COURSE NOTES

Instructor in Charge Prof. Ronaldo I. Borja (borja@stanford.edu)
Y2E2 Building, Room 277C
Tel. 723-3664
Office Hours: MW 1:30-2:30 pm

Course Assistants Lupe Gomez (ggg@stanford.edu)
Ana Moura-Cook (anamc@stanford.edu)
Office Hours: To be announced
Y2E2-B21 (Geotech Lab)

Textbook *Geotechnical Engineering Principles and Practices 2nd Edition*
by D.P. Coduto, M.R. Yeung, W.A. Kitch
Pearson, 2010

Website https://web.stanford.edu/~borja/

Notes:

1. The course outline distributed in class is tentative and subject to change on short notice.
2. Undergraduate students majoring in CE are required to register for 4 units. Graduate students may take the class for 3 units.
3. There will be one lab assignment due each week. Lab assignments are due at the beginning of the next lab session. Homework problem sets will be assigned approximately on a weekly basis, and will typically be due one week later. Lab assignments are mandatory – all must be completed to receive a grade for this course. Penalties will be assessed for late work.
4. There will be a one-hour midterm examination (**Wednesday, October 30**) and a three-hour comprehensive final examination (**Monday, December 9**).
5. Weighting for the final grade is

Final Exam	40%
Midterm Exam	20%
Problem Sets	15%
Lab Component	25%
Total	100%

COURSE OUTLINE

Subject	Reading Assignment
Overview of geotechnical engineering	**September 23**
Formation of soils, phase relationships (2*)	Chapters 2 & 4
Soil classification (2)	Chapters 4 & 5
Compaction of soils (2)	Chapter 5
Water in soil, capillarity (1)	Chapter 7
Seepage and flow nets (3)	Chapter 8, Class Handouts
Soil stresses, concept of effective stress (1)	Chapter 9, Section 9.8
Soil compressibility, consolidation (3)	Chapters 10 & 11
Mid-Term Examination 	**October 30** 
Stress at a point; Mohr's circle; pole method (2)	Chapter 9, Sections 9.1-9.5
Shear strength and shear behavior of soil; Mohr-Coulomb failure criteria (2)	Chapter 12
Lateral pressures and retaining structures (3)	Chapter 16 & 17
Design of shallow foundations; bearing capacity; settlement (3)	Chapter 14 & 15
Slope stability analysis (2)	Chapter 13, Sections 13.7
Final Examination 	**December 9, 3:30-6:30 PM** 

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* Number of class meetings that the topics will be covered.

LAB SCHEDULE

1.	Wizard Lab	9/30-10/4
2.	Soil Classification, Cohesionless Soil; Visual Identification	10/7-10/11
3.	Soil Classification, Cohesive Soil	10/14-10/18
4.	Compaction	10/21-10/25
5.	No Lab	10/28-11/1
6.	Permeability Test	11/4-11/8
7.	Shear Strength, Direct Shear Test	11/11-11/15
8.	Wizard Lab Revisited	by arrangement