**The University of Texas at Arlington**

**Civil Engineering**

**CE 3143-001** **Soil Mechanics Laboratory** Fall 2011

**Instructor:**  Dr. Anand Puppala

**Teaching Assistant:** Aravind Pedarla, Graduate Student

**Text Book Required:** Braja M. Das “Soil Mechanics Laboratory Manual”

**http://geotech.uta.edu/lab/Main/index.htm**

**Other References:** Bardet, J.P. “Experimental Soil Mechanics” Prentice Hall

**Office:** NH 440 Nedderman Hall (Tel # 817-272-5821; email: anand@uta.edu)

**Class hours:** Mon 1:00 PM to 3:50 PM (B20, Nedderman Hall)

**Office Hours:** Tue & Thu 9:00 AM to 11:00 AM and Thu 1:00 PM to 4:00 PM (or by appointment)

**Learning Objective:** To provide the student with an understanding of various geotechnical testing methods and their applications

**Learning Outcomes:** In addition, this course will focus on the following student abilities and educational outcomes:

* To design and conduct experiments
* To analyze and interpret data
* To communicate effectively
* To understand professional and ethical responsibility
* An ability to use the techniques, skills and modern engineering tools necessary for engineering practice

**Grading:** The grade will be based on four test reports (prepared individually by each student) on tests [50%], one midterm examination [25%], and a final examination [25%]

90 -100% - A

80 - 89% - B

70 - 79% - C

60 - 69% - D

Below 60% - F

**Disabilities:**

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels.  Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability.   Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

**Policies:**

1. Class attendance and punctuality are expected. Anyone missing laboratory class for whatever reason is responsible for any class notes and announcements given in that class. If a student misses three laboratory classes, he/she will be given ‘F’ grade in this class.
2. Students are expected to review the test procedures prior to each laboratory class. Step by step procedures are available on the geotech website.
3. A make-up examination may be given only if a regular examination is missed for a justifiable reason. Submit a written request within one week after a scheduled examination is missed.
4. Academic dishonesty will be dealt with strict accordance within university regulations.
5. Cell phones and laptop computers should be turned off during the class.
6. **ALL STUDENTS MUST RECEIVE THE FOLLOWING SAFETY TRAINING CLASS.** They need to take the class before they start working in the laboratories.

**Mandatory Online Safety Training:**

1. Go to <http://www.uta.edu/training>.

2. Log on using your network log-on ID and password (what you use to access e-mail). If you do not know your NetID or need to reset your password, visit <https://webapps.uta.edu/oit/selfservice/> .

3. The available courses for completion will be listed under “Training I’m Enrolled In”. Complete the course entitled ‘Student Lab Safety Training – General.’

4. Go to ‘Training I’ve Completed’ and print the displayed page for your course instructor or TA. Verify that it shows clearly your name, and that ‘General, Wet, Dry or Biology’ training is completed/passed and the date when the training was completed. If you have just completed the training but it is not updated on the ‘Training I’ve Completed’ page, please log out of the system and log back in. If the training still does not show up on this page, call the Helpline at 817-272-5100.

6. Students who have not completed the training will not be given access to the lab facilities, will not be allowed to participate in any lab activities, and will earn no grade in the course.

7. Lab Safety Training is required to be completed once every academic year. Training completed in the Fall semester is valid for the Fall, Spring and Summer sessions. It is your responsibility to print your training certification page and turn it in each semester to your course instructor or TA for each course with a lab you are enrolled in.

*For training specific questions, contact the Environmental Health and Safety office at 817‐272‐2185.*

*For technical assistance with the training, please contact the Office of Institutional Compliance at 817‐*

*272‐5100 or email* *compliance@uta.edu*

**Academic Integrity:**

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents’ Rules and Regulations, Series 50101, Section 2.2)

**E-Culture Policy:**

The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at [www.uta.edu/email](http://www.uta.edu/email). New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.

**Format for Report**

1. Aim or Objective of the test(s)
2. Applications of the test(s)
3. Apparatus used in each test
4. Test procedure – step by step
5. Analysis of test results – show all calculations, tables and graphs (if any)
6. Summary and conclusions – your comments

**Class Schedule**

The following experiments (tentative) will be attempted to cover during the course of the semester (not necessarily in the same order). In the case of change in order, students will be informed at least a week earlier.

1. ***Physical and Plasticity Characteristics***
2. Determination of moisture content of a soil sample

2. Determination of specific gravity of a soil sample

1. Grain size analysis (sieve analysis) & description of soil type
2. Grain size analysis (hydrometer analysis) & description of soil type
3. Atterberg limit tests: liquid & plastic limit - **Report 1**
4. Density & compaction tests
5. Standard proctor compaction test
6. Modified proctor compaction test
7. In situ density determination – sand cone test method
8. Seepage/permeability tests
9. Permeability test – constant head test and falling head test - **Report 2**
10. Shear Strength tests (GROUP PROJECT ON SOIL STABILIZATION)
11. Unconfined compression strength test - **Team Project Report 3**

***Shear strength tests (cont’d)***

1. Triaxial compression test on cohesive soil (unconsolidated, undrained)
2. Direct shear test on cohesion-less soil **– Report 4**
3. Consolidation test
4. One dimensional consolidation test (demo only)