

Nature and origin of soil. Stresses within a soil body. Stress-strain behavior and shear strength of dry, saturated no flow, saturated transient flow soils, slopes, wall forces and foundation settlements

Course Pre-Requisites:

Undergraduate Geotechnical Engineering including soil classification, soil strength assessment, consolidation, slope stability, retaining walls and seepage.

Required Textbooks and Software:

Title: *Soil Mechanics*
Author: T. William Lambe & Robert Whitman
ISBN: 471-51192-7

Tentative Course Outline

					Text page
M	Au	31	1	Introduction, chp 1 – soil problems	3-16
W	Sep	2	2	Chp 2 – Soil Behavior	18-24
F		4	3	Chp 3 – Assemblage of Particles	29-39
M	Sep	7		----- Labor Day ---- No Class	
W		9	4	Chp 4 – Individual Soil Particles	40-51
F	Sept	11	5	Chp 5 – Normal Stress between Particles	52-60
M	Sept	14	6	Chp 6 - Shear Resistance between Particles	61-69
W		16	7	Chp 7 - Soil Formation	71-92
F		18	8	Chp 8 - Stresses with Soil Mass	97-115
M	Sept	21	9	Chp 9 – Stress-Strain Properties	116-121
W		23	10	Chp 10 – Stress-Strain Behavior	122-136
F		25	11	Chp 11 – Shear Strength of Cohesionless Soil	137-150
M	Sept	28	12	Chp 12 – Stress-Strain Relationships	151-161
W		30	13	----- Exam 1 -----	
F	Oct	2		----- Homecoming -----	
M	Oct	5	14	Chp 13 – Earth Retaining Structures and Slopes	162-194
W		7	15	Chp 13 – Earth Retaining Structures and Slopes	162-194
F		9	16	Chp 14 – Shallow Foundations	195-226
M	Oct	12	17	Chp 14 – Shallow Foundations	195-226
W		14	18	Bearing Capacity	Handout
F		16	19	Chp 16 – The Effective Stress Concept	241-250
M	Oct	19	20	Chp 17 – One Dimensional Fluid Flow	251-265
W		21	20	Chp 17 – One Dimensional Fluid Flow	251-265
F		23	21	Chp 18 Two Dimensional Fluid Flow	266-280
M	Oct	26	22	Chp 18 Two Dimensional Fluid Flow	266-280
W		28	23	Chp 19 – Soil Permeability and Filter Requirements	281-294
F		30	24	Chp 20 - Drained Stress-Strain Behavior	295-303

Tentative Course Outline

					Text page
M	Nov	2		-----Exam 2 -----	
W		4	25	Chp 21 – Drained Shear Strength	304-316
F		6	26	Chp 22 – Stress-Strain Relations for Drained Cond.	318-326
M	Nov	9	27	Chp 23 – Earth Structures in Drained Conditions	328-350
W		11	28	---- Veterans Day ---- No Class	
F		13	29	Chp 24 – Earth Slopes with Drained Conditions	352-373
M	Nov	16	30	Chp 25 – Shallow Foundations with Drained Cond	374-387
W		18	31	Chp 26 – Pore Pressure during Undrained Loading	391-405
F		20	32	Chp 27 – Consolidation Theory	406-422
M	Nov	23	33	Chp 28 – Drained and Undrained Stress-Strain	423-438
W		25		----Thanksgiving ---- No Class	
F		27		----Thanksgiving ---- No Class	
M	Nov	30	34	Chp 29 – Undrained Shear Strength	439-454
W	Dec	2	35	Chp 29 – Undrained Shear Strength	439-454
F		4	36	Chp 30 – Stress-Strain for Undrained Conditions	455-463
M	Dec	7	37	Chp 31 – Earth Structures in Undrained Conditions	464-483
W		9	38	Chp 31 – Earth Structures in Undrained Conditions	464-483

Exam # 3: Friday Dec. 18, 7:30 to 9:30 am

Online Course Recording

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Attendance Policy, Class Expectations, and Make-Up Policy

Online Attendance is highly recommended, but not required. Office Hours will be online for

everyone, or by appointment (email to setup). Homework is due when assigned; 25% loss with each successive class unless agreed on by the instructor. Missed exams must be by consent of the instructor or a doctor. Excused absences must be in compliance with university policies in the Graduate Catalog and require appropriate documentation.

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>

Evaluation of Grades:

Assignment	Total Points	Percentage of Final Grade
Homework sets (6)	10 points each	25%
3 Exams	100 points each	75%

Exams are by section and not cumulative

Grading Policy

The following is given as an example only.

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 - 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 79.9	C+	2.33
72.0 - 74.9	C	2.00
69.0 - 71.9	C-	1.67
66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, rbielling@eng.ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [Office of Title IX Compliance](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.