

Course Objectives for Geotechnical Engineering Survey

UNC Charlotte Student 800 Number: _____ **Date:** _____

Gender: _____ **Age:** _____ **Ethnicity:** _____

Current Level (circle one): Freshman Sophomore Junior Senior

Notes: Please rate your degree of confidence by choosing a number from 1 to 5 where

1	2	3	4	5
Cannot do at all	More confident than "1"	In the middle	Less confident than "5"	Certainly can do

Course Objectives					
1. Describe the significance and applications associated with geotechnical engineering.	1	2	3	4	5
2. Describe basic sampling and subsurface exploration techniques.	1	2	3	4	5
3. Develop a soil profile from a set of boring logs.	1	2	3	4	5
4. Solve phase diagram problems while manipulating weight-volume relationships.	1	2	3	4	5
5. Describe the soil structure and index properties of fine and coarse grained materials.	1	2	3	4	5
6. Develop and evaluate a particle size distribution curve.	1	2	3	4	5
7. Gain basic knowledge of clay minerals.	1	2	3	4	5
8. Properly classify soils using the USCS and AASHTO procedures.	1	2	3	4	5
9. Evaluate a compaction curve and determine the range of field conditions that are acceptable.	1	2	3	4	5
10. Analyze both one dimensional and two dimensional flow systems.	1	2	3	4	5
11. Calculate pore pressure, total stress, and effective stress in soil.	1	2	3	4	5
12. Calculate the vertical stress distribution as a result of overburden stresses and surface loads.	1	2	3	4	5
13. Use Mohr's circle to analyze soil stress.	1	2	3	4	5
14. Describe the fundamentals of consolidation.	1	2	3	4	5
15. Calculate consolidation settlement.	1	2	3	4	5
16. Analyze the time rate of consolidation.	1	2	3	4	5
17. Evaluate data from direct shear, triaxial, and unconfined compression tests.	1	2	3	4	5
18. Calculate the shear strength of soil (Effective Stress and Total Stress Analysis).	1	2	3	4	5
19. Analyze a single failure surface by hand for simple slope stability problems.	1	2	3	4	5
20. Analyze lateral earth pressures for simple earth retaining structures.	1	2	3	4	5
21. Calculate the ultimate and allowable bearing capacity of foundation soils.	1	2	3	4	5