

CIVE 381 Soil Mechanics

Winter 2015

Instructor:

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Department of Civil and Environmental Engineering
NREF 3-143
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Office Hours: M 11-12, F 11-12, or by appointment

Course Dates:

Lectures: Jan. 5 – Apr. 10 Monday, Wednesday, Friday 10:00 – 10:50 am ETLC E1-003
Tutorials: Jan. 12 – Apr. 10
Monday, Tuesday, Wednesday, Thursday 2:00 – 4:50 pm Location: NREF 2-090
Lab: Jan. 26 – Mar. 27
Monday, Tuesday, Wednesday, Thursday 2:00 – 4:50 pm Location: NREF L2- 030

Exams:

Midterm: Wednesday, February 25 5:00-7:00 pm Location: TBA

A missed midterm examination will result in a grade of 0.0 unless a formal medical excuse is provided.

If a formal medical excuse is provided, the midterm weight will be added to the final exam weight.

The **final examination** will follow the University of Alberta timetable for final exams. Students must check the posted examination timetable in the weeks prior to the final examination period to determine the location and to confirm the date and time.

Confirm final exam time and location with BEARTRACKS!!!!

Grading

The grading will be done according to the regulations of the University of Alberta

(<http://www.registraroffice.ualberta.ca/Assessment-and-Grading.aspx>).

Assignments:	15%
Lab Reports:	10%
Midterm:	25%
Final:	50%

Required Texts

1. Lecture Notes (Hardcopies in UofA Bookstore, softcopy in eClass)
2. Fundamentals of Geotechnical Engineering, 4th Edition, Das, B.M., 2013 (UofA Bookstore)

Additional References:

1. Introduction to Geotechnical Engineering, 2nd Edition, Holtz, R.D., Kovacs, W.D., Sheahan, T.C., 2011.
2. Craig's Soil Mechanics, Knappett, J.A., Craig, R.F., Spon Press, 2012.
3. Soil Mechanics and Foundations, Budhu, M., John Wiley & Sons, 2007.

Assignments and tutorials

Assignments include textbook questions and additional questions. All assignments will be posted in the CIVE 381 eClass site. The tutorials will give you the opportunity to solve the assignments with the help of your TA. *Your assignments must be deposited in the drop boxes prior to 2:00 pm on the due date. Due date is one week after the corresponding tutorial of your session. Late assignments will not be marked, unless permission to submit it late is obtained in advance.*

Laboratory Report and Marking Guidelines

The file *Laboratory Report and Marking Guidelines* contains the handout describing what is required to properly present laboratory reports and how the lab reports will be marked.

Laboratory reports are due one week after the experiment of your session. Submit reports prior to 2:00 pm on the due date to the drop boxes.

Assignment and Lab Report Drop Boxes

The boxes are located in the Natural Resources Engineering Facility opposite room NREF 2-127. Use the drop box marked for your session and CIVE 381.

Solutions

Assignment solutions will be posted to the CIVE 381 eClass website.

Course Info

The course has nine modules that interlink with each other:



According to University Regulations, you are informed that:

Policy about course outlines can be found in Section 23.4(2) of the University Calendar

The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at <http://www.governance.ualberta.ca/>) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University

Time Table:

Date	Lecture Topic	Sections in Book	Lab/Tutorial Topic
WEEK 1			
Mon, Jan. 5	Introduction	Chapter 1	No Tutorials or Labs
Wed, Jan. 7	Phase relationship	Chapter 2,3	
Fri, Jan. 9	Index properties	Chapter 2,3	
WEEK 2			
Mon, Jan. 12	Soil Classification	Chapter 4	Soil Properties (Tutorial #1)
Wed, Jan. 14	Compaction	Chapter 5	
Fri, Jan. 16	Compaction	Chapter 5	
WEEK 3			
Mon, Jan. 19	Compaction	Chapter 5	Compaction (Tutorial #2)
Wed, Jan. 21	Seepage (1D flow)	Chapter 6,7	
Fri, Jan. 23	Seepage (1D flow)	Chapter 6,7	
WEEK 4			
Mon, Jan. 26	Seepage (1D flow)	Chapter 6,7	Compaction (Lab #1)
Wed, Jan. 28	Seepage (2D flow)	Chapter 6,7	
Fri, Jan. 30	Seepage (2D flow)	Chapter 6,7	
WEEK 5			
Mon, Feb. 2	Effective Stress	Chapter 8	Seepage (Tutorial #3)
Wed, Feb. 4	Effective Stress	Chapter 8	
Fri, Feb. 6	Effective Stress	Chapter 8	
WEEK 6			
Mon, Feb. 9	Stress Distribution	Chapter 8	Effective Stress (Tutorial #4)
Wed, Feb. 11	Stress Distribution	Chapter 8	
Fri, Feb. 13	Settlement	Chapter 9	
WEEK 7			
Reading week			
WEEK 8			
Mon, Feb. 23	Review	Chapter 9	No tutorials or labs
Wed, Feb. 25	Settlement	Chapter 9	
Fri, Feb. 27	Settlement	Chapter 9	
MIDTERM EXAM	Wed., Feb. 25	5:00-7:00 PM	Location: TBA
WEEK 9			
Mon, Mar. 2	Consolidation	Chapter 9	Permeability

Wed, Mar. 4	Consolidation	Chapter 9	(Lab #2)
Fri, Mar. 6	Consolidation	Chapter 9	
WEEK 10			
Mon, Mar. 9	Consolidation	Chapter 9	Consolidation (Tutorial #5)
Wed, Mar. 11	Consolidation	Chapter 9	
Fri, Mar. 13	Consolidation	Chapter 9	
WEEK 11			
Mon, Mar. 16	Shear Strength	Chapter 10	Consolidation (Lab #3)
Wed, Mar. 18	Shear Strength	Chapter 10	
Fri, Mar. 20	Shear Strength	Chapter 10	
WEEK 12			
Mon, Mar. 23	Shear Strength	Chapter 10	Direct Shear (Lab #4)
Wed, Mar. 25	Shear Strength	Chapter 10	
Fri, Mar. 27	Shear Strength	Chapter 10	
WEEK 13			
Mon, Mar. 30	Shear Strength	Chapter 10	Shear Strength (Tutorial #6)
Wed, Apr. 1	Earth Pressure	Chapter 14	
Fri, Apr. 3	Good Friday		
WEEK 14			
Mon, April. 6	Easter Monday		Earth pressure (Tutorial #7)
Wed, Apr. 8	Wall Design	Chapter 15	
Fri, Apr. 10	Review		

Confirm final exam time and location with BEARTRACKS!!!!

Lab report and assignment due

Please submit lab reports and assignments prior to 2:00 pm on the due date to your designated drop box.

Lab Reports

- #1: Compaction - DUE WEEK of February 2
- #2: Permeability - DUE WEEK of March 9
- #3: Consolidation - DUE WEEK of March 23
- #4: Direct Shear - DUE WEEK of March 30

Assignments

- #1: Soil Properties – DUE WEEK of January 19
Book questions 3.3, 3.11, and Handout 1
- #2: Compaction–DUE WEEK of January 26
Book questions 5.1, 5.4, 5.6, and 5.9
- #3: Permeability–DUE WEEK of Feb 2
Book questions 6.1, 6.5, and 6.6
- #4: Seepage –DUE WEEK of Feb 9
Book questions 6.12, 6.13, and Handout 2
- #5: Effective Stress – All groups: DUE Monday, February 23
Book questions 8.1, 8.9, 8.12, 8.17, and Handout 3
- #6: Settlement – DUE WEEK of March 2
Book questions 9.2 and Handout 4
- #7: Consolidation – DUE WEEK of March 16
Book questions 9.12, 9.15, and Handout 5
- #8: Shear Strength –DUE WEEK of April 6
Book questions 10.2, 10.4, 10.15, 10.18, and Handout 6
- #9: Earth Pressure – Write-up is not required.
Book questions 14.1b, 14.2b, 14.3a, 14.5b, 14.9c, 15.4, 15.5, and Handout 7